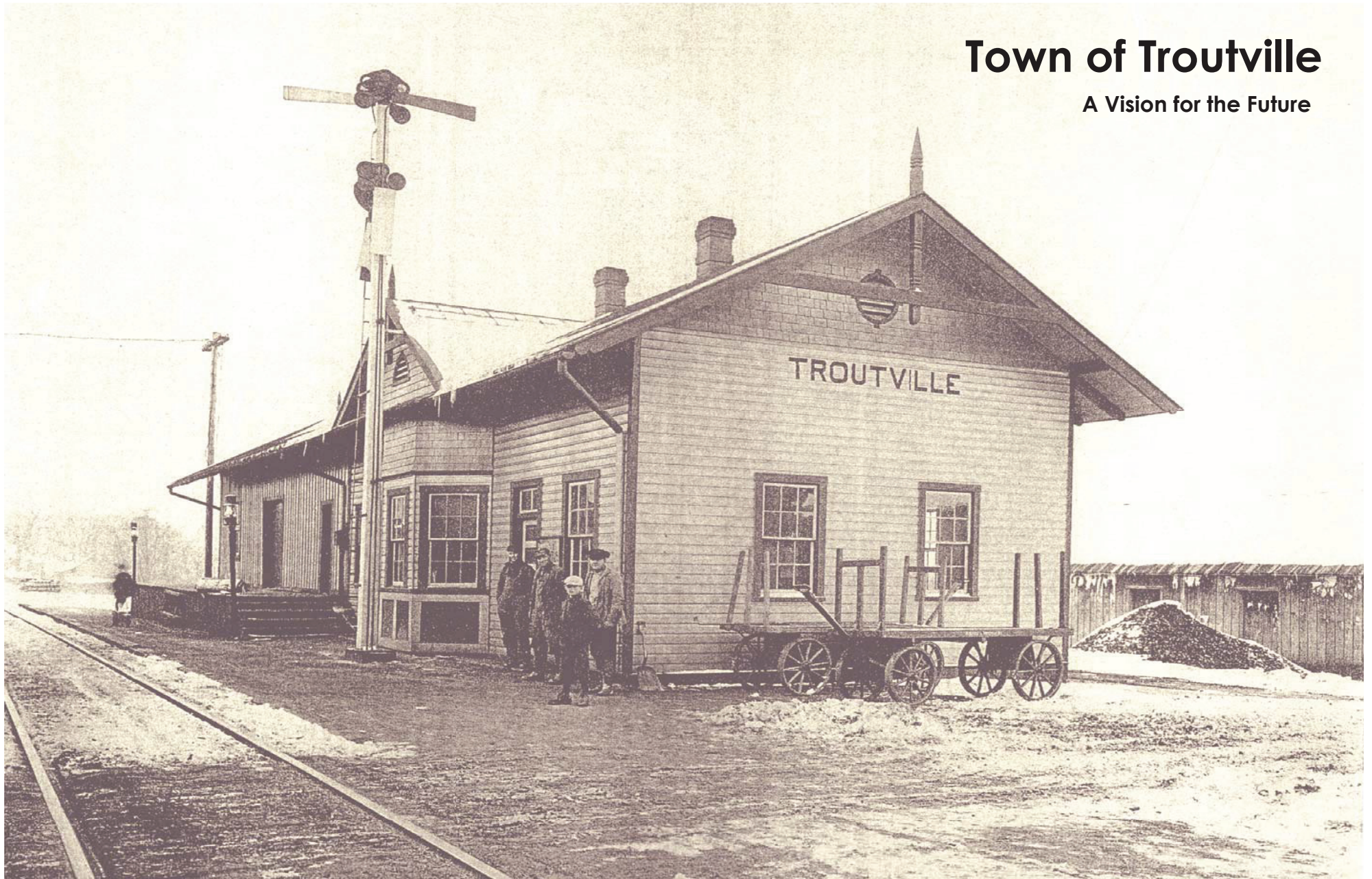


Town of Troutville

A Vision for the Future



PREFACE

The small town of Troutville is nestled in the midst of Botetourt County in Southwest Virginia. Troutville had a humble beginning with three permanent residents, the Trout brothers, for whom the town would be named. An early agricultural area, the town became an industrial shipping hub once a major railroad line reached the town and a station was built. The town further grew with the development of Route 11, the Lee Highway, in the early 20th century.

As time has progressed, the town of Troutville has suffered through economic, social and cultural decline. The construction of Interstate 81 diverted auto travel from the town. With daily truck traffic a growing concern, Route 11 is now a major artery that bisects the town and causes automobile domination, which has further exacerbated the impending negative issues for the town. This project is conducted with efforts to revitalize "small town USA", to discover the possibilities of the town and to develop something of "lasting value for the community".

Troutville Community:

A Design Charette Participants
The following citizens of Troutville participated in a community design charette on September 29 2010.

Peggy combs
Kevin Costello
Diana Dixon
Granville Grant
Len Miller
Lee Minnix
Sybille Nelson
Bill Rader
Dick Rauscher
Sally Rauscher
Ed Tam
Sandra Thomas
Helen Tippie
Harry Ulrich

Virginia Tech Students:

The following graduate students from the Landscape Architecture Program, School of Architecture + Design in The College of Architecture and Urban Studies prepared the plans in this outreach project.

Eun B. (Bee) Choi, Team Leader
Shan Jiang
Ronghua (Emma) Li
Kristina Moser
Leslie Palacios
Neha Rajora
Kexin (Coco) Wu
Dan (Dan Dan) Yang
Peng Zhou

Virginia Tech Faculty:

Brian Katen, ASLA
Patrick Miller, Ph.D., FASLA, FCELA

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7.3.0 Park entrance

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- 7.3.2 Phytoremediation plots

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- 7.8.2 Walking and Bike trails

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- 7.9.1 Woodpecker Nature Center

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1.1.0 INTRODUCTION

INTRODUCTION

The Town of Troutville was established in 1956 and is located in Botetourt County, Virginia. In 1881, this area had no name until the railroad came through and a station was built bringing with it the boom days of the town. The automobile changed Troutville forever. The Town of Troutville grew along Route 11, but when Interstate 81 was constructed parallel to Route 11 in the 1960s, it took most of the through traffic. Route 11 now carries mostly local traffic and provides an alternative to the busy Interstate Highway. Today the town is largely residential, with several service uses located primarily along Route 11.

The Appalachian trail crosses Route 11 west of the town center, but currently there is no physical link between the trail and the town.



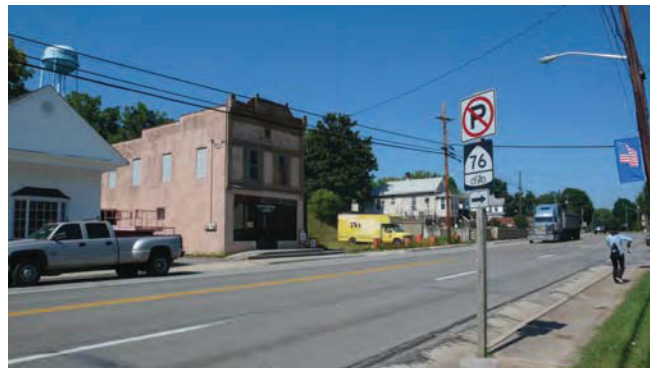
In past years, the Town of Troutville flourished. However, in recent decades the Town has decreased in population. The heavy traffic on Route 11 passes through the center of the town. This causes unpleasant noise on street and is not pedestrian friendly. With further development of the Appalachian Trail, the cultural resources of the Town and a more pedestrian friendly streetscape, the town could become a lively town with a strong sense of place.



Route 11



Town Park



Route 11



Park Entrance



Route 11



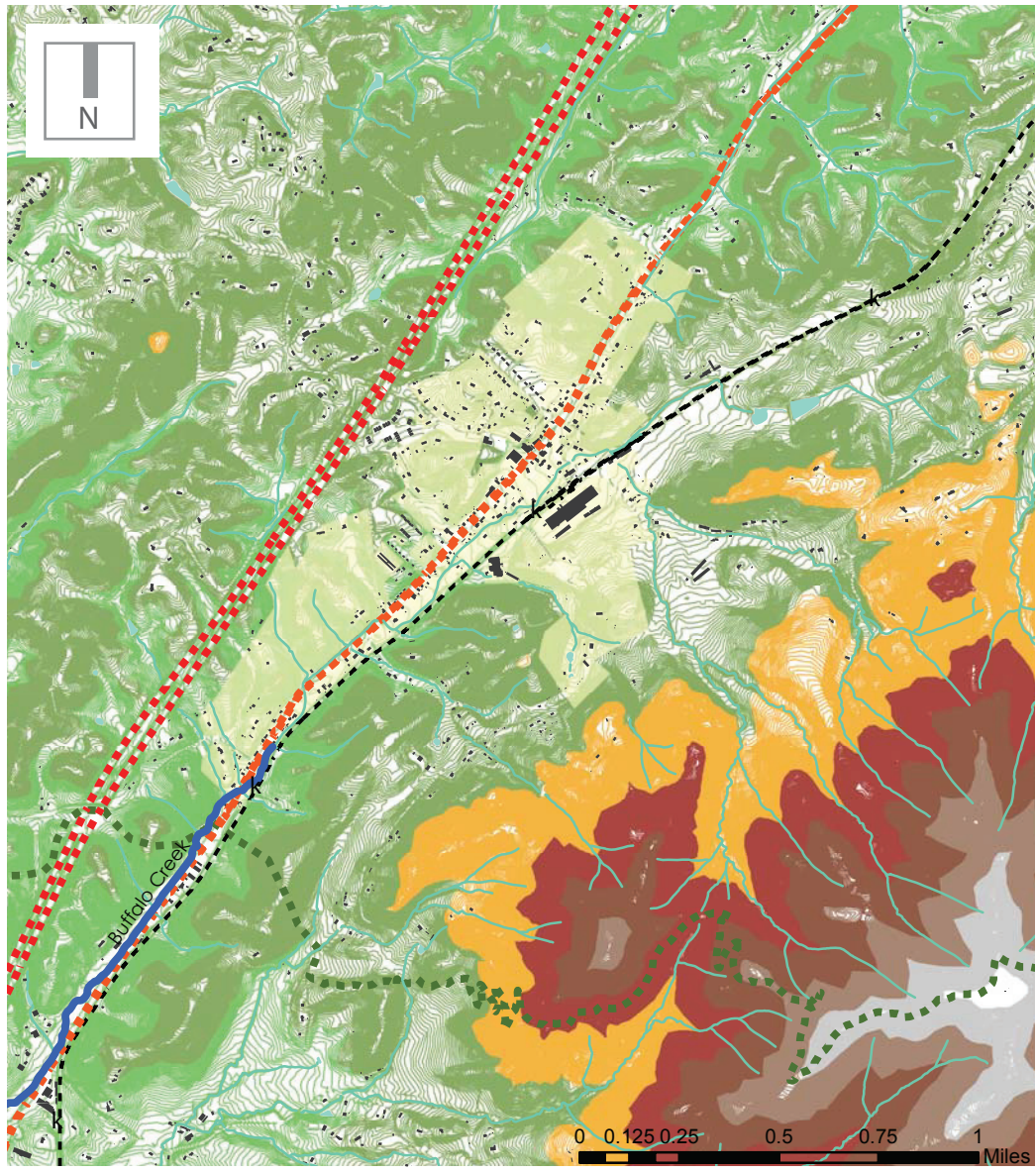
Railroad and surroundings

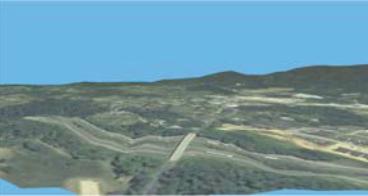
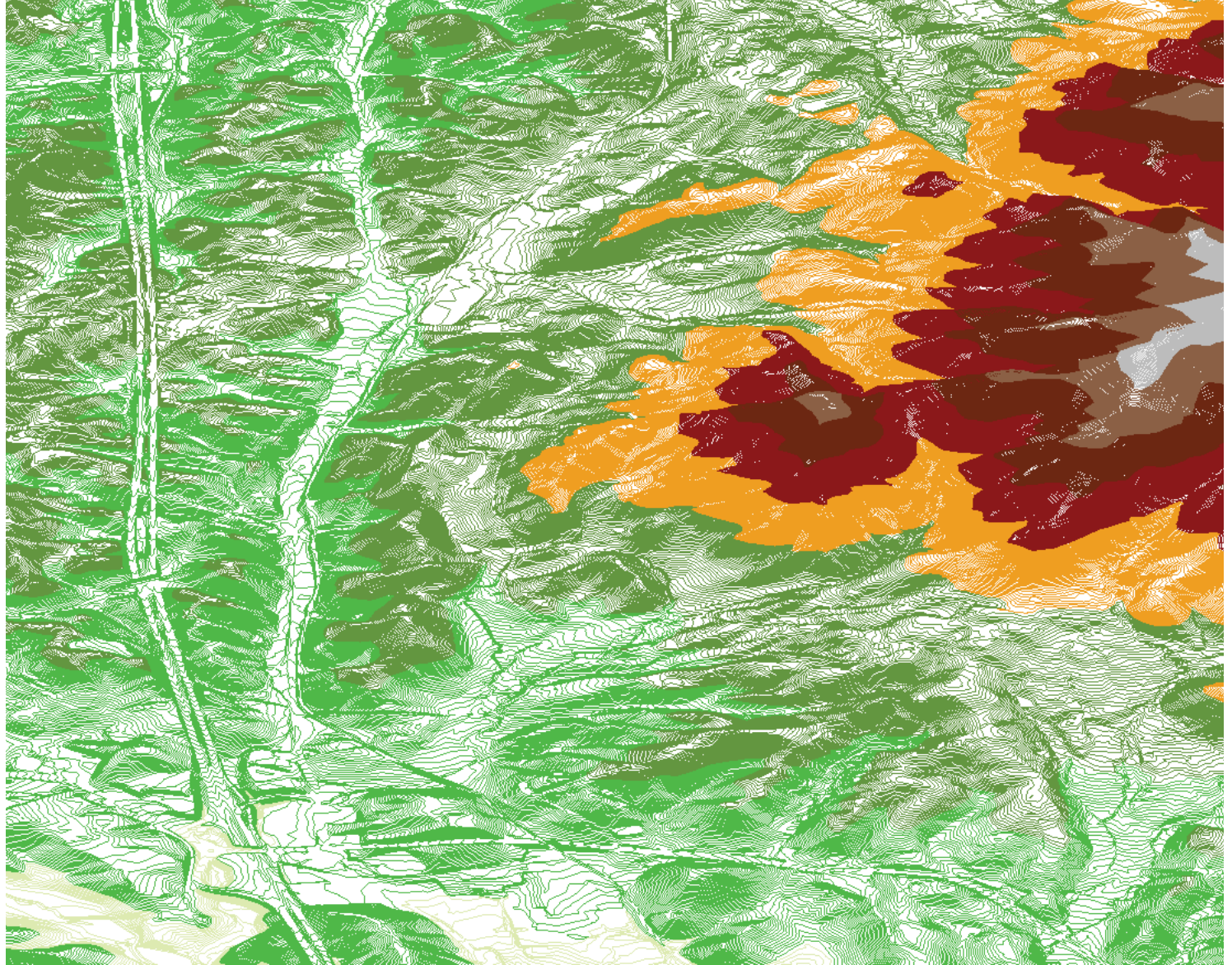
2.1.1 SITE ANALYSIS: natural systems

TOPOGRAPHY

The topography was studied to understand the landform and determine the implications for development in the future. The topography also provides opportunities for views and other locational relationships. Troutville's elevation is 1391 feet; With surrounding hills at more than 1400 feet elevation. The topography directs people to travel through the town. The elevation isolates the town, but the mountainous setting also provides design opportunities. The town generally has slopes of less than 10%.

- legend
- Buffalo Creek
- Streams
- Route 81
- Route 11
- Railroad
- Appl Trail
- Water
- Buildings
- contour elevation
- 1000 and less
- 1001-1200
- 1201-1400
- 1401-1600
- 1601-1800
- 1801-2000
- 2001-2200
- 2201-2400
- 2401 and greater



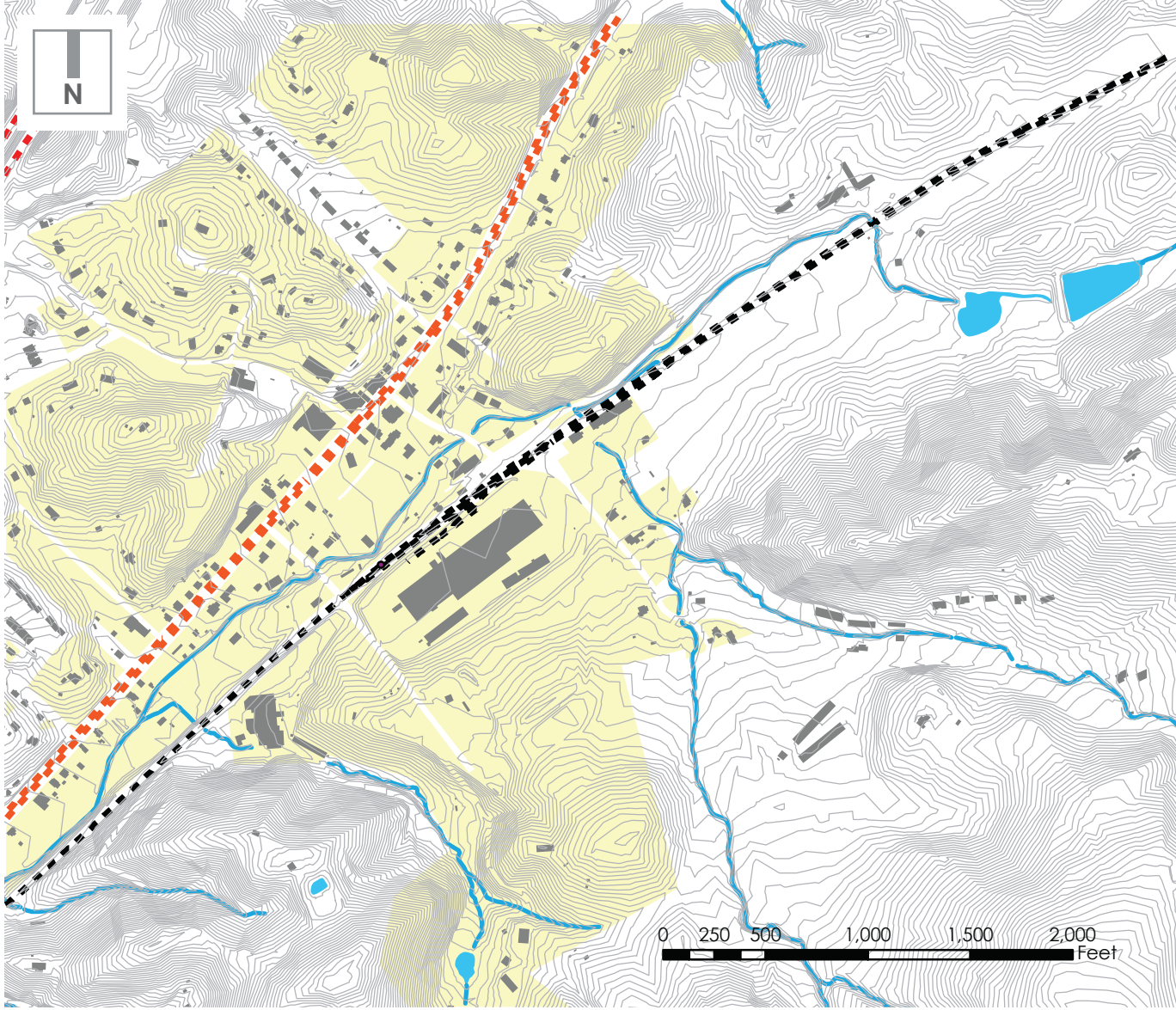


2.1.2 SITE ANALYSIS: natural systems

HYDROLOGY

Troutville has some natural water features such as Buffalo Creek, which is dry most of the time. In the past flooding in the town occurred during heavy rains. Recent stormwater mitigation work has helped to eliminate the most severe flooding.

- legend**
- Buffalo Creek
 - Streams
 - - - Route 11
 - - - Railroad
 - - - Appl Trail
 - Water
 - Buildings



2.1.3 SITE ANALYSIS: natural systems

SOIL DATA

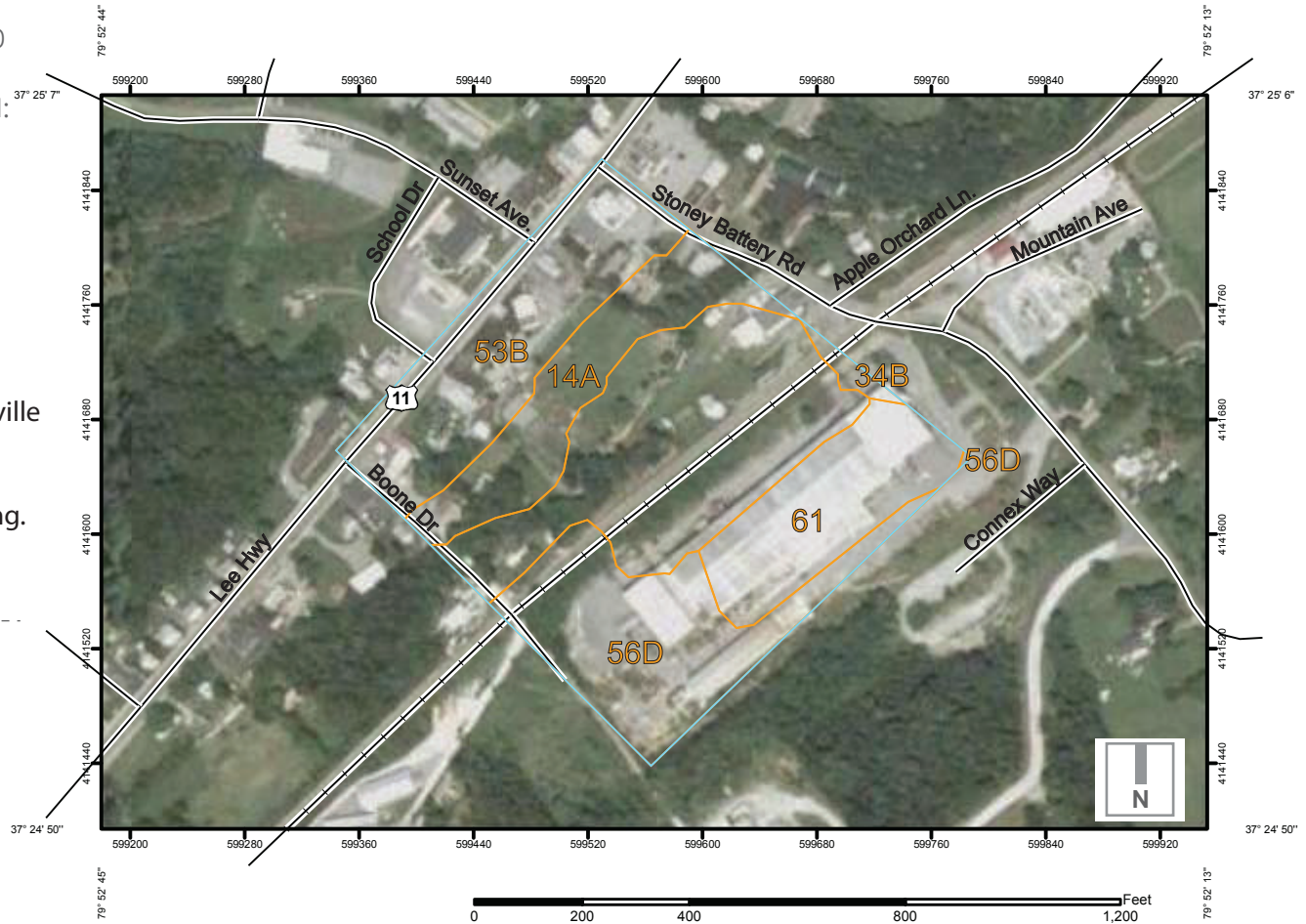
Soil Survey Area:
Botetourt County, Virginia

Survey Area Data: Version 9, Aug 19, 2010

Date(s) aerial images were photographed:
9/16/2003; 8/26/2003

Soil properties influence the development of building sites including: the selection of the site, the design of structures, construction, performance after construction and maintenance. The main point to understand from the soil survey is that the majority of the town of Troutville is comprised of Timberville Silt Loam, generally mild sloped (0 to 7 percent) and occasionally floods, but is relatively well drained and suitable for building.

symbol	name
14A:	Derroc cobbly loam, 0 - 4 % slopes, occasionally flooded
32A:	Irongate loam, 0 - 3 % slopes occasionally flooded
32B:	Laidig cobbly fine sandy loam, 2 - 7 % slopes
53B:	Timberville silt loam, 0 - 7 % slopes, occasionally flooded
56C:	Tumbling cobbly loam, 7 - 15 % slopes
56D:	Tumbling cobbly loam, 15 - 30 % slopes
61:	Udorthents-Urban land complex



2.1.4 SITE ANALYSIS: natural systems

FLORA & FAUNA

Ridge & Valley Province

In Virginia, the forest is generally characterized by four layers, each rich in plant and animal species. The canopy, dominated by mast-producing oaks and hickories, is 60 to 100 feet above the forest floor. Below it lies an understory of smaller trees such as dogwood and redbud; a shrub layer frequently dominated by heaths such as rhododendron, azalea, and mountain laurel; and an herb layer of diverse perennial forbs, mosses, lichens, and club mosses. Woody vines are conspicuous in moister habitats; most common are wild grape, Virginia creeper, and poison ivy.

- Flora list**
1. Pines: Pinus sp.
 2. Oaks: Quercus sp.
 3. Maples: Acer sp.
 4. Poplars: Liliodendron sp.
 5. Rhododendron sp.

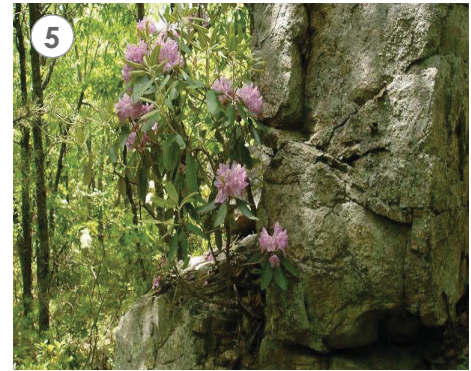
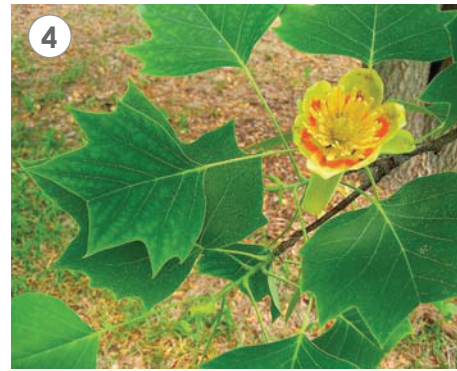
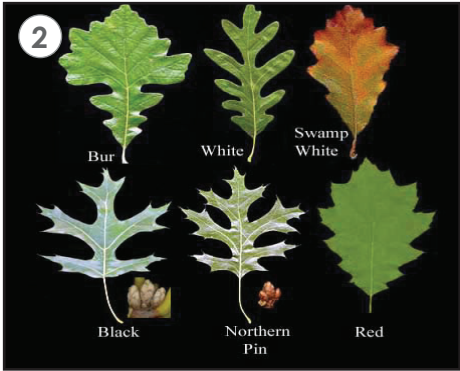


- Fauna list**
6. Wood Thrush
 7. Raptor
 8. Woodpecker
 9. Waterfowl
 10. Dove



11. Deer
12. Wild turkey
13. Quail
14. Bear
15. Rabbit
16. Squirrel



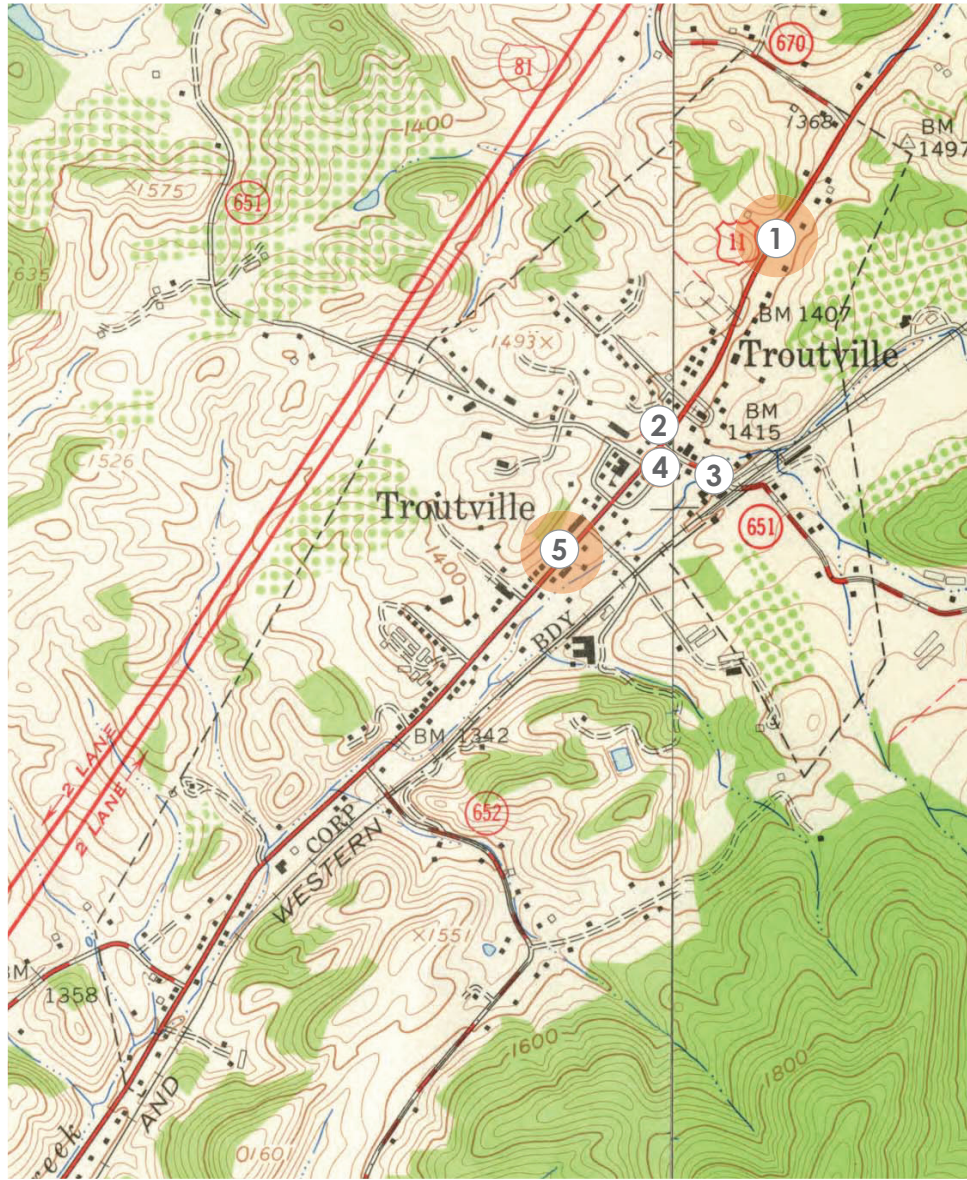


2.2.1 SITE ANALYSIS: cultural heritage

HISTORY

Excerpt From the Fincastle Herald 1879

"This section of Botetourt, while almost as well adapted to the growth of cereals, grapes, vegetables... is largely given to cultivations of fruits. Large apple and peach orchards abound, ... while yearly more trees are being set out, more orchards planted. A ready market is found for much of this fruit in native condition but a large portion of it is consumed by the canning factories... packing not only fruit but berries and vegetables. The number is being added to yearly proving the profitability of investment in this line here.... The Shenandoah R.R. (railroad) runs through our village and affords all needed transportation facilities. While fruit raised and canning are the principle industry, vegetables afford fair crops... and there is a great demand for sweet corn, peas and beans, okra and tomatoes for canning. Being at considerable elevation, with rolling lands, we have... pure uncontaminated air... (and our) climate is mild. Our people are sober, industrious, contented and frugal. Our lands, while productive, can be purchased at moderate rates..."



TODAY

The construction of Interstate 81 changed Troutville forever. With the area becoming a service center for those traveling the interstate. Roadside assistance services including tow companies and repair shops have prospered.

Today, Troutville has become a bit more of a bedroom community with houses, ranging from the historic to newly built, rather than a shipping and cannery center.

Today the community is tight knit and enjoys the town municipal park and heartily supports the local volunteer rescue and fire squads.



2.2.2 SITE ANALYSIS: cultural heritage

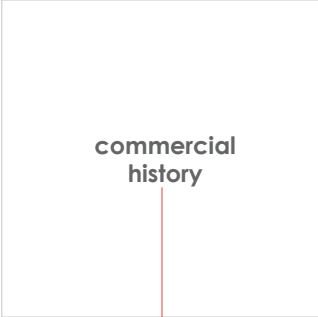
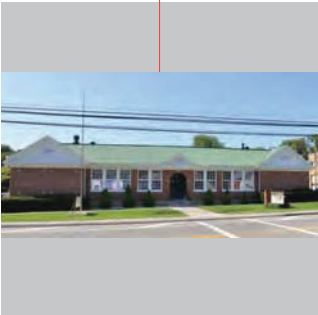
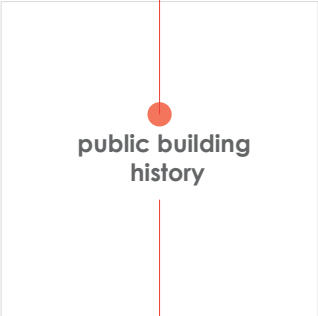
CHANGING FACES

The Town Hall, 2 high schools, several blocks of Route 11 store fronts and business, and the Masonic Lodge burned down in 1938 and were rebuilt or the lots left vacant. The Grocer and several homes have been improved and remodeled, and remain a permanent fixture in the landscape. The old school is used for auctions and is currently for sale. A feed and grain store has seen time as winery storage and now a popular dinner restaurant. Old gas stations have found new purpose as residential buildings, repair centers and light industry. The funeral home is now a place of worship. The town's rich cultural history lies just below the surface of Troutville.

sacred history

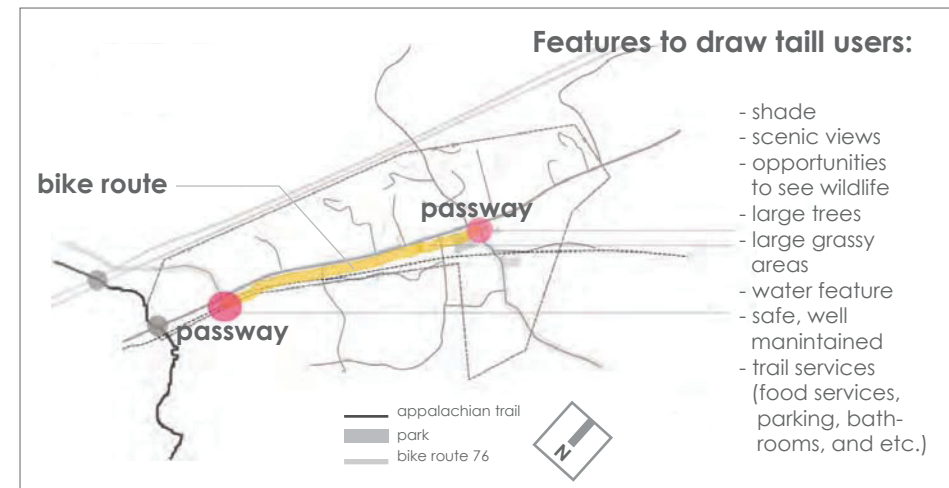
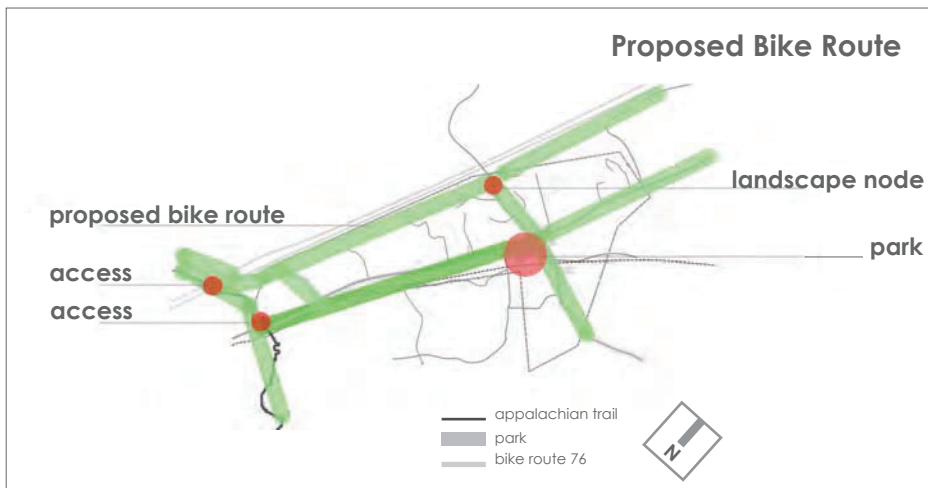
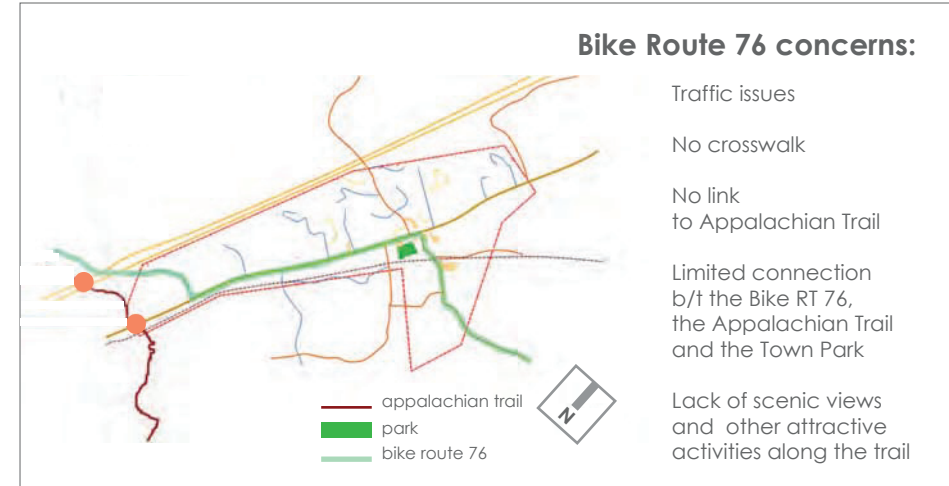
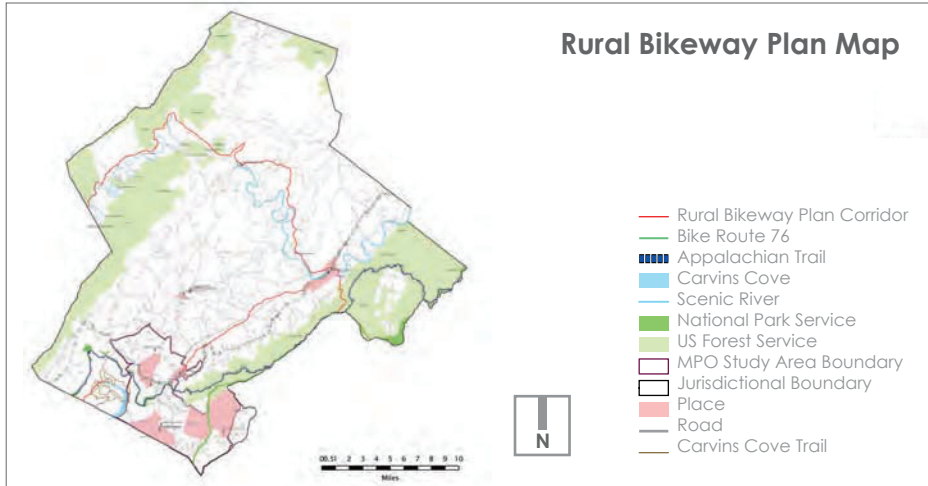
Troutville looks very different from the 50's. The major churches in the area have grown and evolved to large houses of worship, fellowship and education

residential history



2.2.3 SITE ANALYSIS: cultural heritage

ROAD & TRAIL



2.2.4 SITE ANALYSIS: cultural heritage

ROUTE 11

Route 11 has been an important factor in the development of Troutville and remains an important component of the town's identity

Route 11 developed from what was once known as the "Great Warrior Trail" or the "Indian Road," an early Native American trail. Beginning in the 1730s, Scots-Irish and German immigrants used the trail to move south through the valley and establish settlements transforming the "Indian Road" into the "Great Wagon Road". During the Civil War era the road became The "Valley Pike", an early public-private venture and the main north/south route in the Shenandoah Valley. By 1900, the Pike had been taken over by the state and efforts to include the route as part of a Canada - to - the Gulf of Mexico highway were well underway. The old Pike, later designated Route 11 and integrated into the Lee Highway, remained the major north-south highway in the Valley until Interstate 81 was built in the 1960s.

Troutville's connection to this historically significant thoroughfare is something that can distinguish Troutville from other small towns in America.

1720s - 1730s



In the late 1720s and 1730s, Quakers and Mennonites began to move in from Pennsylvania.

1751 - 1755



This is the first correct depiction of the Blue Ridge and Allegheny Mountain, complete with 'The Great Road' from the Yadkin River through Virginia to Philadelphia, an accurate survey of what would come to be called the Great Wagon Road.

1830s



1860s



The Valley Pike was a key transportation link during the American Civil War, and was used by Confederate General Stonewall Jackson to move his foot cavalry up and down the Valley and to and from the various mountain gaps.



Canada-to-Gulf of Mexico Route

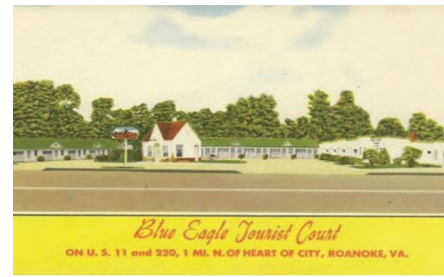
New Orleans, Louisiana; Birmingham, Alabama; Chattanooga and Knoxville, Tennessee; Roanoke, Virginia; Harrisburg and Scranton, Pennsylvania; and Syracuse, New York.
 Bristol, Abingdon, Wytheville, Radford, Christiansburg, Salem, Roanoke, Troutville, Buchanan, Lexington, Staunton, Harrisonburg and Winchester.



In 1918, The Valley Turnpike Company allowed the Valley Turnpike to be one of the first roads taken over by the state.



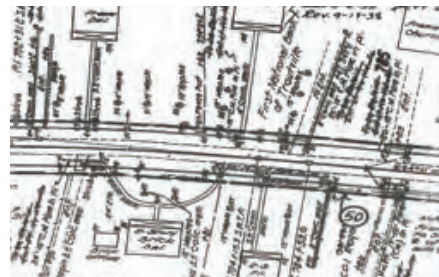
1920s



1960s



The Valley Turnpike was given the U.S. Route 11 designation in 1926, and remained the major north-south highway thoroughfare for the Shenandoah Valley until Interstate 81 was built in the 1960s.



2010

The road carries local traffic, and provides an alternative to the busy Interstate Highway.

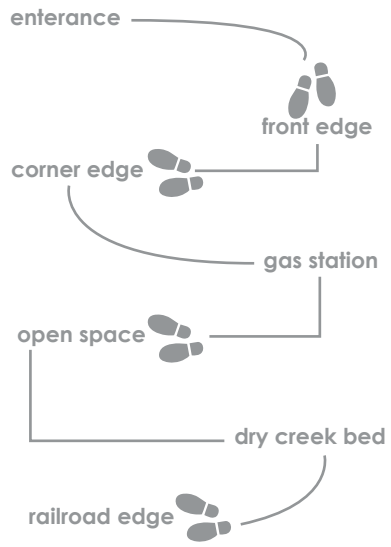


2.2.5 SITE ANALYSIS: cultural heritage

TOWN PARK

Troutville's town park can be described as the "center", "core" and literal and metaphorical "heart" of the town. The park represents the community's public space and reflects a changing dynamic with the variety of activities and social functions that occur within the space. The park not only accommodates a variety of activities, but also is a changing entity in itself as its activities change with the seasons.

Therefore, it is important to look at the opportunities and constraints that the park currently has. This diagram represents a "walk through the park" and examines the edge conditions of the park.

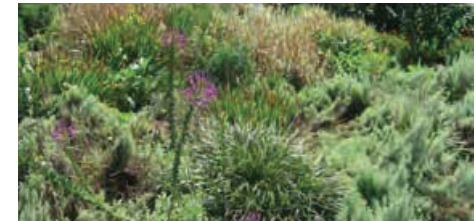


entrance

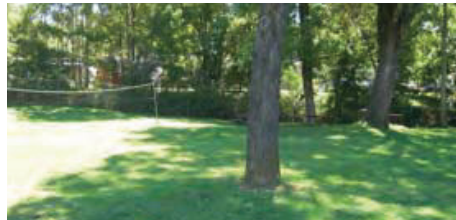


Welcome to
TROUTVILLE
TOWN PARK
PARK RULES

front edge



corner edge



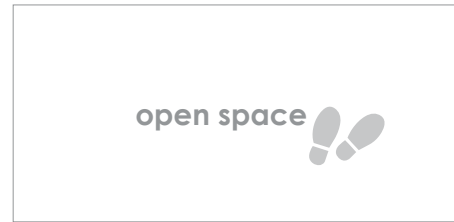
gas station



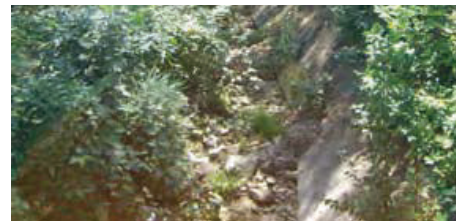
contamination?



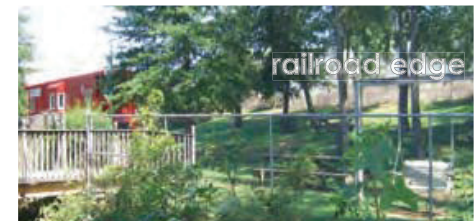
open space



dry creek bed



railroad edge



2.3.1 SITE ANALYSIS: demographic profile

CITY DATA AND LAND USE

Area: 0.9 sq mi

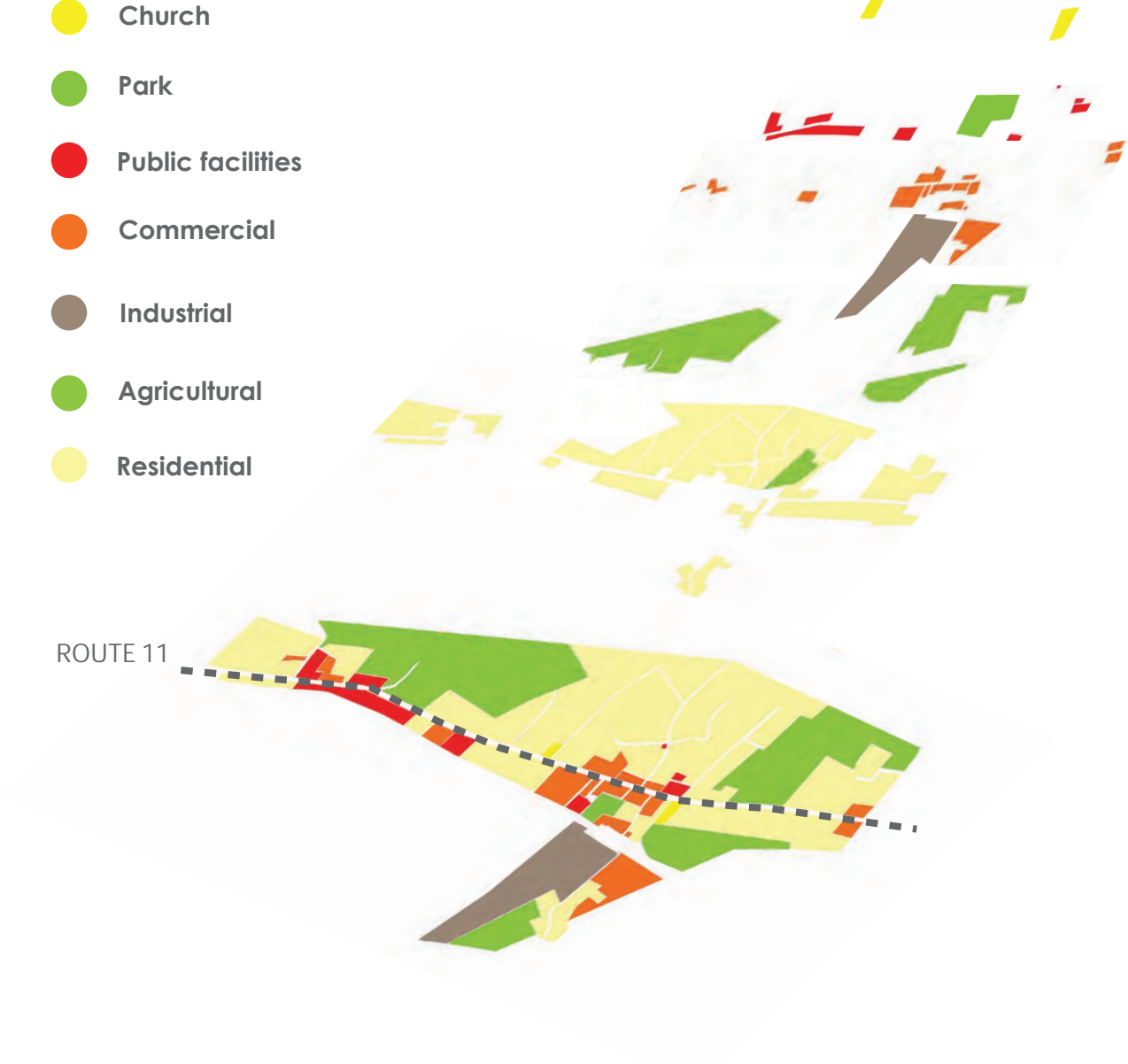
Population (2009): 424
Density: 486.3/sq mi
Population change since 2000: -1.9%

Age
Median resident age: 43.3 years
Virginia Median age: 35.7 years

Income
Estimated median house hold income (2008): \$49,150
Virginia median house hold income (2008): \$61,233
Estimated per capita income (2008): \$24,103

Residents with income below **poverty line** (2008)
Virginia: 9.6%
Troutville: 8.7%

- Church
- Park
- Public facilities
- Commercial
- Industrial
- Agricultural
- Residential



2.3.2 SITE ANALYSIS: issues & constraints

TRAFFIC

Regional Traffic

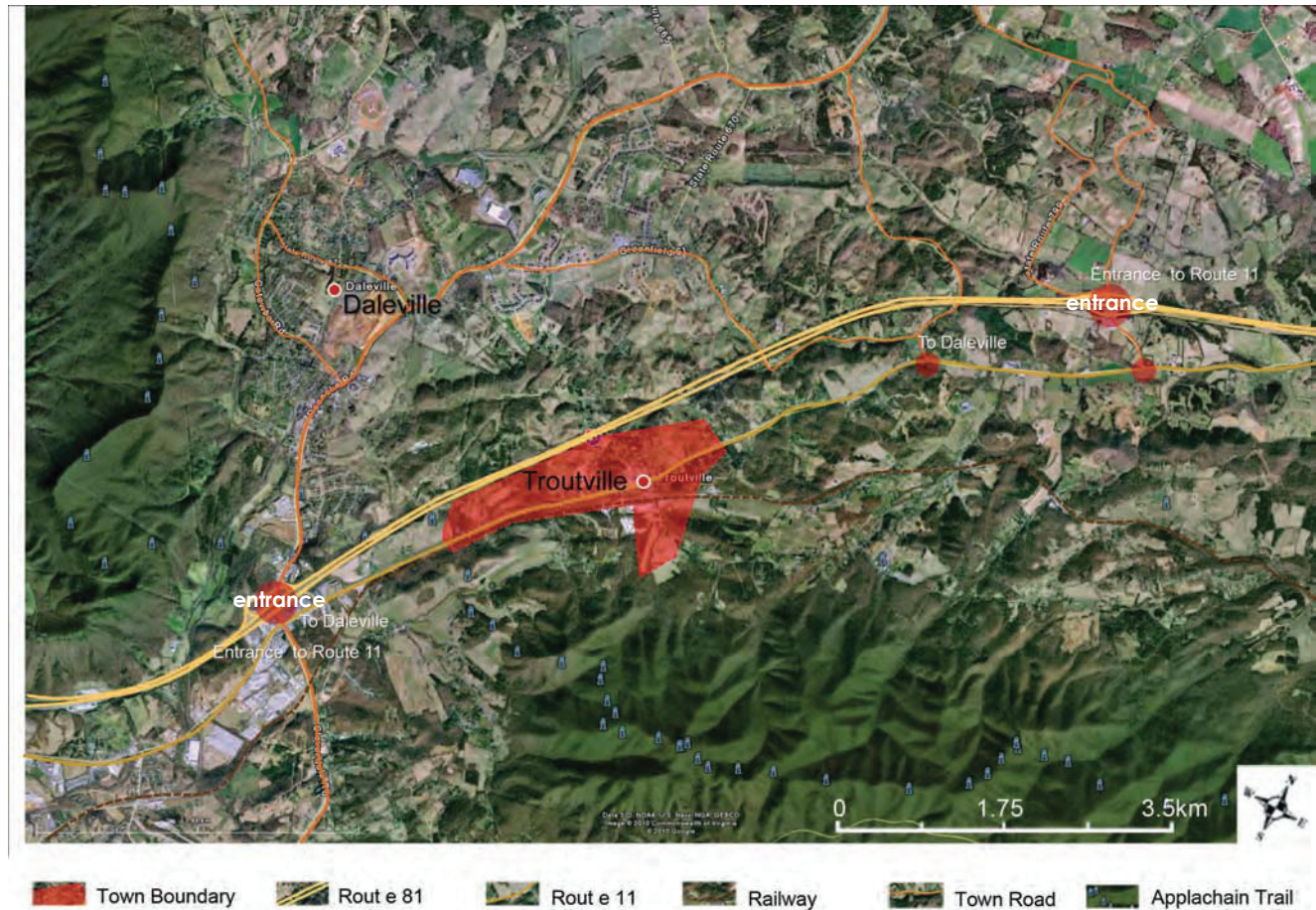
The Town of Troutville has grown along Route 11. Interstate 81, constructed parallel to Route 11 in the 1960s took most of the traffic out of the town causing the decline of businesses in the town center. Today, Route 11 serves as a trucking corridor bringing noise and air pollution to the Town.

Accessibility to Troutville

There are two entrances from Interstate 81 to Route 11; one 2.7 miles to the south and another 3.6 miles north of the center of Troutville.

Traffic and the Road Today

1. There are limited public amenities including restaurants, hotels and shops along Route 11.
2. There is low density development along the road. Higher density development with amenities can create the feel of an urban commercial street and slow traffic.
3. There is a lack of public spaces where people can gather. Vibrant public spaces along the road can both attract people and help to slow traffic.

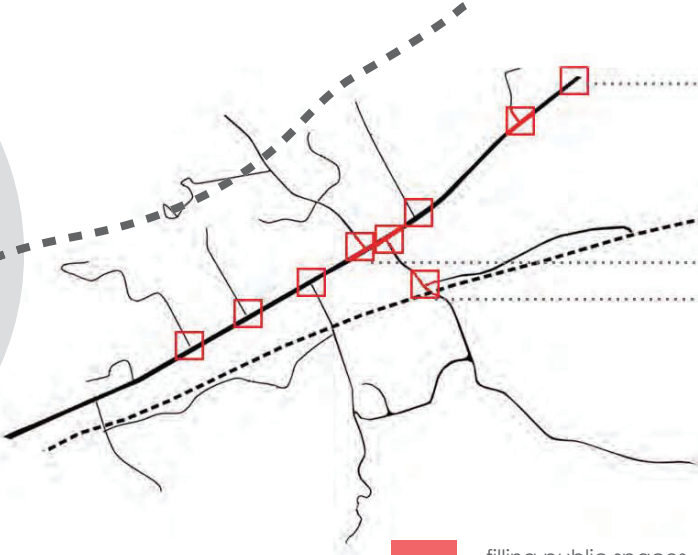
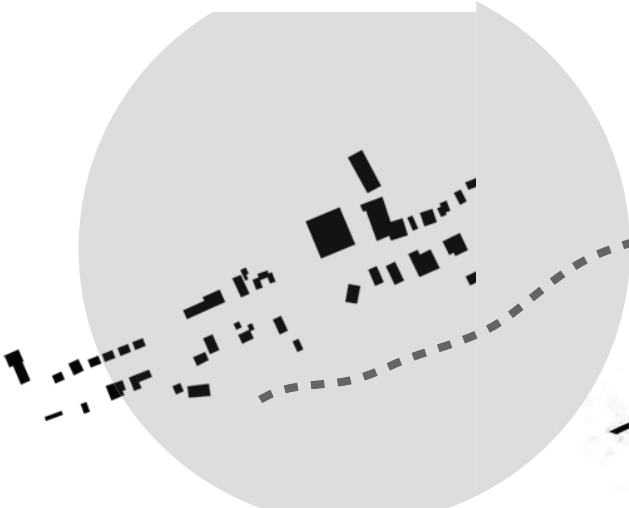


2.3.3 SITE ANALYSIS: issues & constraints

CORNER STUDY

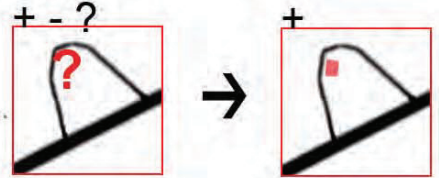
Corner sites offer particular opportunities to create a linked system of public spaces.

The corners studies on the right demonstrate Particular opportunities to create public spaces in Troutville



- filling public spaces
- renovating buidings

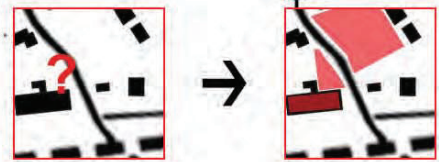
corner studies



at the cemetery



in front of the City Hall



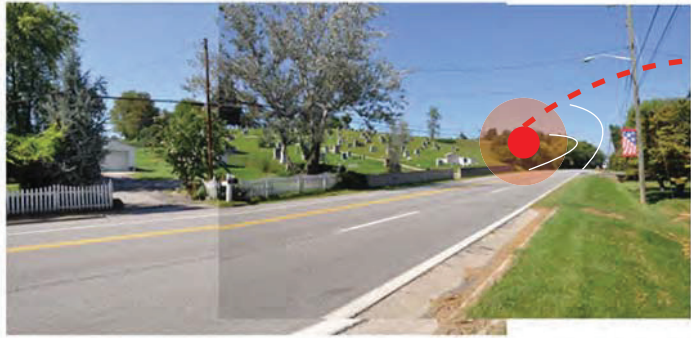
in front of the restaurant

Public Spaces Opportunity

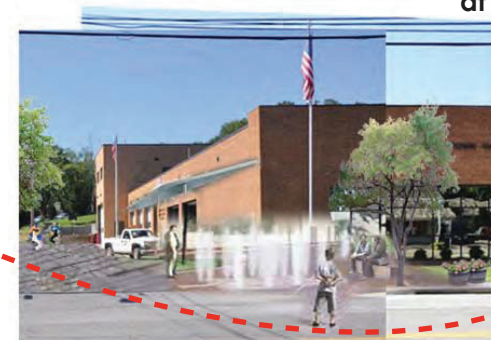
The first corner is at the cemetery which is the first thing to be seen in the town when driving from the north. There is a possibility

to have a small plaza for people to sit and rest. Also, it could be a landmark of the town. The second is the

opportunity of a small plaza at the corner of the Town Hall. The third is the opportunity to have a plaza outside the Pomegranate restaurant.



at the cemetery



in front of the City Hall



in front of the restaurant

3.0.0 CHARETTE

DESIGN CHARETTE

On September 29, 2010 concerned citizens and students from the Virginia Tech Graduate Program in Landscape Architecture came together for a community charette in the Troutville Town Hall.

(The word charette refers to any collaborative session in which a group of designers drafts a solution to a design problem. While the structure of a charette varies, depending on the design problem and the individuals in the group, charettes often take place in multiple sessions in which the group divides into sub-groups. Each sub-group then presents its work to the full group as material for future dialogue. Such charrettes serve as a way of quickly generating a design solution while integrating the aptitudes and interests of a diverse group of people)



The graduate students began the evening with an analysis of the town heritage and current conditions. The citizens and students then divided into groups to identify issues important to the future of Troutville.



Common Themes from Charette

- Common landscape theme needed
(street furniture, lighting, paving, plantings)
- Well defined Entrance and Exit to the town
- Gentle transitions through town is needed

- Traffic calming is needed
 - Reduce lanes to 3 or 2
 - Reduce speed on Route 11 throughout town
 - Parallel Parking and Crosswalks are needed throughout the town

● Connections

- Greenways, Loops, Trails to Appalachian Trail, Jefferson National Forest, Woodpecker Ridge, Orchards
- Cultural Heritage – Rail Road, Agriculture/Canning, Route 11 (Warrior Road, Great Wagon Road)
 - Current facilities: Park, Town Hall, Retail Sector
 - Sidewalks: Improve current, Extend coverage (Route 11, Sunset Drive, Stoney Battery Road)
- Railroad

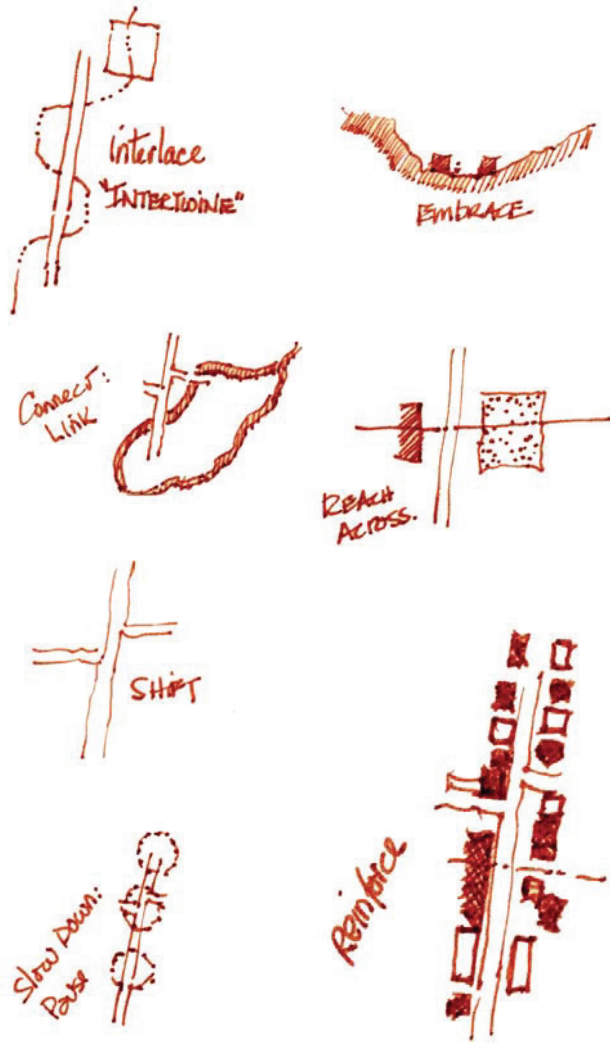
● Visitors Center

- For Botetourt County with Troutville Emphasis

● Safety

- Lighting, Sidewalk/Road Relationship, Emergency Signal, Road Speed

Student Collaboration with Charette Input

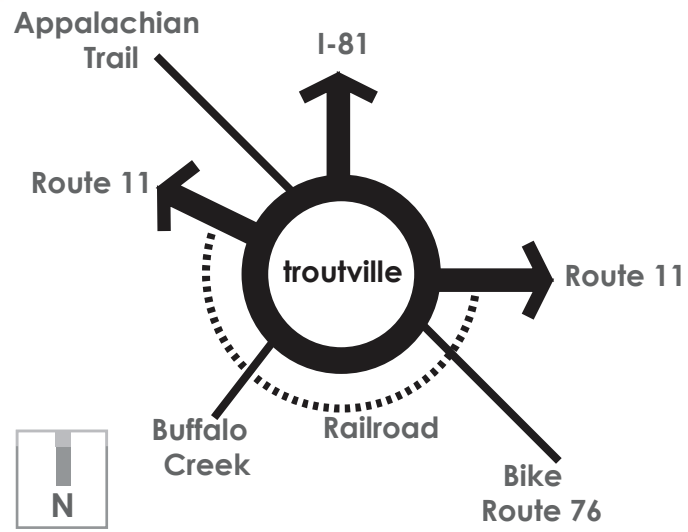


5.1.0 CONCEPT

CONNECTION

The town core acts as the nexus for the Town of Troutville. From this core Troutville connects outward first into the residential sector, Route 11 and Bike Route 76. Then the core extends outward connecting the local agricultural and natural areas. Expanding again, the town core connects regionally to the Appalachian Trail, Blue Ridge Parkway, and Jefferson National Forest. These open up broader connections to the greater east coast from Maine to Louisiana.





5.1.1 CONCEPT

LAND USE OPPORTUNITIES

residential

As the residential areas continue to expand, the demand for more services and facilities will be greater, attracting more commerce.

agricultural

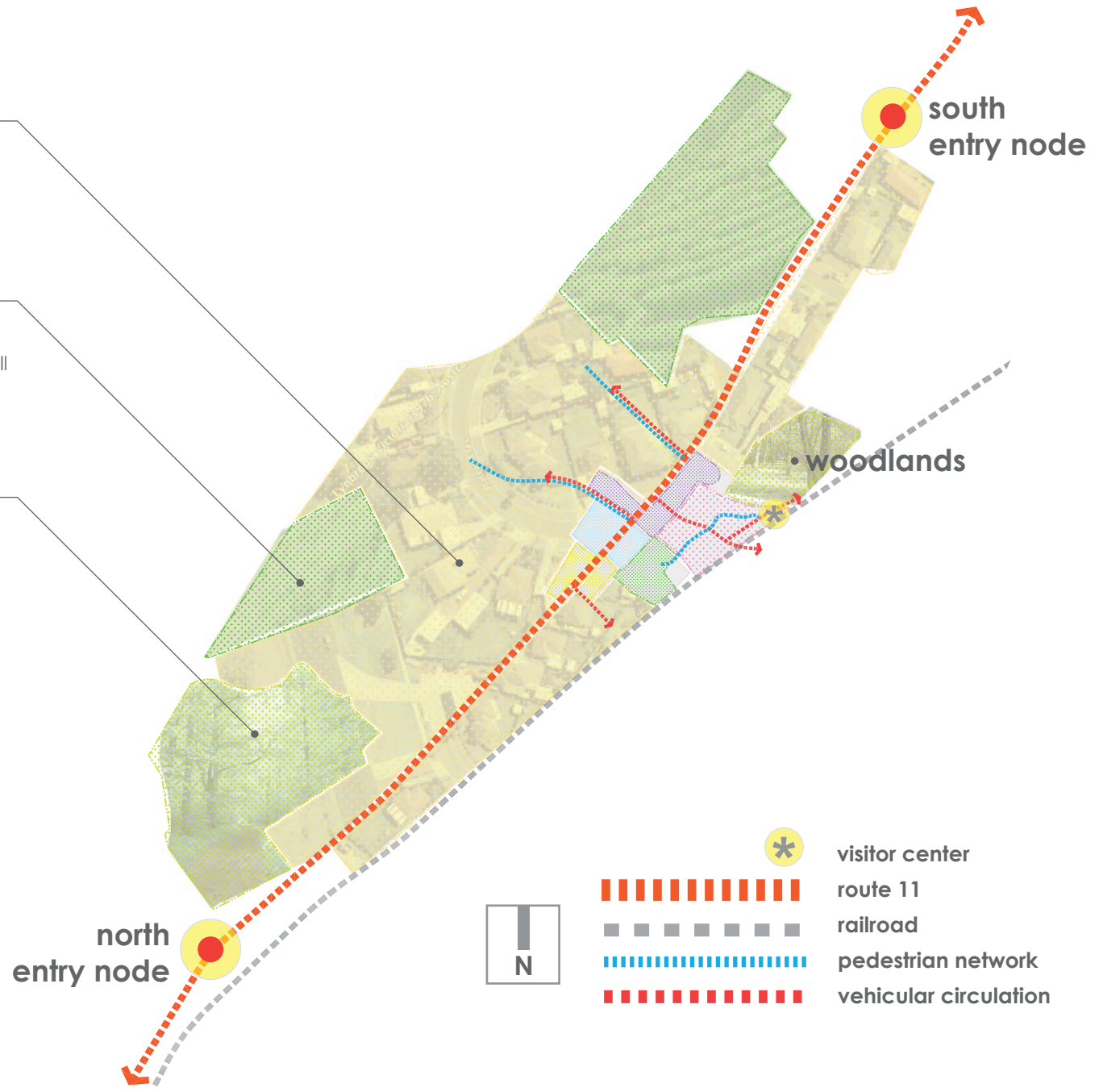
Founded on agriculture with a heritage that is still present in the town, Troutville still respects the land and its bounty. The weekly farmer's market in the town park creates a connection to the local farms that strengthens the community bond.

nature preserve

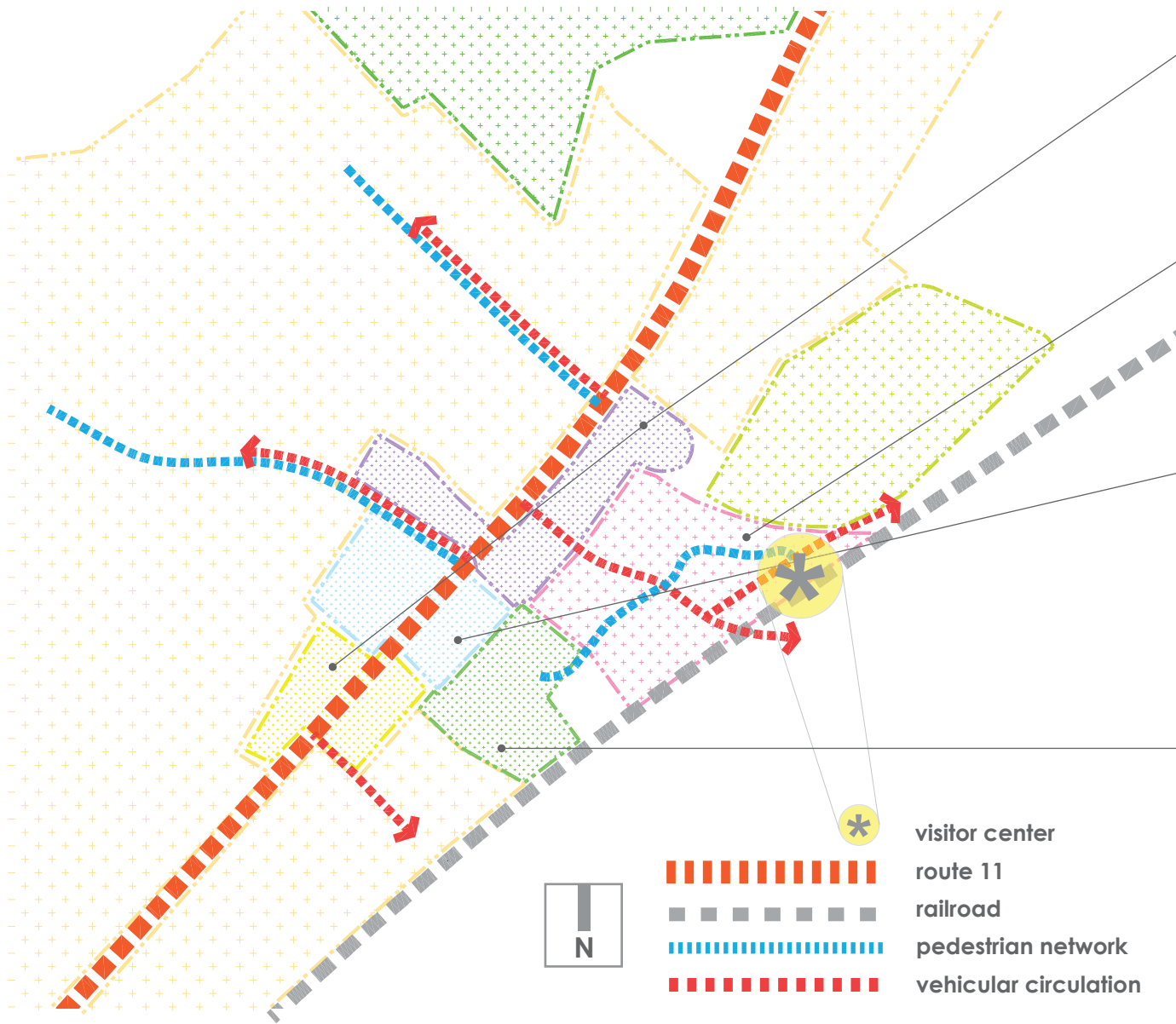
Troutville offers a unique habitat for enjoying and viewing in the forests and creek. The preserve speaks to a larger connection to the nearby Jefferson National Forest and the Appalachian Trail.

woodlands

The woodlands are areas of undeveloped natural systems that should be preserved as buffers and natural undisturbed habitats.



- visitor center
- route 11
- railroad
- pedestrian network
- vehicular circulation



civic sector

The town facilities will act as an anchor for the town along busy Route 11 and will be the nexus for future improvements along Stoney Battery Road, in the Town Park and with the new spaces on the East and West sides of Route 11.

commercial sector

The current commercial presence along Route 11 will be enhanced with proposed expansion into available spaces on Stoney Battery Road between Route 11 and Apple Orchard Lane. These buildings will have a turn of the century flair.

community space

The space extending from the park edge to the rear of the old school building is proposed to be dedicated to public gathering and community use. Reassigning the old service station and providing an open plaza area will create a central space for the town.

town park

The town park is the heart of town and will continue to serve this function. The entrance will be enhanced as a gateway to the park with alternate gateways on the north and south sides. These gateways will connections to the town, the Appalachian Trail and the Visitor's Center.

 visitor center

 route 11

 railroad

 pedestrian network

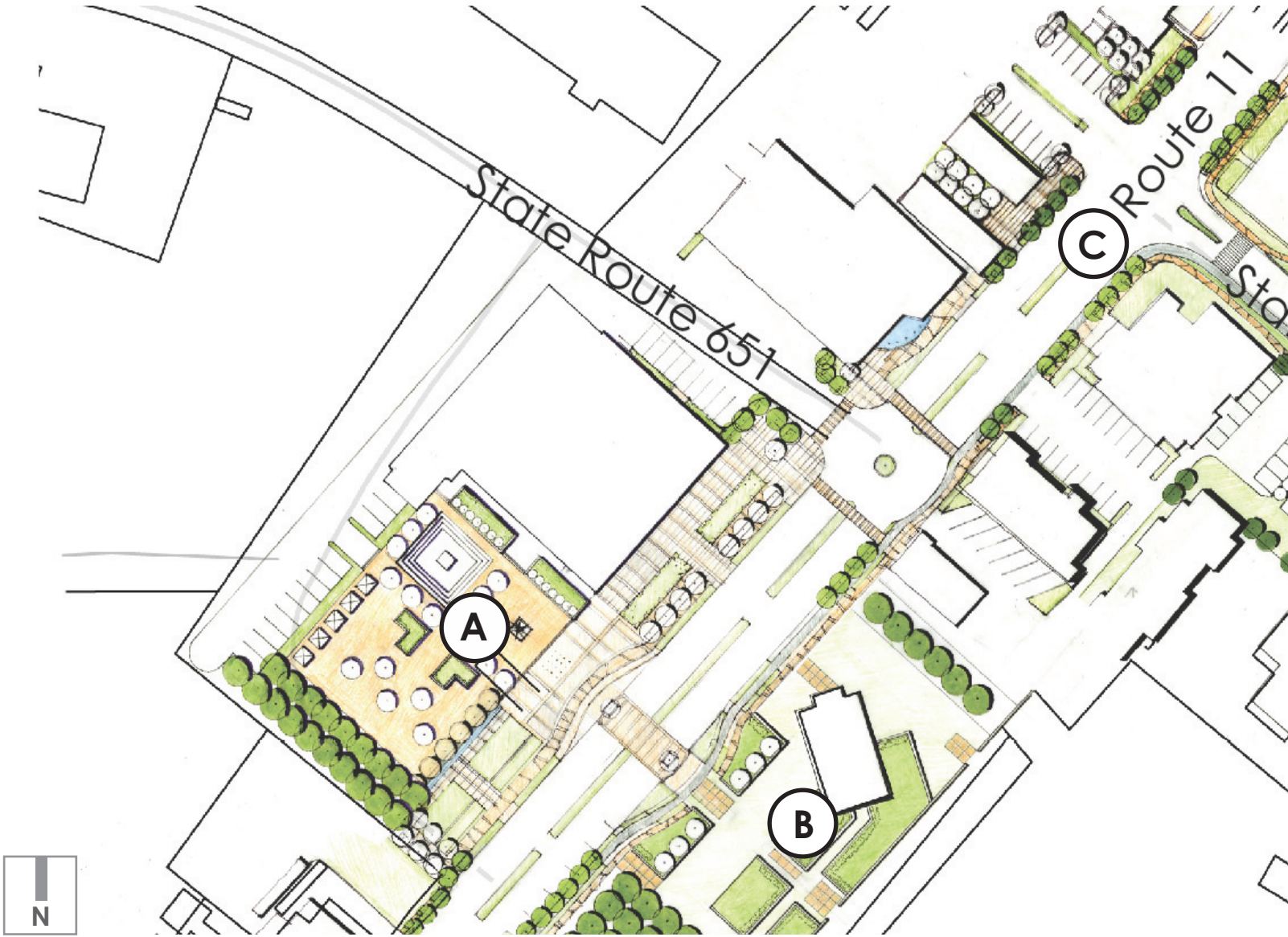
 vehicular circulation



6.1.0 MASTER PLAN

TOWN CORE AREA

- A** **Public Plaza**
see the detail 7.2.0
- B** **Park Entrance**
see the detail 7.3.0
- C** **Route 11**
see the detail 7.4.0
- D** **Stoney Battery Rd.**
see the detail 7.5.0
- E** **Tourism**
see the detail 7.6.0





6.3.0 MASTER PLAN : facilities plan

TREE PLAN

ROUTE 11 TREE PLAN

Planting suggestions for the town core is to implement color-leaved trees. *Prunus serrulata* 'Kwanzan' and *Acer campestre* are recommended for the main road, *Ginkgo biloba* and *Acer rubrum* are recommended for other roads within the core area. Meanwhile, *Ulmus alata* and *Tilia cordata* are recommended for Route 11 within the town area.





Prunus serrulata 'Kwanzan'



Acer campestre



Ulmus alata



Tilia cordata



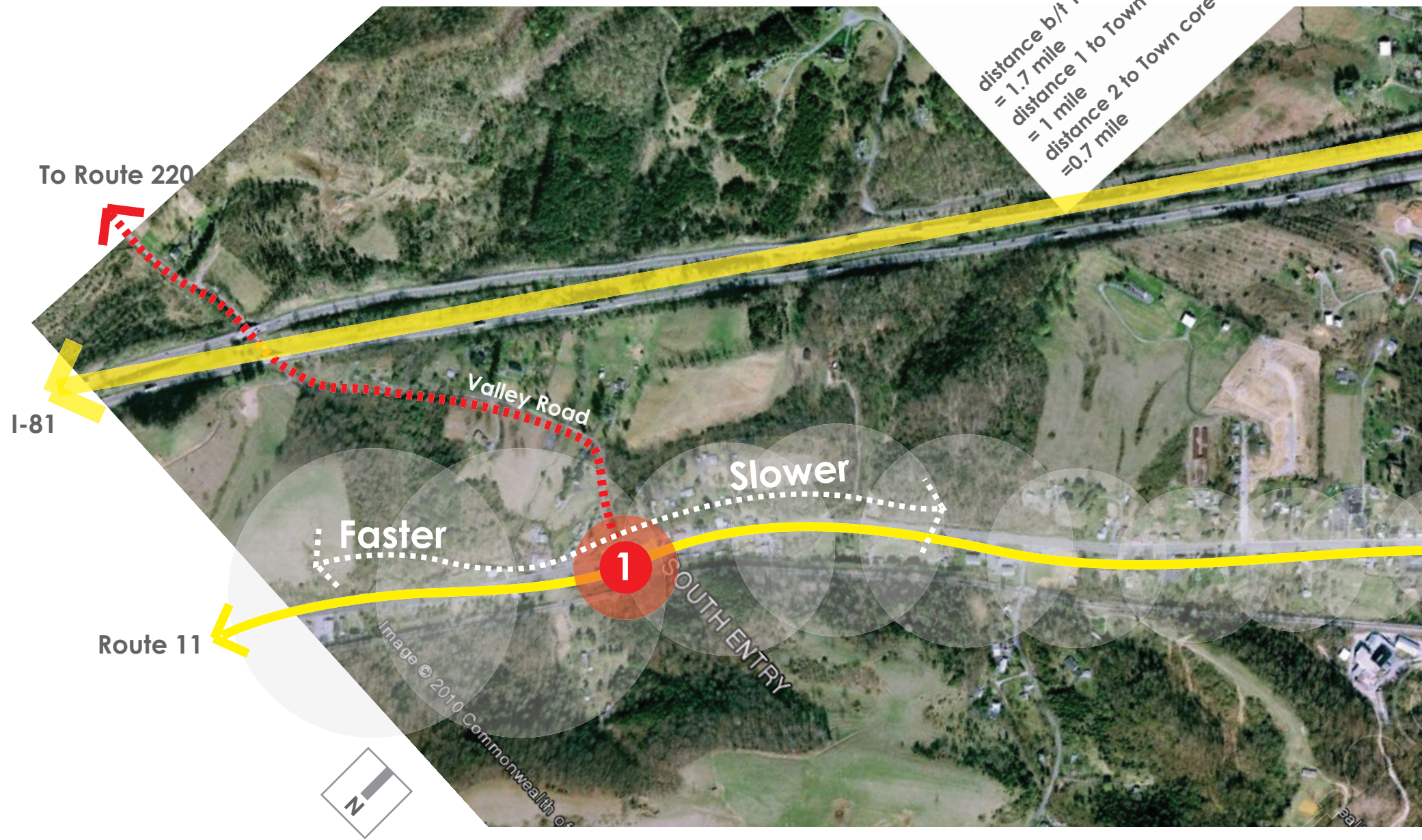
Ginkgo biloba

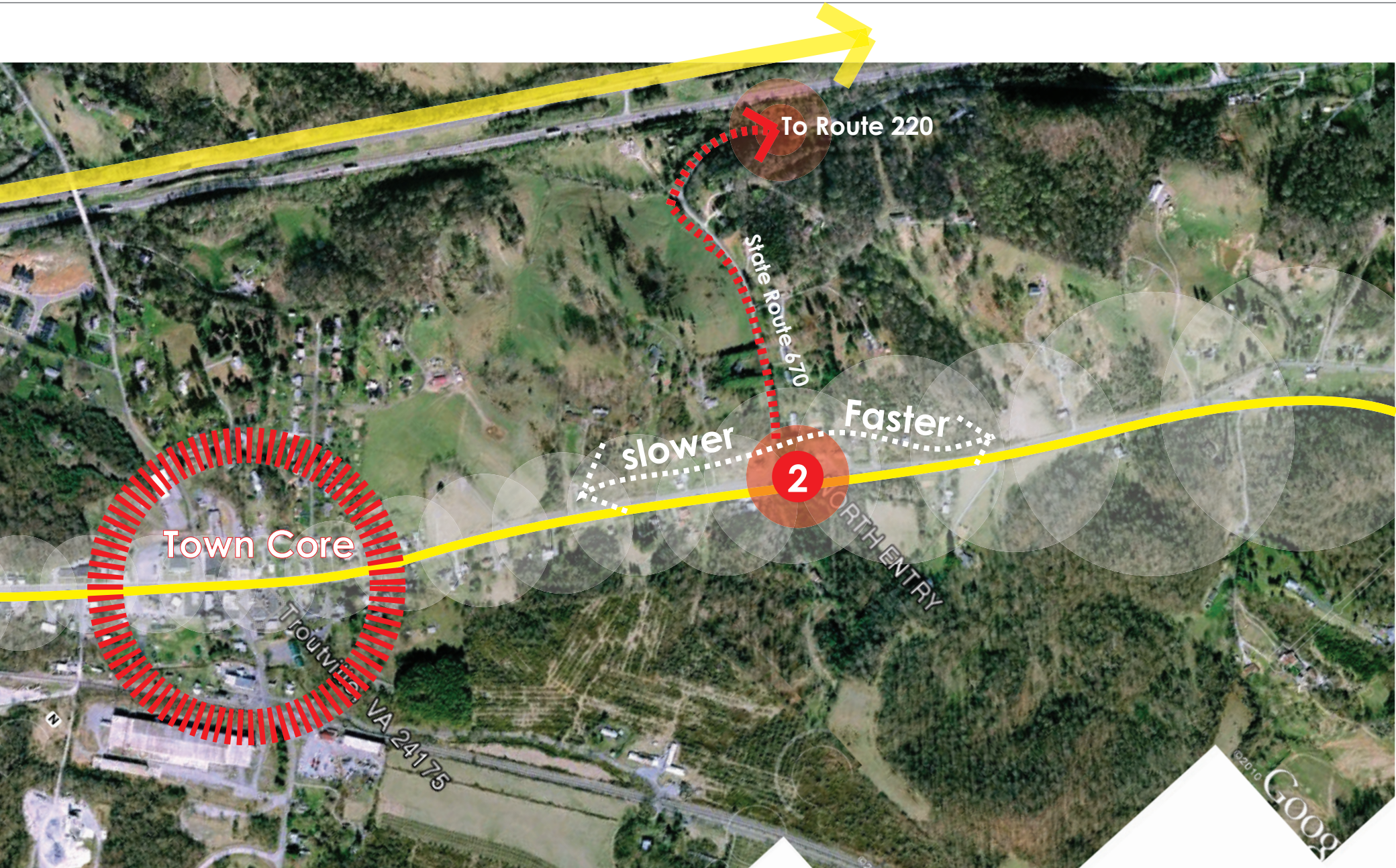


Acer rubrum

7.1.0 SITE ENTRY NODES

CONCEPT





To Route 220

State Route 6-70

slower

Faster

2

Town Core

Troutville, VA 24175

NORTH ENTRY

Google

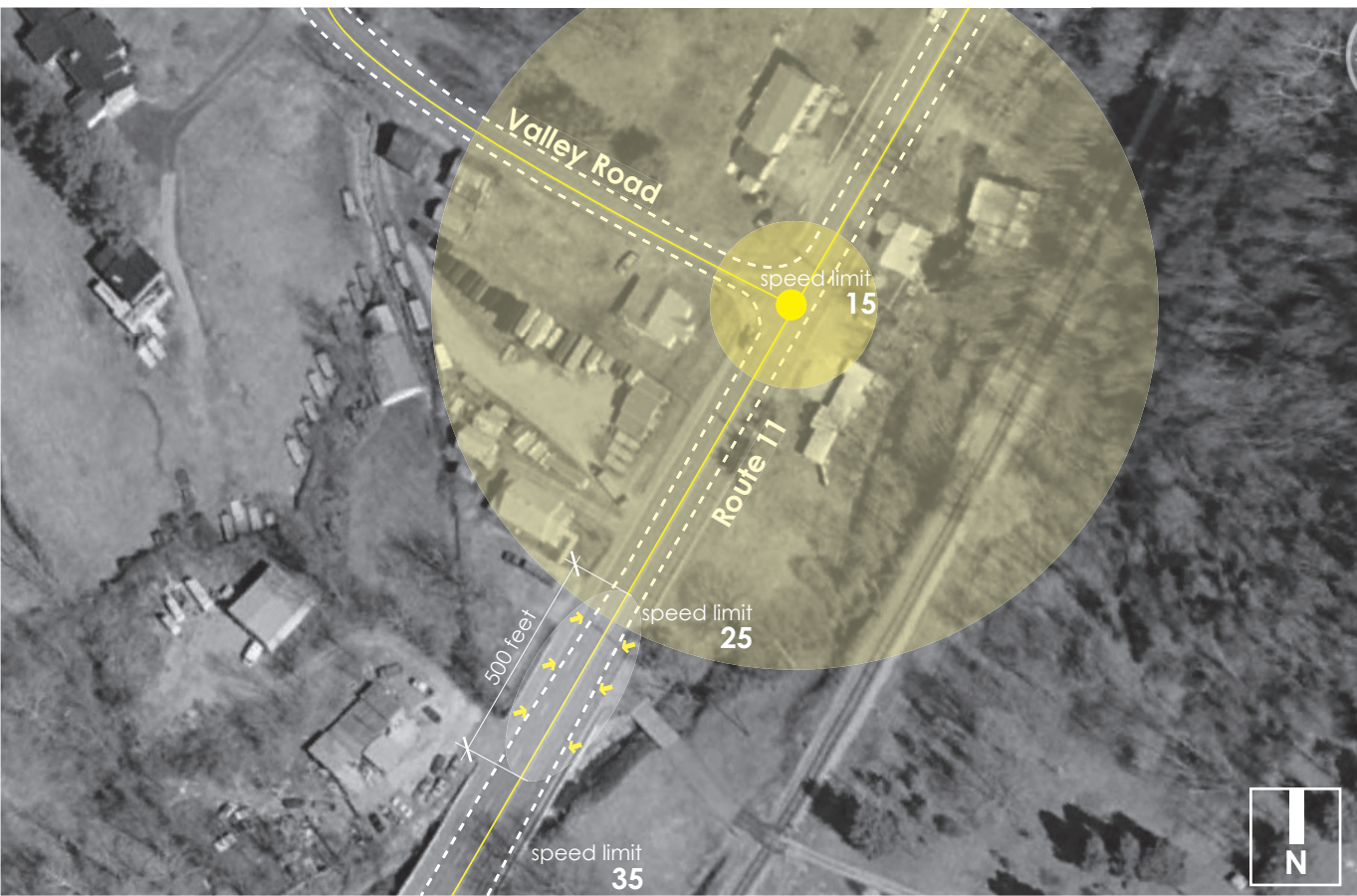
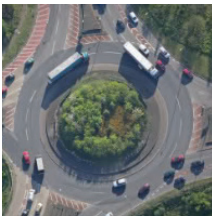
7.1.1 SITE ENTRY NODES

SOUTH ENTRY

Valley Road and Route 11

New traffic circle facilities

- Street Light
- Welcoming Town Sign
- Planting bed
- New bike lane
- New speed limit

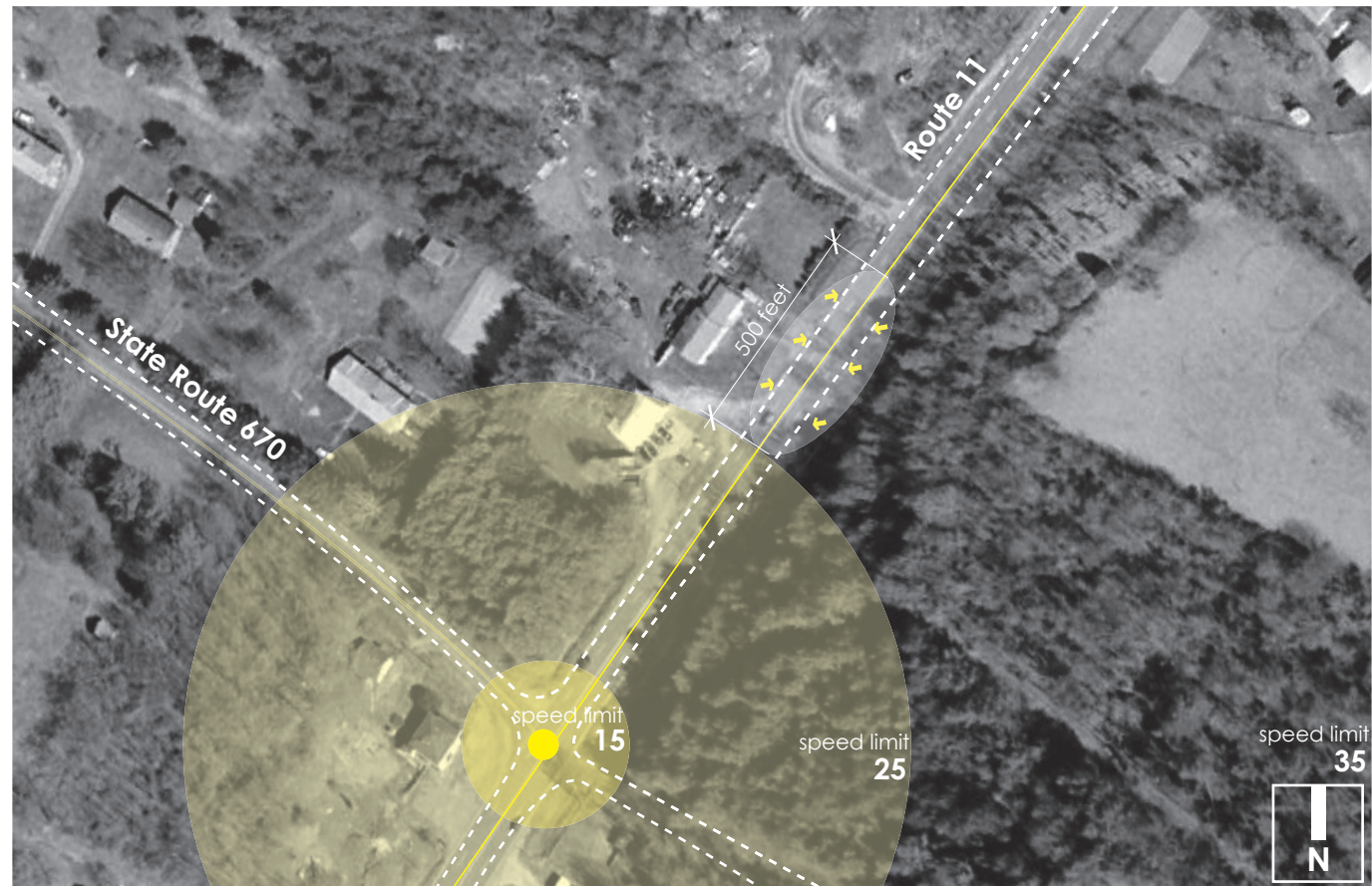


NORTH ENTRY

State Route 670 and Route 11

Gateways provide an opportunity to form a first impression of the town and should be marked with special streetscape elements. The impression given by the gateway should communicate the character of the town and all gateways should be consistent with one another and the town's entrance corridor vision.

1. Use lighting fixtures of similar style at all gateways into Troutville.
2. Continue the use of consistent signage that reflects the character of Troutville at all gateways.
3. Continue the use of landscape features as accents at all gateways and incorporate plantings with seasonal color.
4. Use distinctive wider paving for crosswalks at gateway intersections.
5. Consider the use of public art or special features at the gateway locations, which may include sculpture



7.1.2 SITE ENTRY NODES

SOUTH ENTRY

Traffic calming is intended to slow vehicle traffic in order to improve safety for pedestrians and bicyclists and to improve the environment for residents. Techniques are intended to reduce the negative impacts of motor vehicles on neighborhoods by reducing vehicle speeds and by providing safe spaces for pedestrians.

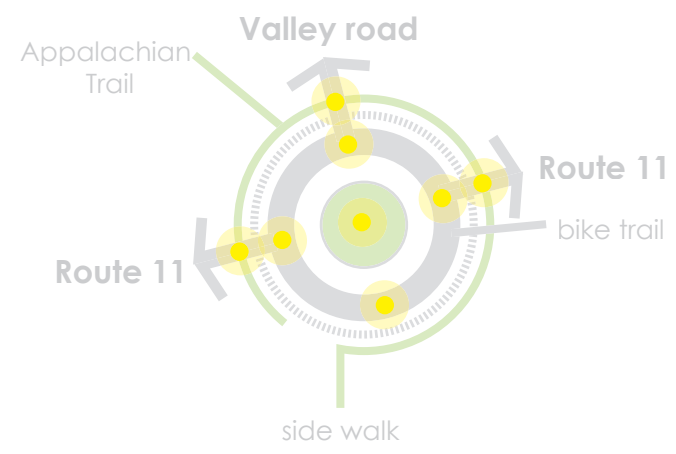
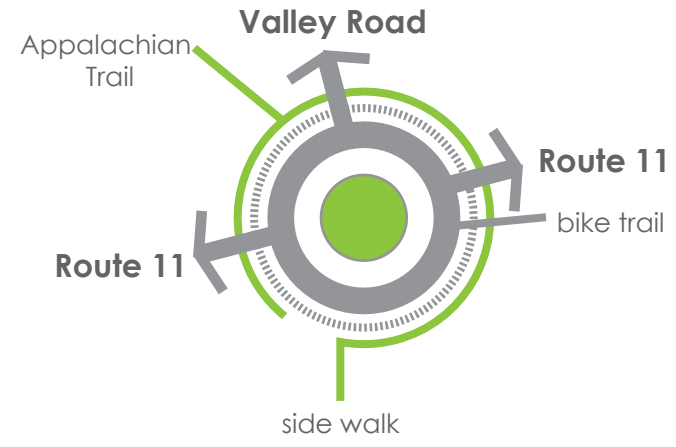


- side walk
- planting bed
- planting area
- tree
- building





planting sidewalk planting bike car divider car bike tree sidewalk



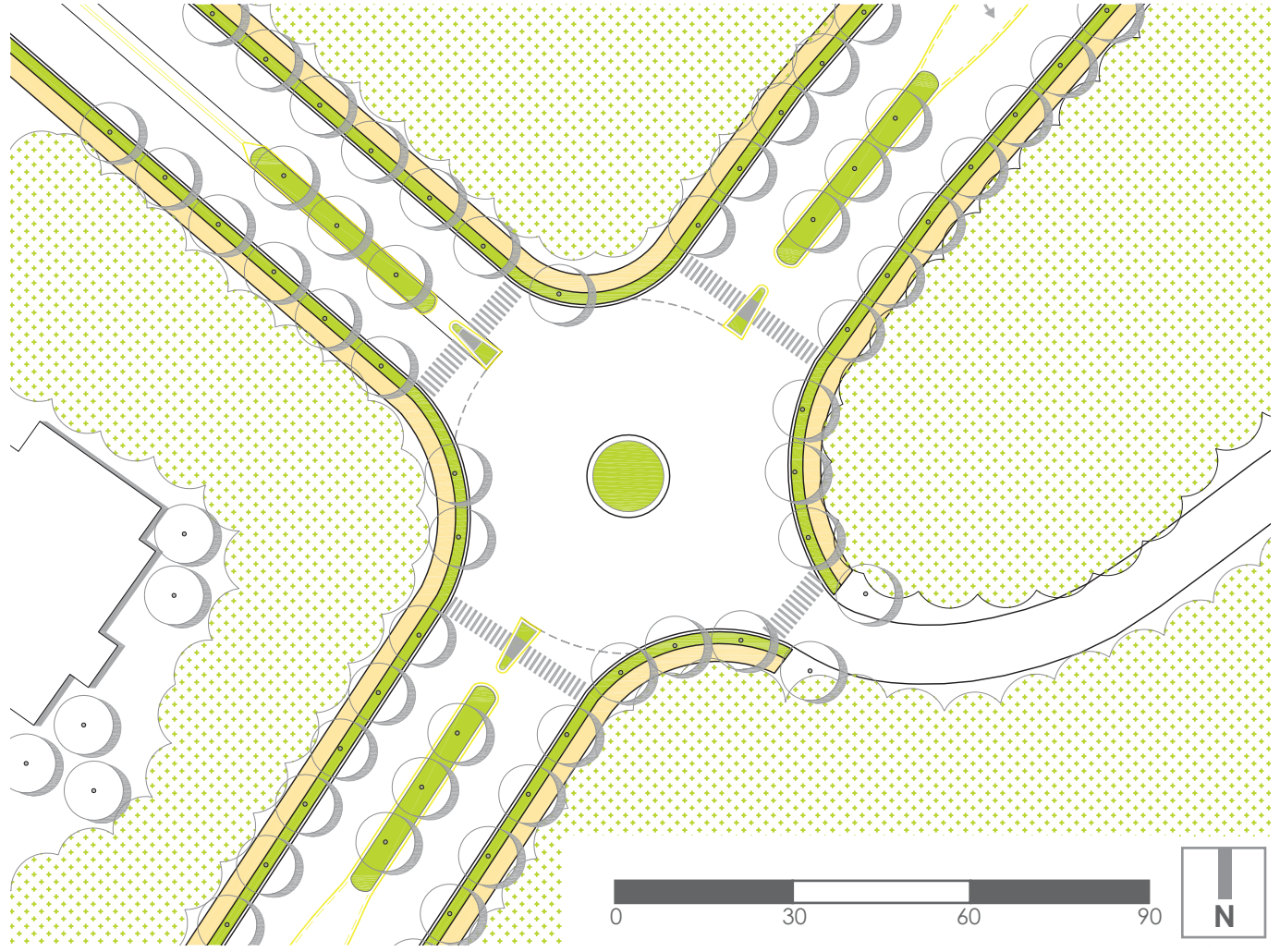
7.1.3 SITE ENTRY NODES

NORTH ENTRY

Traffic calming is intended to slow vehicle traffic in order to improve safety for pedestrians and bicyclists and to improve the environment for residents. Techniques are intended to reduce the negative impacts of motor vehicles on neighborhoods by reducing vehicle speeds and by providing safe spaces for pedestrians.



- side walk
- planting bed
- planting area
- tree
- building





planting

car

traffic circle

car

planting

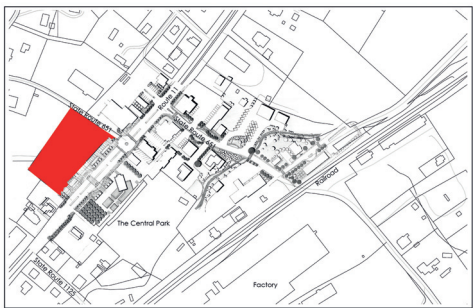
7.2.1 PUBLIC PLAZA

MASTER PLAN

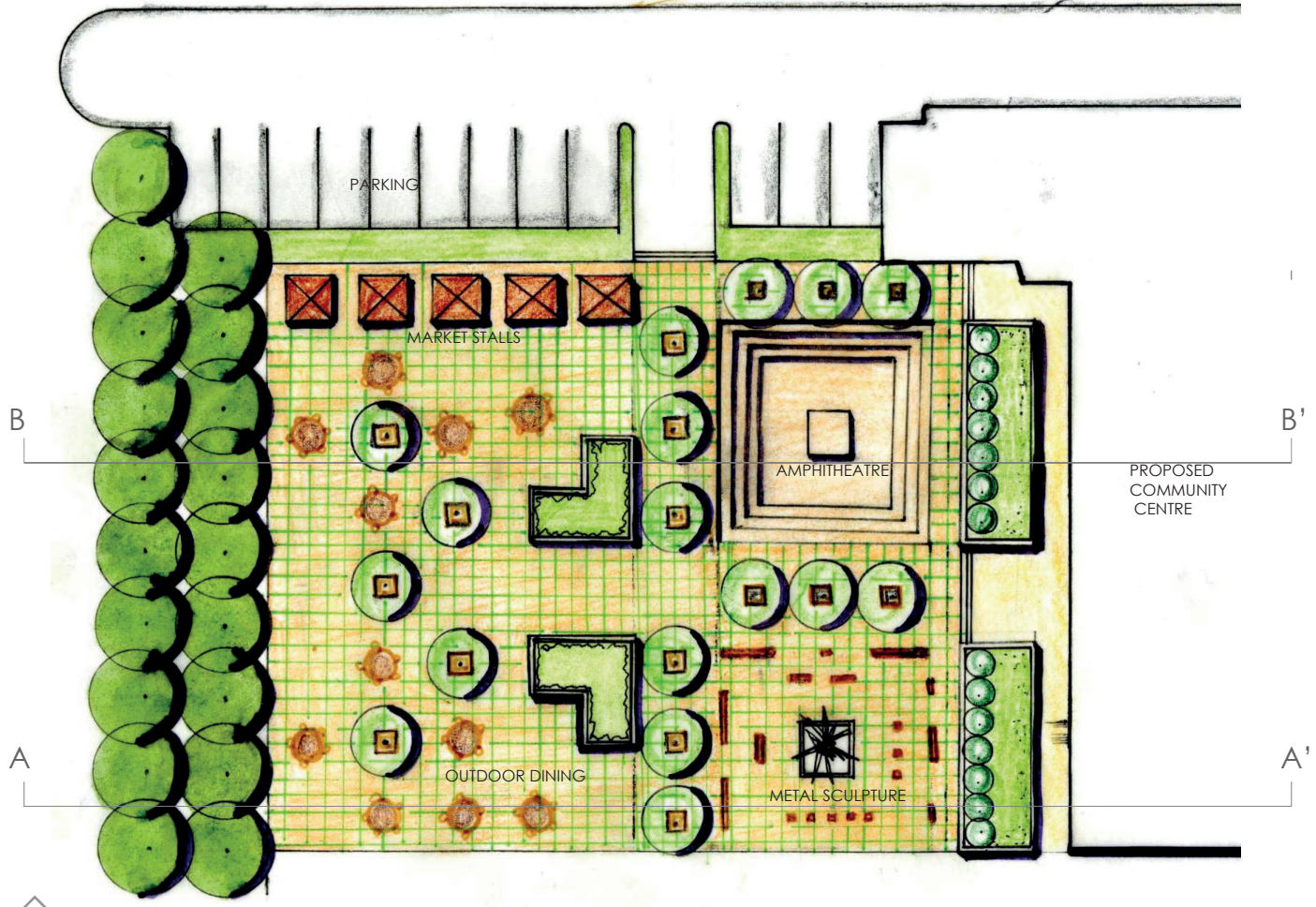
The open space next to the old school building is proposed to be developed as a public plaza which will be an outdoor extension of the community area.

ELEMENTS:

A metal sculpture is proposed as the focal element of the plaza. A small amphitheater is proposed to provide a place for performances. A few temporary stalls are proposed to serve as a casual dining area during hikers' gathering events. Sitting Areas: Benches are proposed in the space around the metal sculpture. Planters are designed to create seating spaces. Loose tables and chairs are proposed in the outdoor area for picnicing and casual dining.

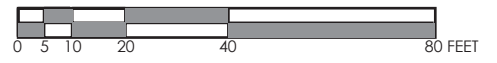


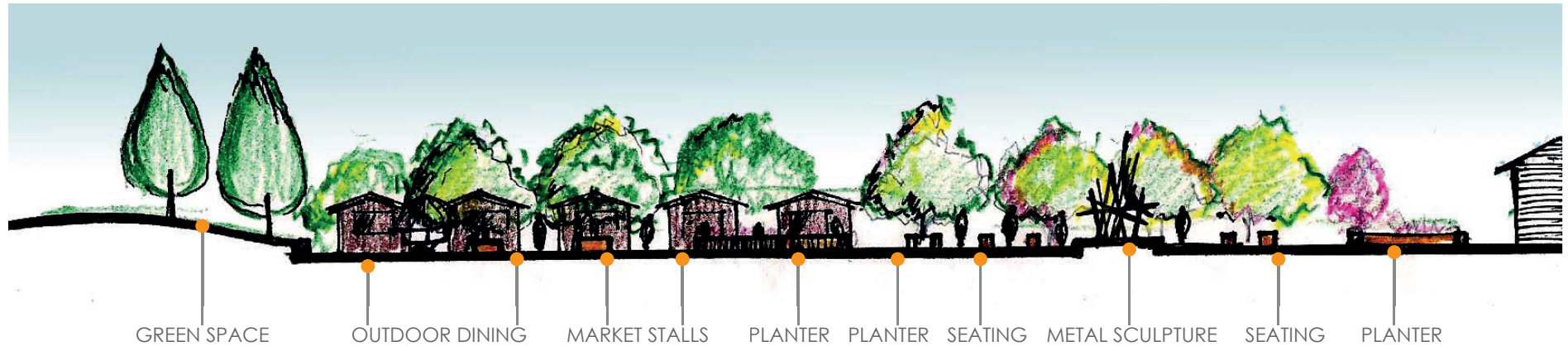
KEY PLAN



ROUTE 11

PLAN





SECTION AA'



SECTION BB'

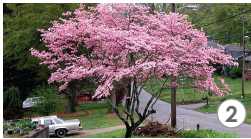
7.2.2 PUBLIC PLAZA

PLANTS AND PAVING PATTERN

To strenghten the character of the town centre, the plantings in the plaza are designed to unite with the plantings in the park entrance area. Shady trees, Red Maple and Green Ash, are used in the main plaza open space. A Phyto-remeditaion tree Hybrid Poplar, is used to unite with the trees across the road. Ornamental Dogwood trees are used in the planters. Pavement pattern also follows the pavement at the park entrance with more paved and lesser grass area.



Hybrid Poplar
Populus hybrids



Dogwood
Cornus florida



Bird's Foot Trefoil
Lotus corniculatus



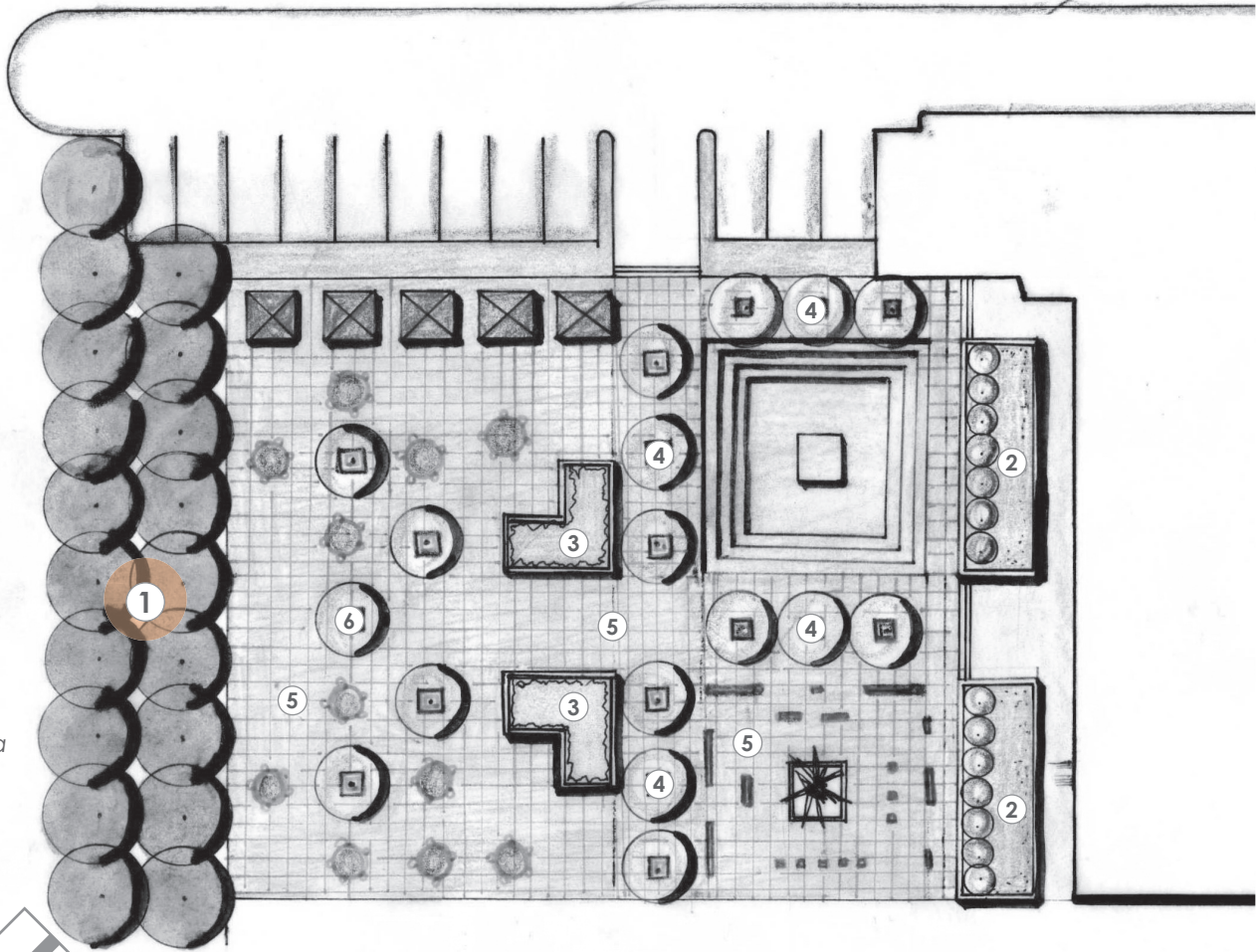
Green Ash
Fraxinus pennsylvanica

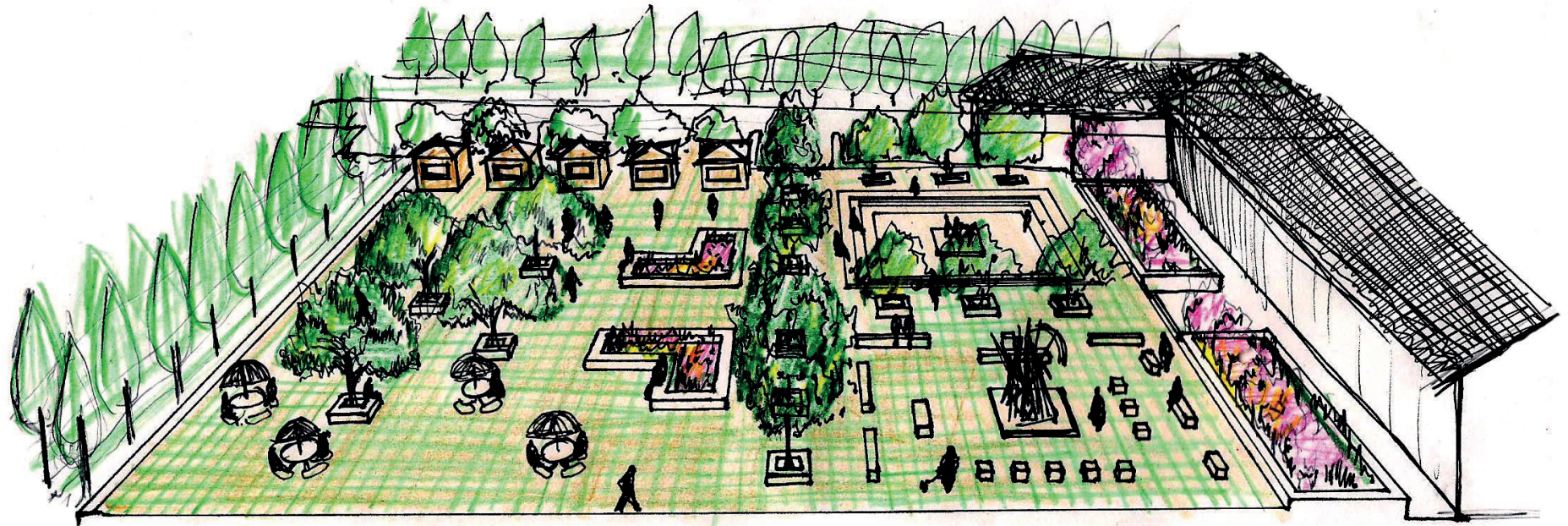


Pavement Pattern
Natural Stone with
Bermuda Grass



Red Maple
Acer Rubrum

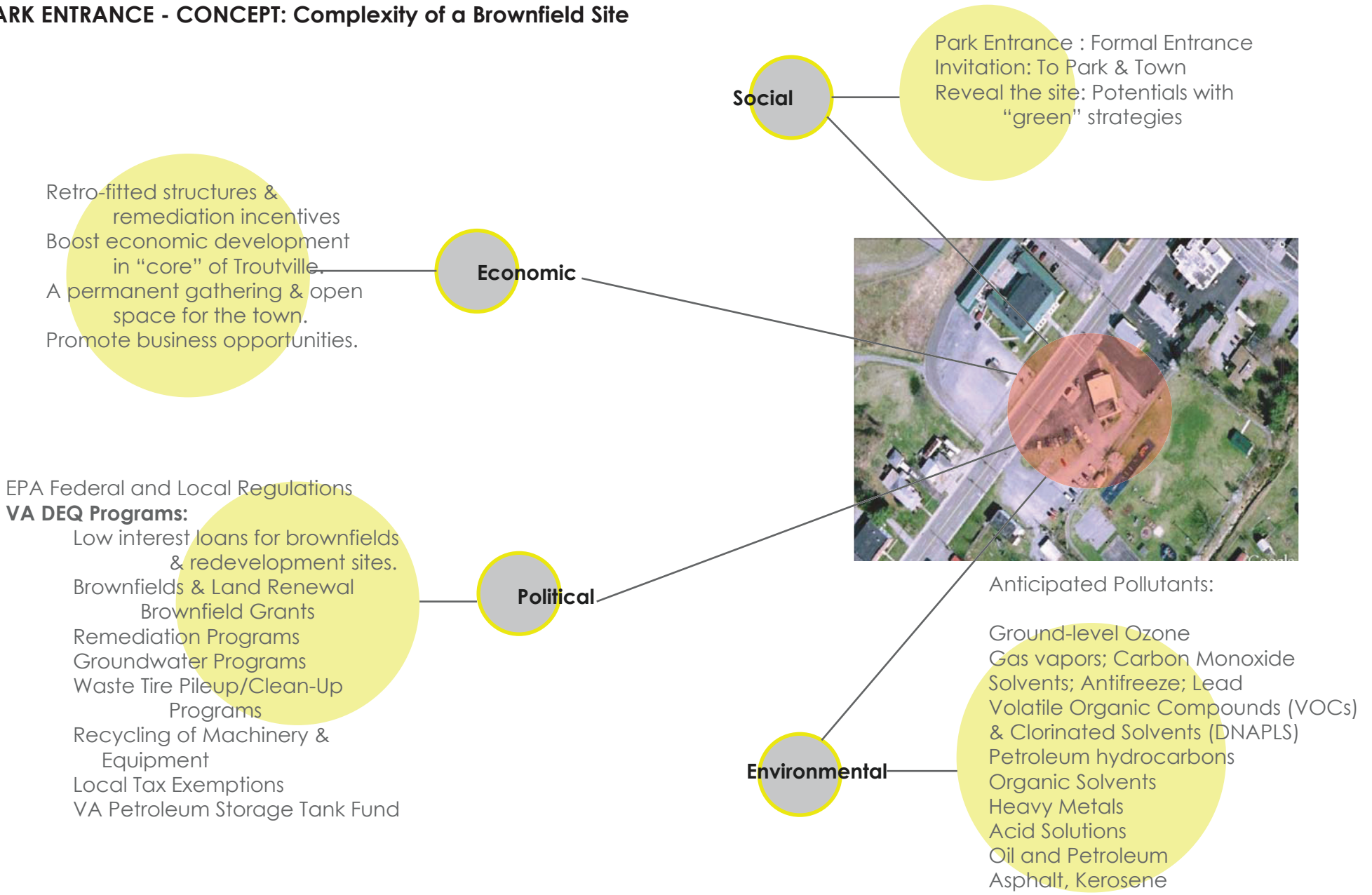




Perspective View of the Proposed Plaza

7.3.0 PARK ENTRANCE DESIGN

PARK ENTRANCE - CONCEPT: Complexity of a Brownfield Site



CONCEPT: Three Areas of Remediation

Revealing the Site:

Opportunistic Design Strategy Remediation that Cultivates an Awareness of the Industrial Heritage of a Site

Vs.

Restoring the Site: Remediation Strategy

Remediation Aimed at Returning the Site to a State Prior to Contamination



Old Gas Pumps -
Currently unused

2:



1:

Gas storage tanks under the parking area should be removed if they are still present.



3:

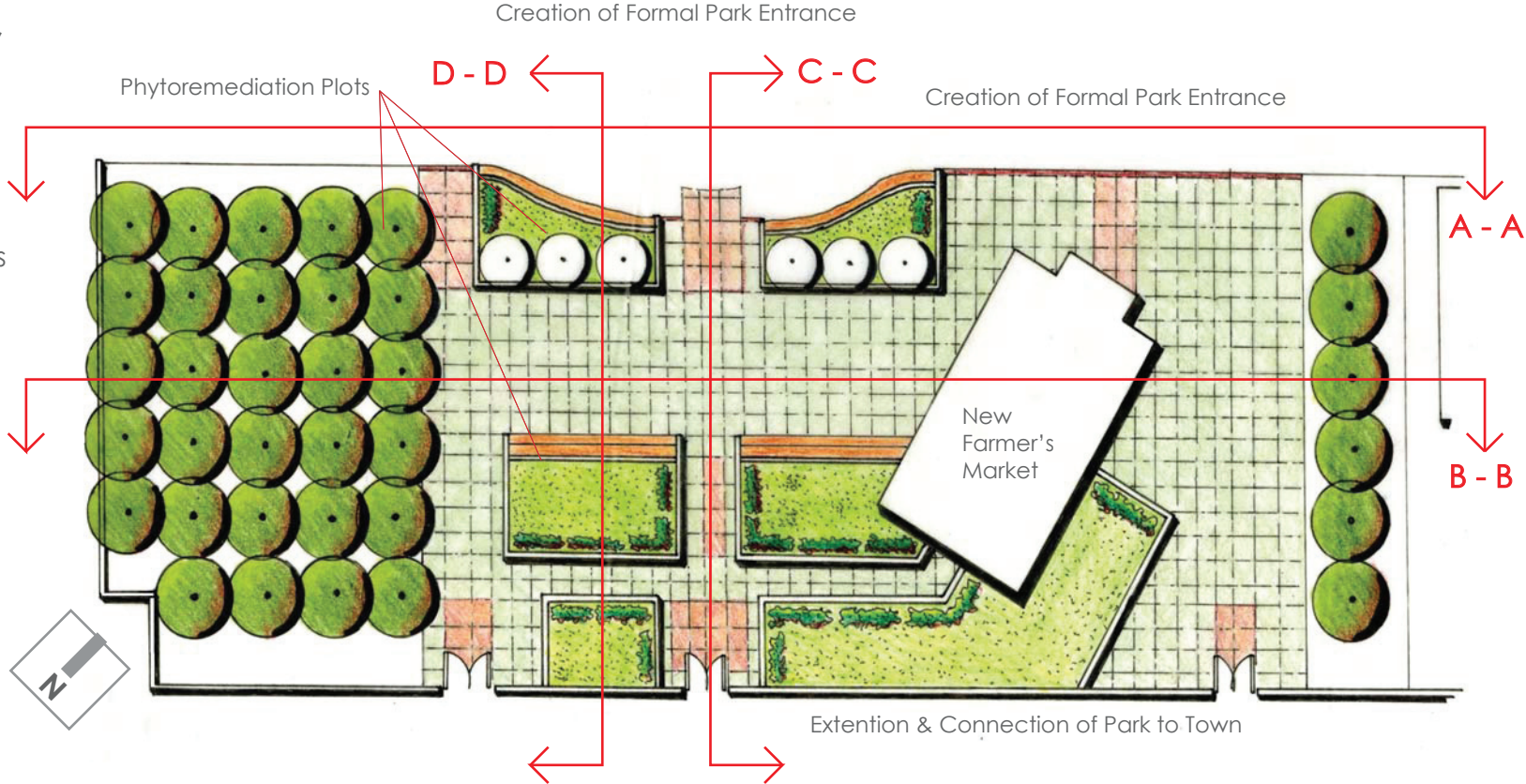
Auto Body Repair Shop - Currently in use



7.3.1 PARK ENTRANCE DESIGN

MASTER PLAN

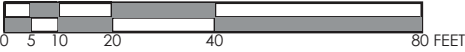
The case of Troutville, Virginia, offers an opportunity for landscape architects to create a design project that integrates phytoremediation and its related "green" technologies.



The Plan Establishes:

- Connections
- Formal Entrance to the Town Park
- Boost of Economic Development: Farmer's Market
- New Edge of Park

DETAIL PLAN





Phytoremediation Plots
Park Path Open Space Rt. 11

SECTION
D - D



Phytoremediation Plot Open Space Path Park
Rt. 11

SECTION
C - C



Phytoremediation Plot Retro-fitted Building Path Phytoremediation Plot
Driveway Phytoremediation Plot

SECTION
B - B



Phytoremediation Plot Retro-fitted Building Path Phytoremediation Plot
Driveway Phytoremediation Plot

SECTION
A - A

SECTIONS

7.3.2 PARK ENTRANCE DESIGN

PHYTOREMEDIATION PLOTS

Phytoremediation belongs to a group of “green” or sustainable technologies that are also classified as phytodegradation, phytostabilization, phytovolatilization, phytoextraction, hydraulic control and rhizospherebioegradation. These strategies utilize plants as the main component for environmental restoration.

List of Expected Contaminants:

- Solvents, Antifreeze
- Lead
- Oil
- Carbon Monoxide
- CLORINATED SOLVENTS (DNAPLs)
- Paint, Battery Acids
- (MEK) METHYL ETHYL KETONE
- PETROLIUM RESIDUE
- (MTBE) METHYL TERTIARY-BUTYL ETHER
- Groundwater Leakage

Phytoremediation Process:

Phytoremediation refers to a relatively new emerging science that incorporates a diverse group of technologies that use natural plants, or in some cases, genetically engineered plants, to decontaminate polluted sites. Phytoremediation is an *in situ* treatment and operates by three main mechanisms; the extraction, containment and degrading of the contaminants of any particular remediation site through the use of specific plants. Large wastelands and brown-fields, urban and civic spaces, as well as private and residential sites can all carry the potential to utilize and implement phytoremediation and applied technologies in the design process.



Pedestrian Connection



Phytogrove



Aesthetics

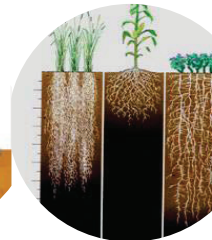


Planters

Proposed Park Entrance Images



Immobilize



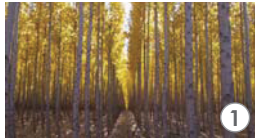
Degrade



Contain

Phytoremediation Process

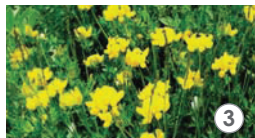
Plants Used to Treat Contamination:



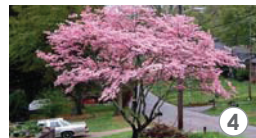
Hybrid Poplar
Populus hybrids



Switchgrass
Panicum virgatum



Bird's Foot Trefoil
Lotus corniculatus



Dogwood
Cornus florida



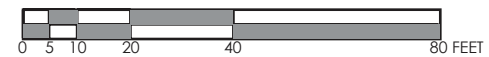
Pavement Pattern
Tall fescue (turf)
Festuca arundinacea



Pavement Pattern
Natural Stone with
Tall fescue (turf)



OVERALL PLAN

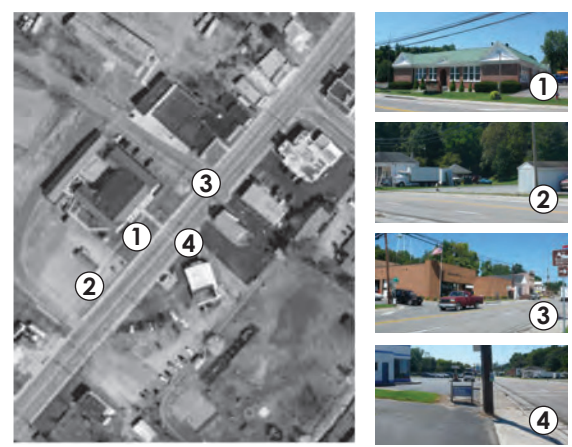


7.4.0 ROUTE 11 AND INTERSTATE ROUTE 81

ROUTE 11 In Town Core Area

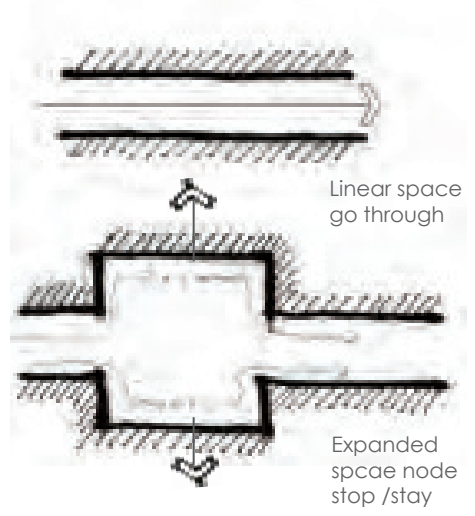
To improve the safety for people to go along or cross Route 11, there is a need to change the traffic circulation. Alignment of the road a widened sidewalks, a raised crosswalk, adding a bike lane, and several other traffic calming techniques are suggested. Small plazas, vegetation and water features are important elements to form a sense of a vibrant small town.

Route 11 In Town Core Area Current Situation

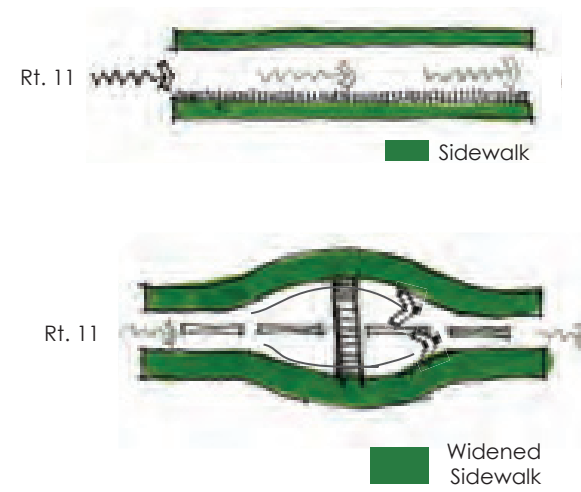
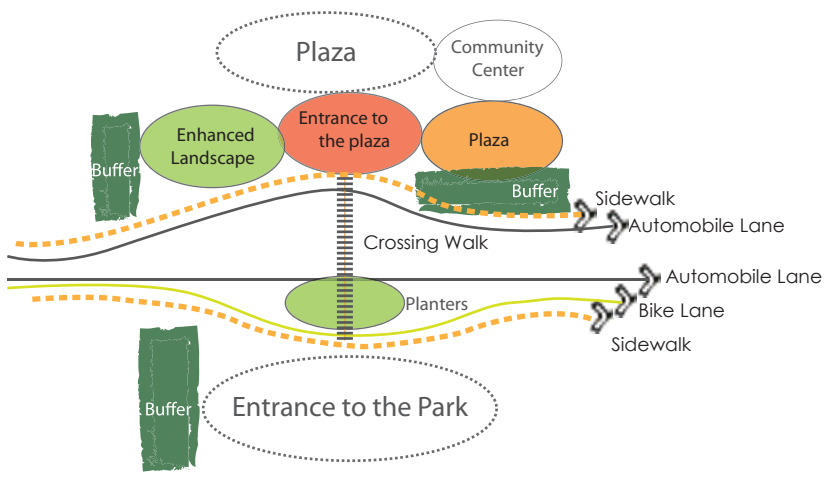


1. Activities need to be added for a sense of a vibrant town.
2. Green gardens need to be added so that people will have places to relax.
3. Crosswalks need to be added for safety.
4. Sidewalks need to be widened for a sense of a pedestrian friendly road.

Circulation Transformation



Function Layout

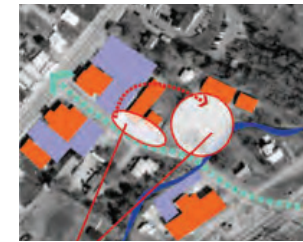


INTERSTATE ROUTE 81 : ISLAND

Islands are ideal place that attract people. By creating the safe island, green island, colorful island and dream island, this street will not only be an environment friendly street but a people's dream street where they can realize their wish to commune with others.



Existing environment lacks identity and business atmosphere.



Changing the existing parking lot, and creating a large larger one.



Creating environmentally friendly sidewalks and open spaces for people beside the street.



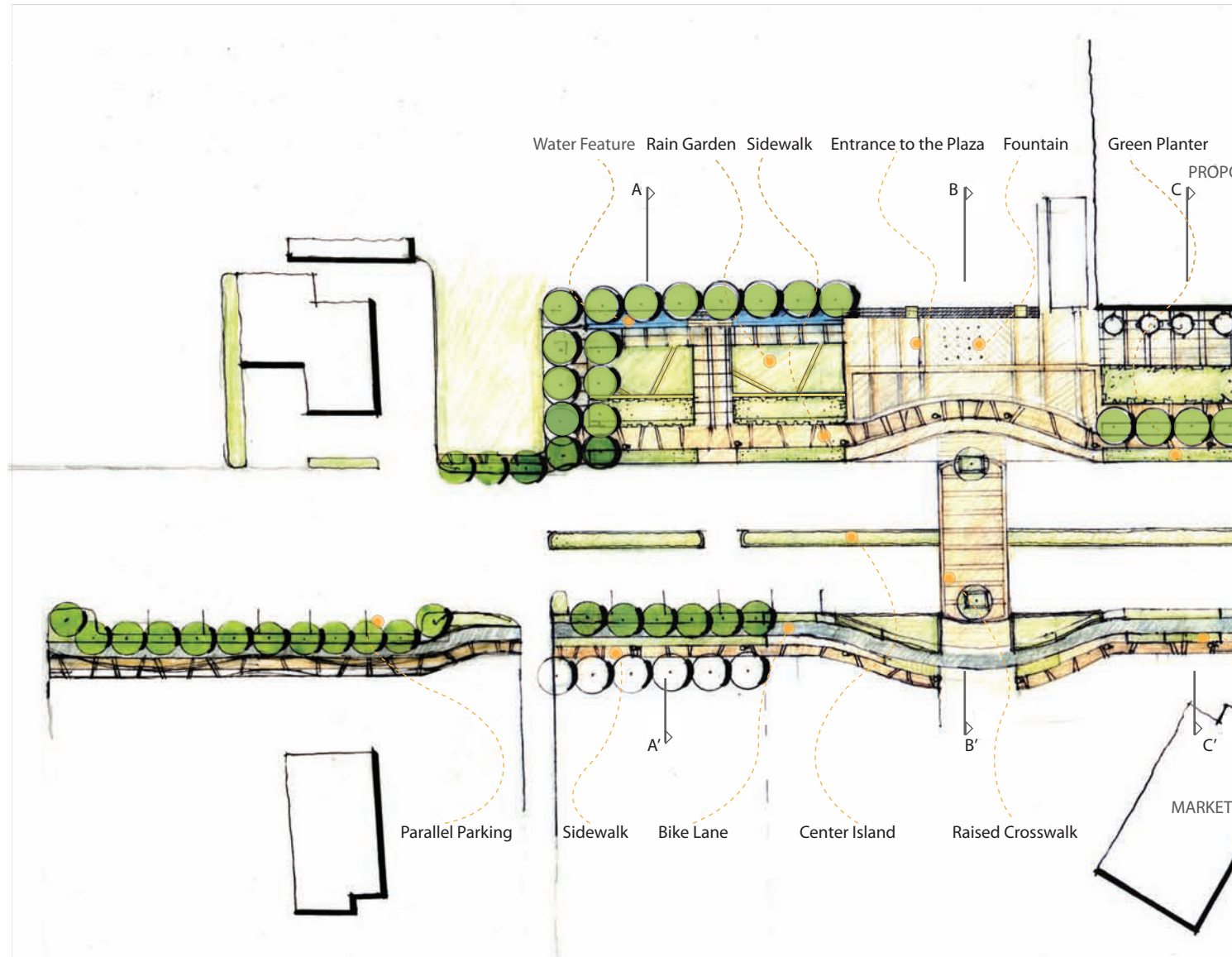
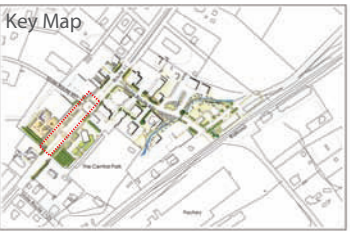
Changing and adding new commercial functions.

7.4.1 ROUTE 11

MASTER PLAN

This drawing is conceptual and was prepared to show approximate location and arrangement of site features.

- 1. The sidewalk is proposed to be widened in order to provide a pedestrian friendly road and a vibrant small town sense of place. Seating, vegetation and water features are provided.
- 2. Traffic calming strategy is proposed to be implemented on the street, which involves changes in street alignment such as widened sidewalk, installation of barriers like center islands, raised crosswalks and parallel parking to reduce traffic speeds and/or cut-through volumes, in the interest of street safety, livability, and other public purposes.
- 3. A Green Street program is also proposed, thus the pollution from the road and parking place can be collected as a stormwater management strategy.





Perspective of Sidewalk



Perspective of Town Hall



Perspective of Water Feature

7.4.2 ROUTE 11

DETAILS



1. A series of public spaces are proposed along Route 11. They are as follows: Plaza, Park Entrance, Community Center Plaza, Secondary Park Entrance, Town Hall Plaza, Bike Shop Plaza, Green Island, Restaurant Plaza and Visitor Center Plaza.

2. Green streets are the conversion of streets not only for landscape, but also for environmental purposes. Green street is a program to convert paved, vacant traffic islands and medians into green spaces filled with shade trees, flowering trees, shrubs, and ground cover.

Public Space System



Legend

-  Public Space
-  Pedestrian System

Green Street System

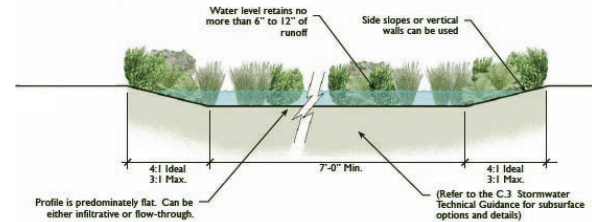


Legend

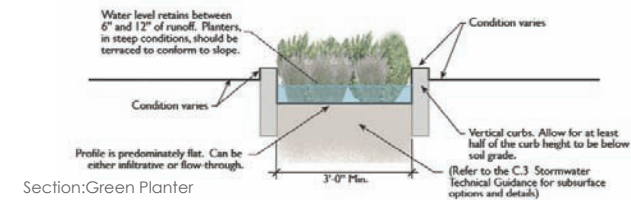
-  Road
-  Green Planter
-  Rain Garden



Green Street System Sections

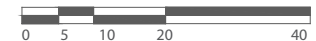
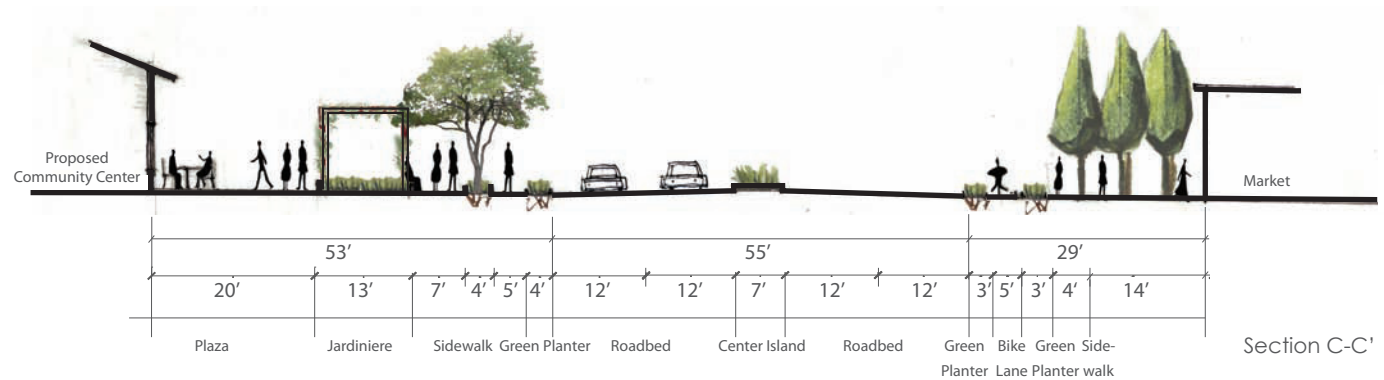
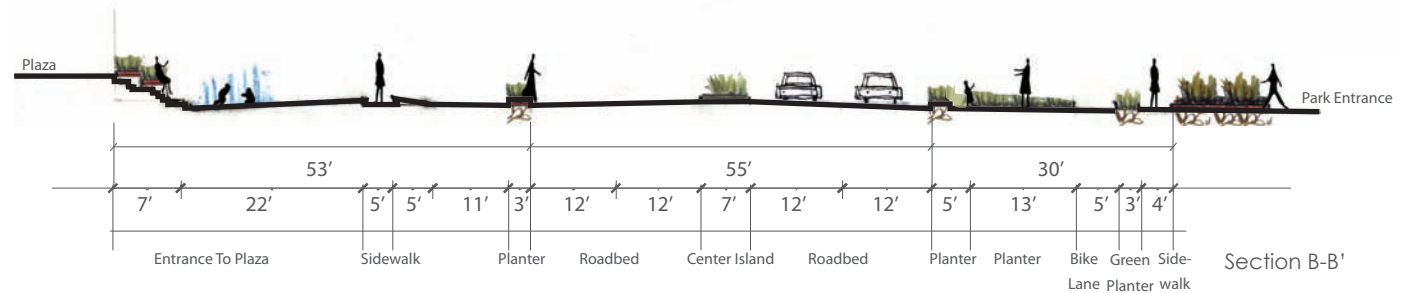
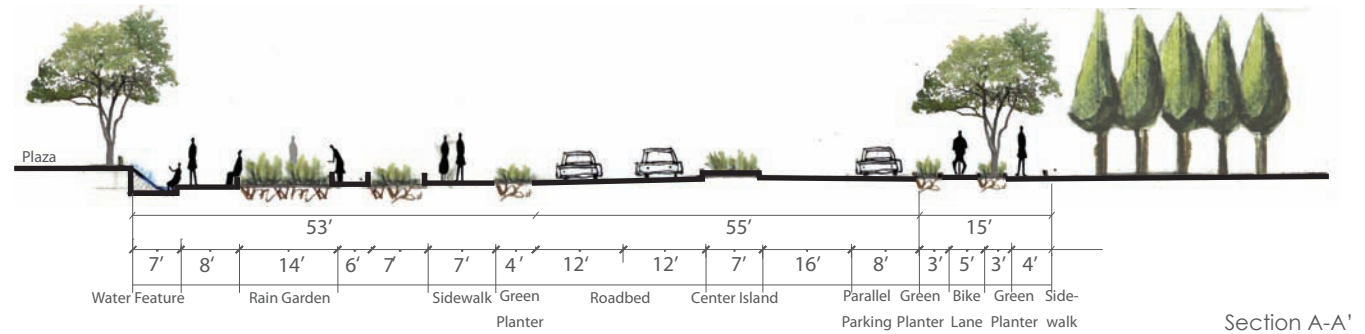


Section: Rain Garden



Section: Green Planter

The vertical dimensions of the section have been exaggerated so that the section will convey not only a pedestrian friendly road, but a sense of vibrant small town with green open space, people biking and walking safely along Route 11, lingering around the garden, playing near the fountain and eating at the outside restaurant. The road is also designed to evoke casual encounter for social activities.



7.5.1 STONEY BATTERY ENTRY NODES

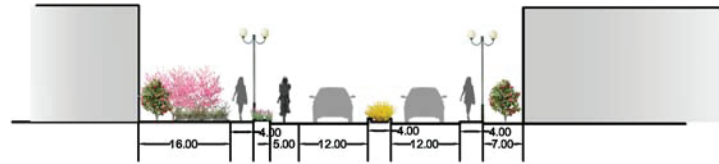
MASTER PLAN AND DETAILS

Stoney Battery road is a significant road in Troutville since there will be a commercial area adjacent to it. Therefore, the sidewalk plays an important role to attract people. Considering the relationship between the building and the sidewalk, the open space should be enhanced for people to linger. The form of the sidewalk is curved by design both for safety and comfort, so that people can be attracted to the business area. With selected vegetation, pavement and outdoor furniture, the sidewalk will be a friendly space for people to stay and certainly will contribute to the identity of Troutville.

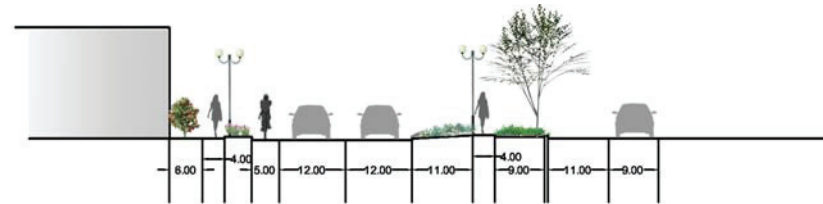


Master Plan of Stoney Battery Road

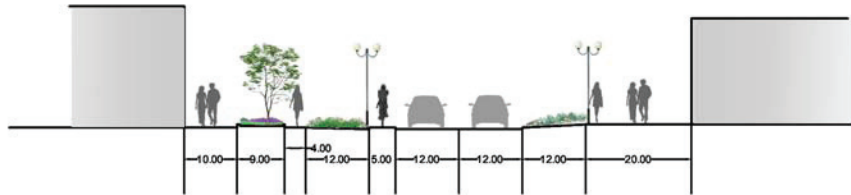
Street Section of Stoney Battery Road



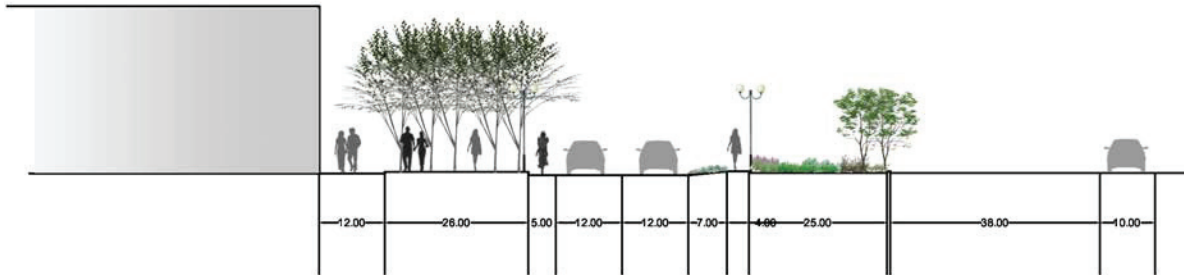
A-A' SECTION 1:30



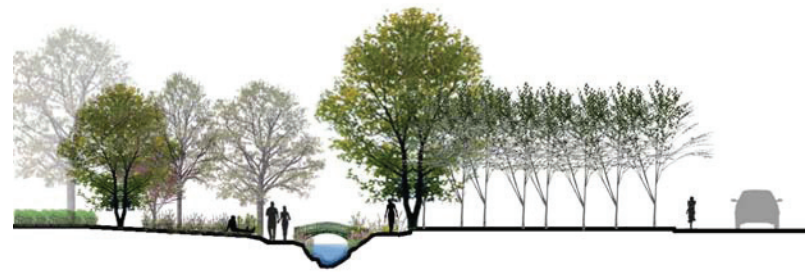
B-B' SECTION 1:30



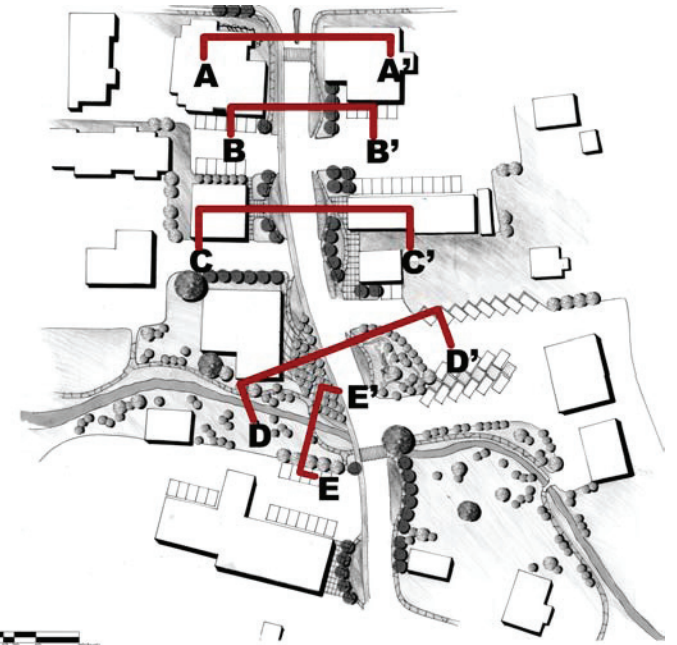
C-C' SECTION 1:30



D-D' SECTION 1:30



E-E' SECTION



7.5.2 STONEY BATTERY ENTRY NODES

STONEY BATTERY/ Route 11 Intersection Details

At the Intersection of Stoney Battery Road and Route 11, an island is designed both for the safety and identity. A sign can be set up in the island and shrubs and flowers can be planted there. Since the Stoney Battery Road will be an attractive commercial area for people, more commercial infrastructure will need to be built. For example, the proposed building beside the road will replace the former residential house and the lawn. Also, an open space will be added in front of the commercial building for people to enjoy and to provide a place to take a rest.



Proposed island at the intersection



A Proposed commercial building replaces the former residential building and the open space is designed for lingering.



A small open space is provided in front the parking lot of the gift shops, with delicate garden design to satisfy people.



VISITORS CENTER - a facility to enhance the past and address the present needs of tourists, hikers, bicyclist and local residents. This area will play off of the history Troutville and Botetourt County, while providing activities, services and information for the user



renovated Appomatox depot

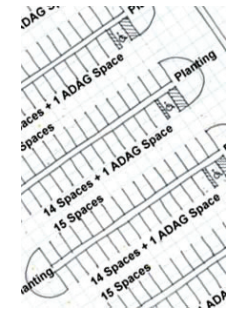
The building is in the style of the former Troutville depot, serving as the tour origination point for local and county wide destinations

BUILDING FACADE FACSIMILE - Existing and new commercial and office buildings will conform to one code for aesthetics of style and form to create a historic commercial district feel and uniformity of place



PAYNTER-LAYMAN CO.'S STORE, TROUTVILLE, VA.

PARKING - Additional parking will accommodate increased visitors and additional commercial volume parking should be available throughout the area. Parking will be vital to the success of this area with the elimination of two major parking areas on Route 11



RESTRICT TRUCK ACCESS - No through trucks or heavy equipment access on Stoney Battery Road from Route 11 to the Norfolk and Southern Railroad Road tracks. This will increase safety and walkability of street and Route 11 junction



7.6.1 VISITORS CENTER

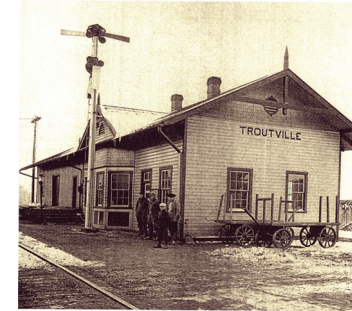
VISITORS CENTER AREA MASTER PLAN

Tourism for the town can showcase the past and present for Troutville, as well as Botetourt County. The Visitors Center is modeled on the original rail depot. The Visitors Center will accommodate tourists from local roads and highways, Bike Route 76, and the Appalachian Trail.

The Visitors Center will act as the focal point of tourism for Troutville and the Botetourt County area. The center will provide services for tourist traveling by auto, bicycle or hiking.

- Information
- Maps
- Area History
- Guided and Self-Guided Tours
- Restrooms
- Souvenirs
- WiFi
- Power Outlets & Charging Station
- Mail Post
- Shower Facility
- Laundry

The proposed bed and breakfast will act as an alternative to the Daleville exit hotels and will strengthen the connection to the community. The addition of a Local Products Store between the B&B and the Pomegranate Restaurant provides an opportunity to sell local harvest products which showcase the town's agricultural heritage. The proximity of the Pomegranate Restaurant, the Town Park, and Cackleberry to the Visitors Center will enhance the tourist opportunities and attract other tourism based businesses to Troutville.



Proposed Local Product Store - local honey, apple cider, jams.

Buffalo Creek

Proposed Bed and Breakfast - alternative to highway hotels

Pedestrian connection to town path leading to City Park, Town Center, shops and dining

Town Apiary - Encourage healthy bee population for orchard polination and honey harvest for Proposed Local Product Store



parking

Stoney Battery Road

parking

Apple Orchard Lane

parking

Existing Pomegranate Restaurant

Proposed Visitors Center

Refaced Pomegranate Restaurant -reflective of other town architecture

Norfolk Southern Railroad

Proposed Bike Wash area with air pump

Connected Patio Provides power outlets and internet signal

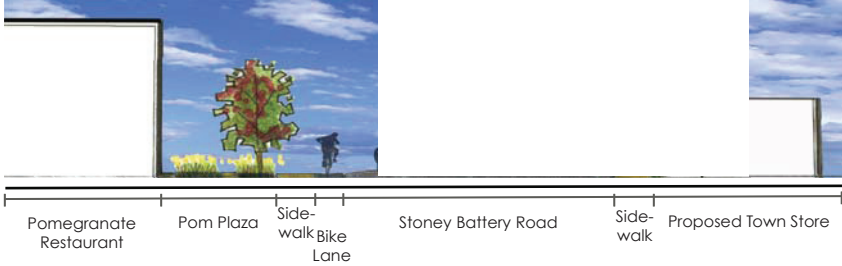
Local History, Walking Tour Guides, Orchard Tours and other visitor information

Center has facilities for showers, laundry with separate entrance for 24 hour accessibility

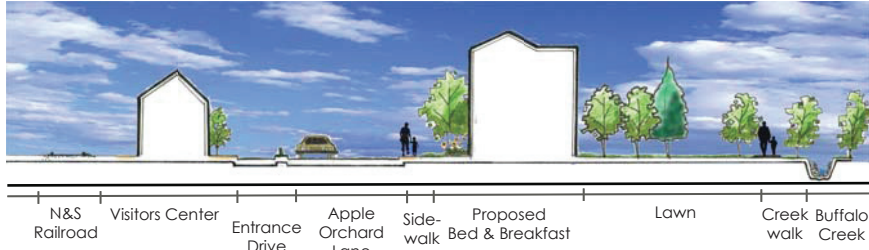


7.6.2 VISITORS CENTER

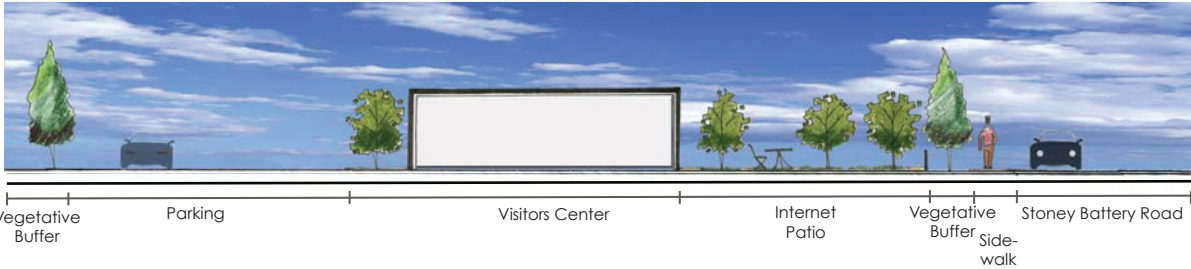
VISITORS CENTER AREA DETAILS



Section A-A



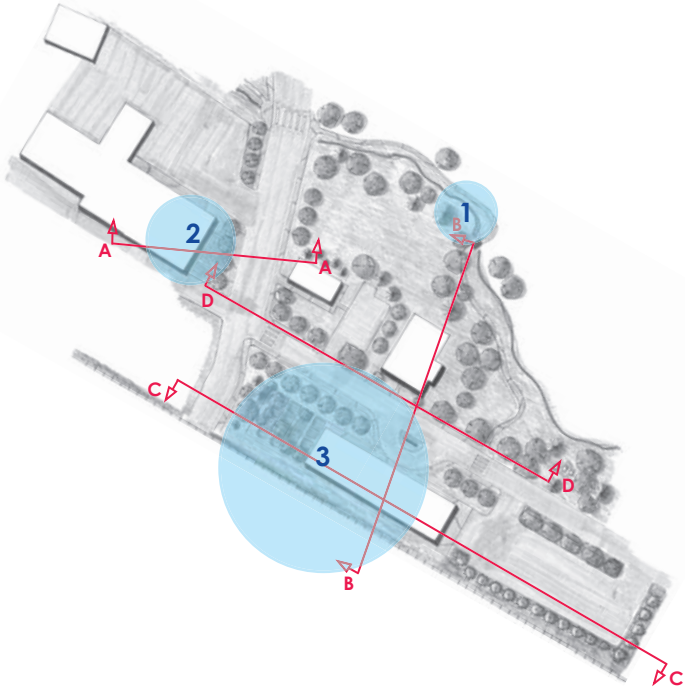
Section B-B



Section C-C



Elevation D-D





Creek Path - 1



Pomegranate Restaurant - 2







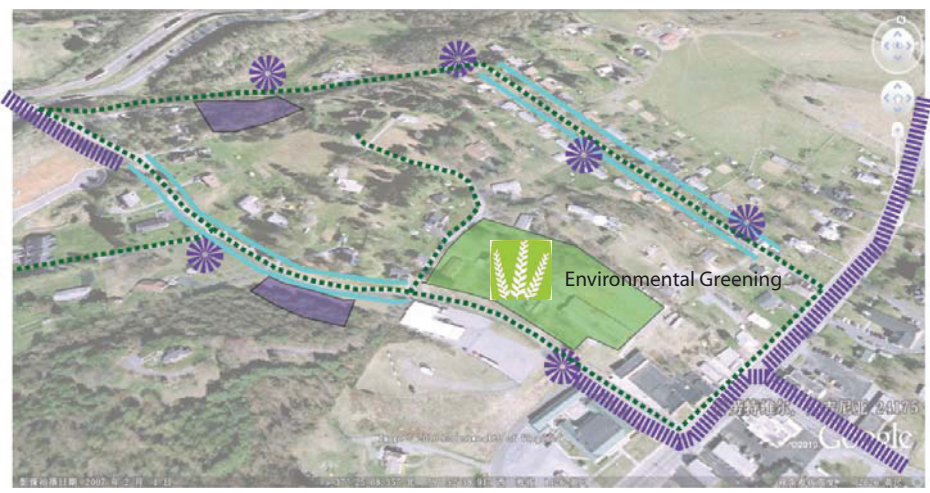
Depot Visitors Center - 3

7.7.0 COMMUNITY OPEN SPACE

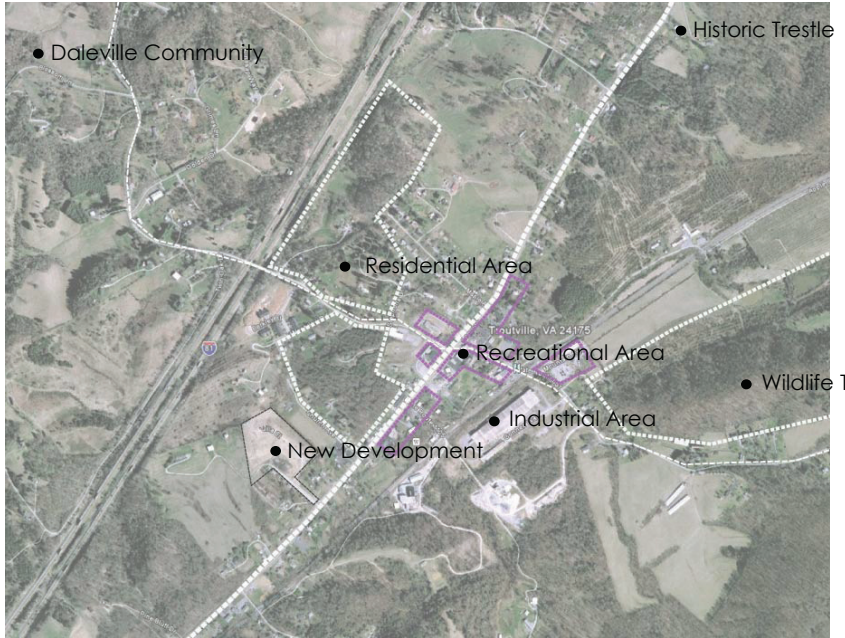
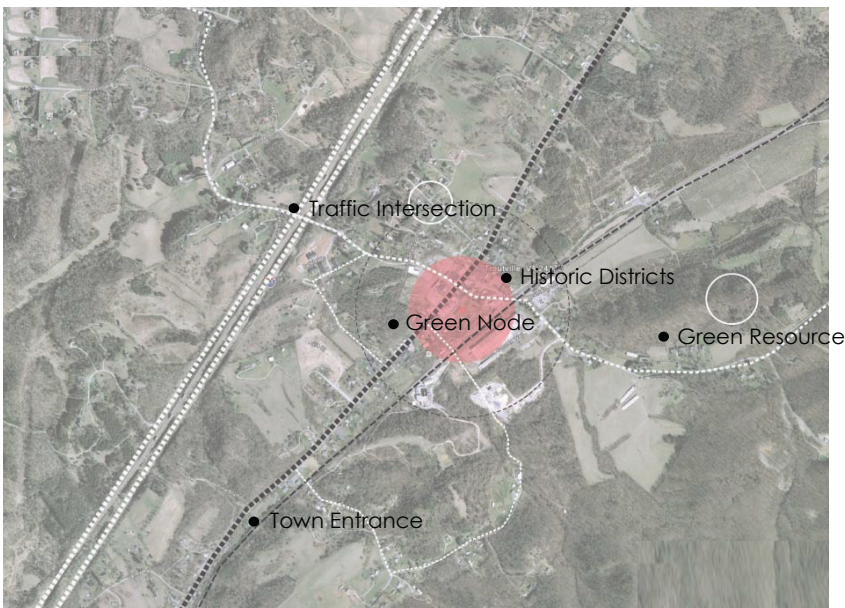
OPEN SPACE ASSESSMENT

Open space is an integral element of community infrastructure. Undeveloped open spaces can be a visual amenity that create opportunities for both passive and active recreation. Open spaces can also perform essential ecological functions that have direct benefits to the community.

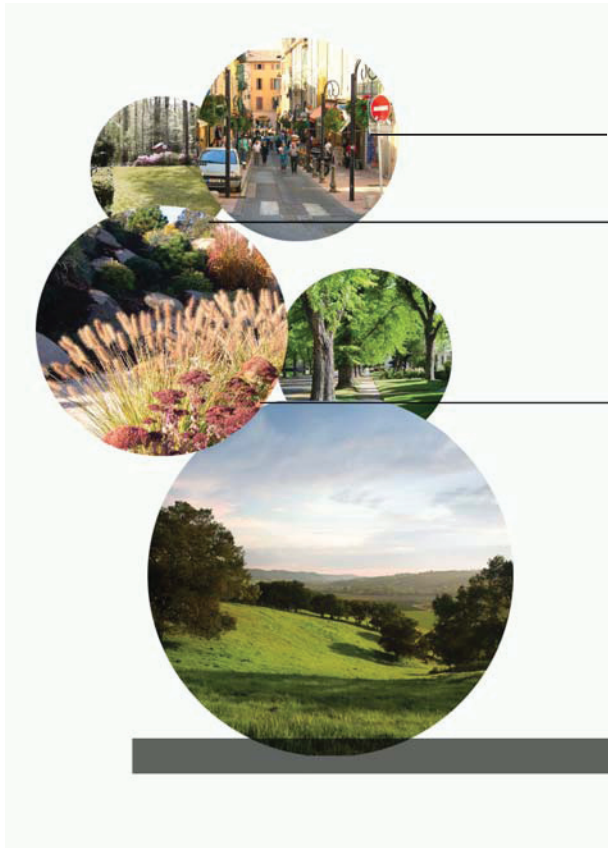
- Legend**
-  Green Streets Loop
 -  Green Node
 -  Public Main Road
 -  Rain Gardens



Open spaces give this residential community green connections. The pedestrian loop has several different green spaces that are small nodes, which provide places for communication and recreation for local dwellers. The green streets are created to coordinate topography conditions.



Environmental Analysis



Commercial Areas

Residential Area
Backyard Visions

Rain gardens



Creating civic space at the doorstep of each residential area, this conceptual diagram depicts potential programming for a proposed linear walking trail, creating a meeting place for neighborhood residents, as well as, providing a more pleasant urban form of Sunset Avenue and Maple Avenue.

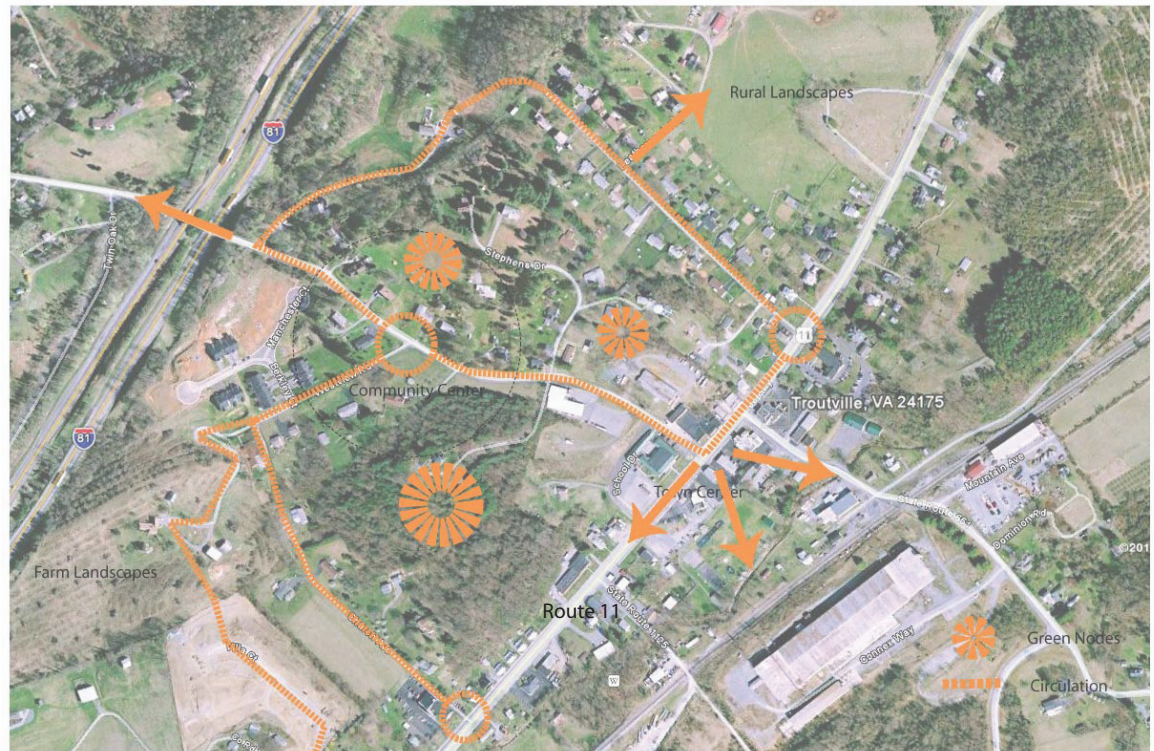
Residential Area
Analysis

Community Loops

Community is adjacent to the main road Route 11 with some different lane designs. The analysis takes into account the scenic qualities of the area, or the visible characteristics, which include form, proportion, line, color, and texture.

Legend

-  Green Node
-  Traffic Circulation



7.7.1 COMMUNITY OPEN SPACE

RESIDENTIAL AREA PLANTING DESIGN

Troutville has a small-town feel. The design creates a greener small town and provides attractive living environment and enhances biodiversity at backyard levels.



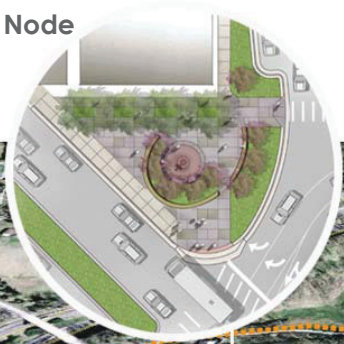
Ground Cover Shrubs Shading Tree Traffic Lane Side Walk Biodiversity Shrubs Biodiversity Backyard

ROAD SECTION A



ROAD SECTION B

Traffic Node



Farm View Preservation



Planting Bio-Diversity



Backyard with Rain Gardens



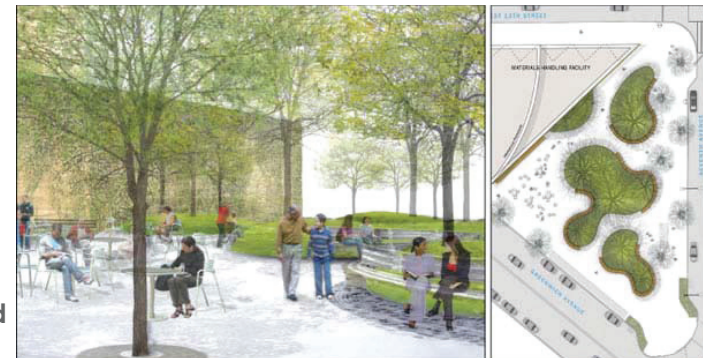
Vision and Concept for Residential Area

Design Illustration

This plan proposes building more green spaces and green street infrastructure to slow down traffic, encourage non-vehicular circulation and beautify the city. The suburban town should begin a make-over of its streets, expecting that its neighbors will emulate its efforts to maintain.

Unlike bigger west-coast towns, such as, Seattle and Portland, which have implemented green street initiatives on a much larger scale, Troutville will set a regional example of an active, healthy community with a vibrant street life.

Perspective View and Plan of Traffic Node

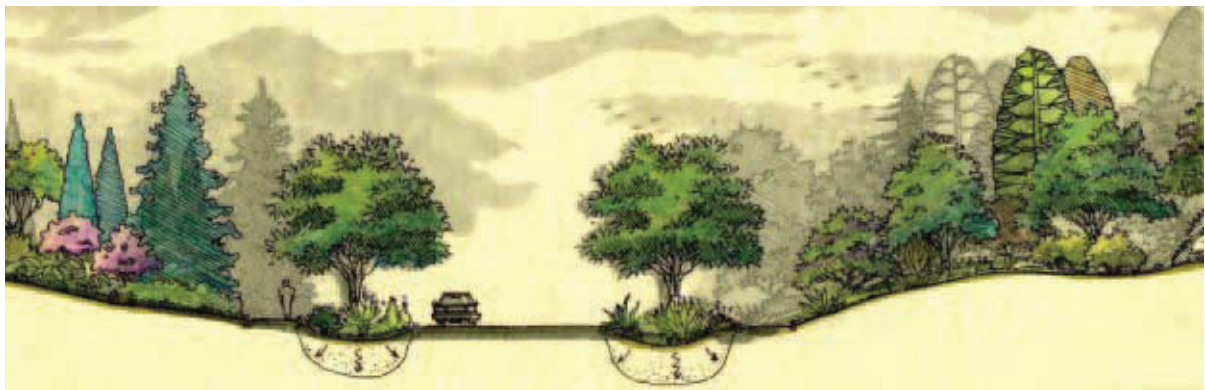


7.7.2 ECOLOGICAL RETROFIT OF GREEN STREETS

DESIGN GOALS

- 1. Use of a vegetated, aesthetically pleasing feature for stormwater management that is easily implementable and maintainable.
- 2. Use of the rain gardens as a streetscape amenity that aids in creating a new identity for "Green Streets" community.
- 3. Use this retrofit project's rain gardens to improve pedestrian safety, traffic calming and overall community image.

This plan calls for a new ecological system for stormwater infiltration in the existing urban neighborhood. This section shows the sustainable water management for this community, such as rain gardens. The street-resurfacing process will create a sidewalk along the road, and keep green space along the road, supporting biodiversity and enhancing some aesthetic values. This drawing shows the enhanced amenity values of the neighborhood and reduces the costs for municipal infrastructure.

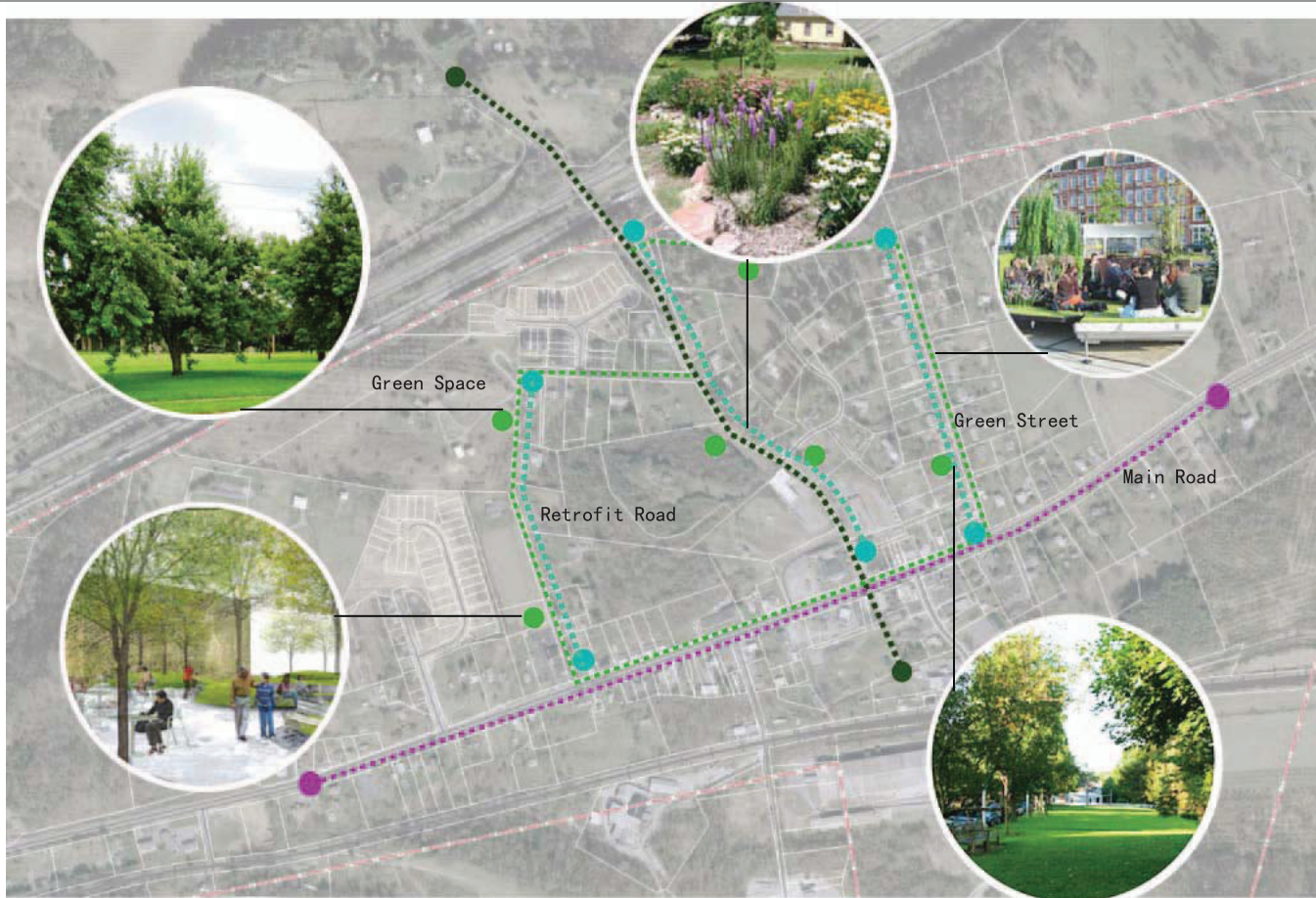


Gardens Sidewalk RainGarden MotorLane RainGarden GreenOpenSpaces

Road Section of Retrofit



Detail Plan of Biodiversity Design



Green Spaces

A series of open green spaces with different styles, shade for pedestrians and wide walks will form a loop through the community. Residents who want to go hiking or enjoy physical exercise will have a resting place.

Troutville's dwellers can not only go to the public park in the downtown area, but also have open spaces in their neighborhoods for communications and other activities.

Road Greening



Traffic System on Site

The different types of green open spaces along the traffic loop: Green Node Square, lawn for entertainment, improved gardens in front of private houses, public space for parties or other communications.











Typical Green Open Space

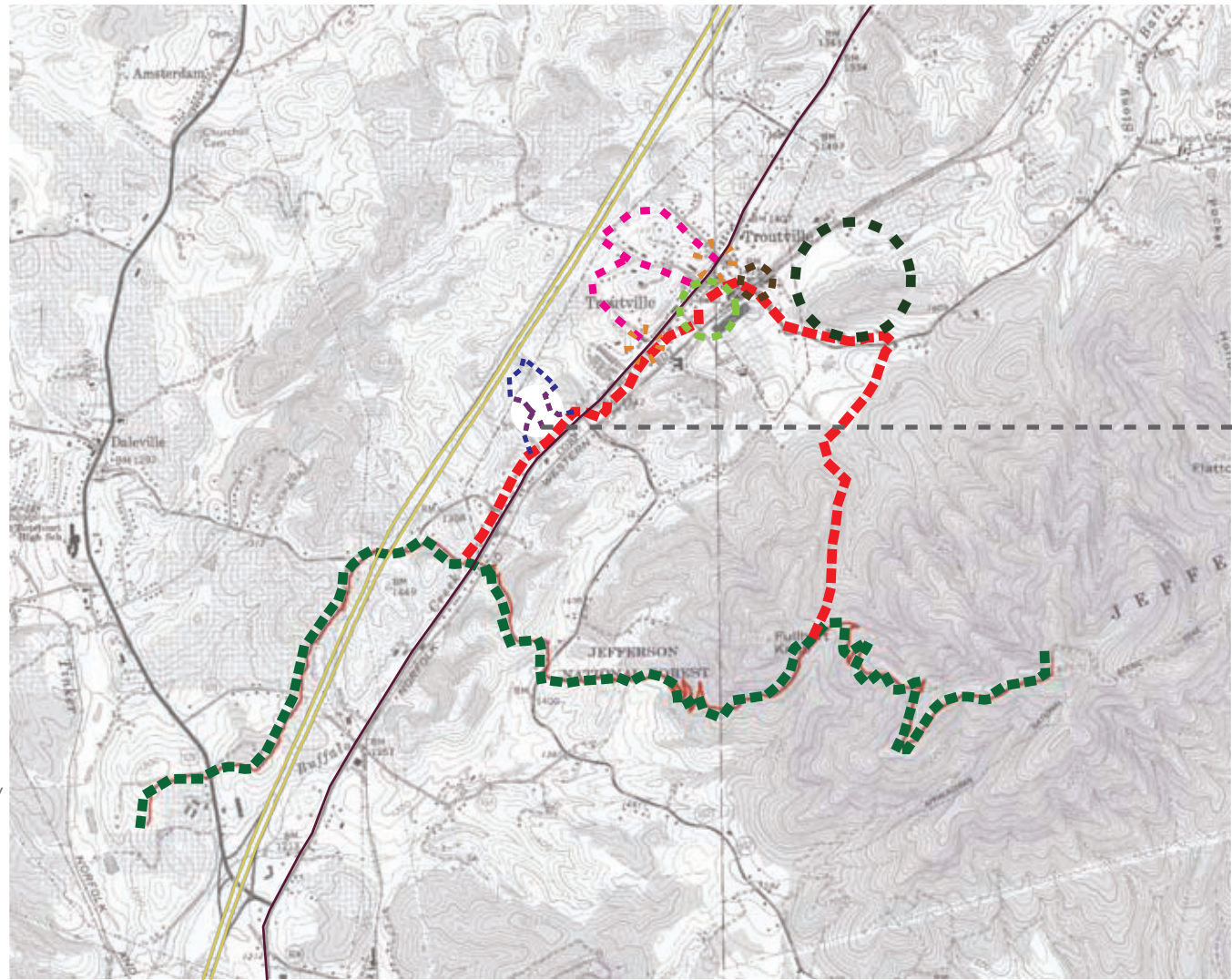


7.8.0 TRAIL

LOOP TRAIL

Design a Troutville loop trail from the Appalachian Trail gateway to the town park with several destinations, such as Woodpecker Ridge Nature Center, new Visitor Center, Greenway Gateway and Nature areas trail.

- Legend**
-  route 11
 -  railroad
 -  appalachian trail
 -  design loop trail
 -  nature area trail
 -  greenway
 -  park
 -  gateway of greenway
 -  new visitor center
 -  Woodpecker Ridge Nature Center



NATURE AREA TRAIL DESIGN

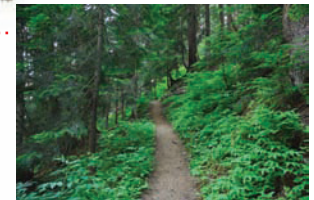
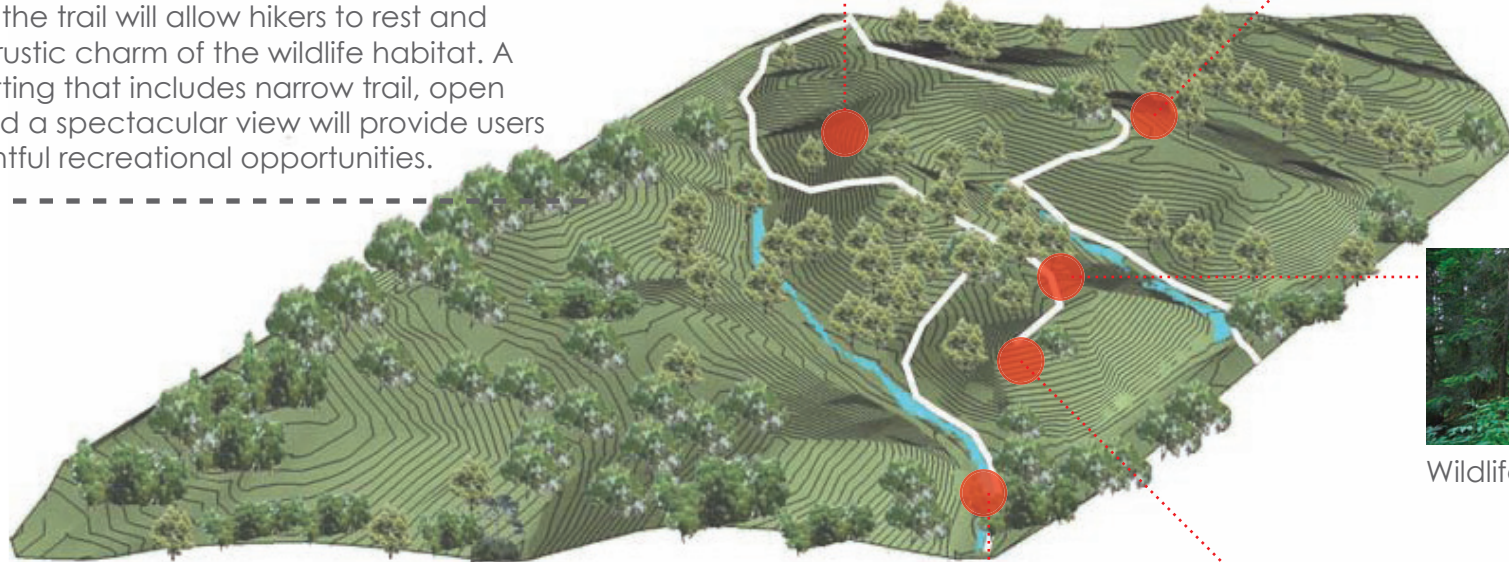
The residents attach great importance to the natural areas in the south of the town. During interviews, citizens frequently mentioned their hopes to utilize their areas for leisure activities. A walking trail can be designed to be designed to accommodate the natural terrain of the area. A viewing platform at the highest point will allow visitors to enjoy the scenic views and the tranquility of the area. Wooden trestles placed along steep places on the trail will allow hikers to rest and enjoy the rustic charm of the wildlife habitat. A diverse setting that includes narrow trail, open spaces and a spectacular view will provide users with delightful recreational opportunities.



wooden trestle



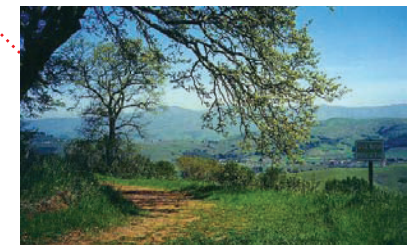
Open space



Wildlife habitat



creek crossing



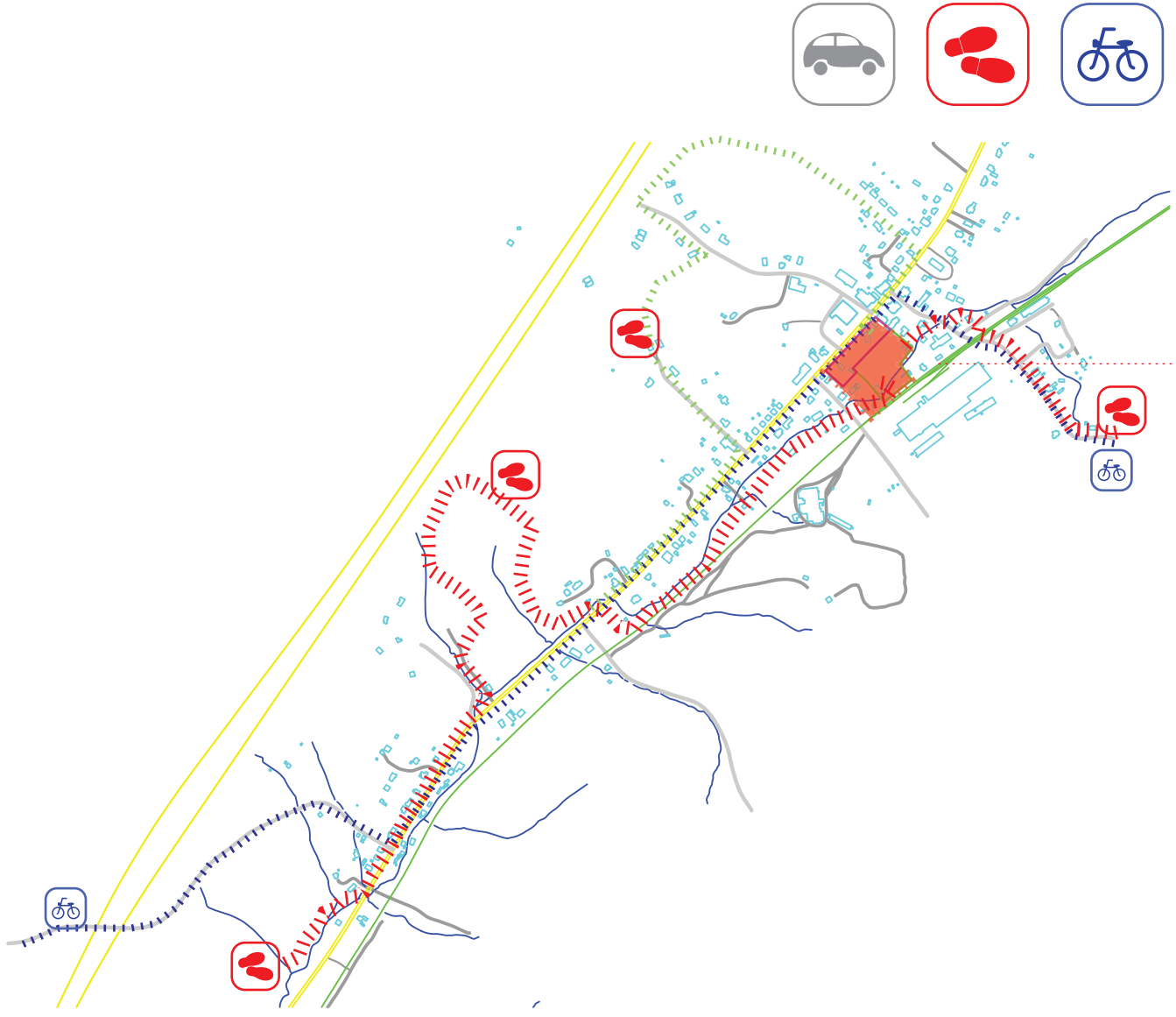
gazebo

7.8.1 TRAIL

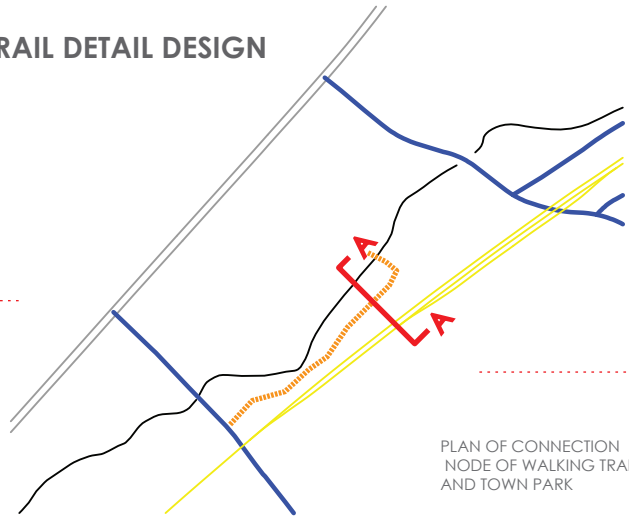
WALKING TRAIL AND BIKE TRAIL

This map is for the walking rail design in site. The walking trail in site focuses on the wishes and the needs of local residents and also aims to strengthen the links between the northern and southern ends of town. Local residents think that the natural area in the central part of town is of great value. Also, at the northern end of the town we designed a greenway area and a new visitor's center. These, as well as the town park, are the main destinations of the walking trail in site. Part of the walking trail is along the creek and the railroad. It will provide diverse experiences to the users.

- Legend**
- ||||| walking trail in site
 - ||||| bike route 76
 - ||||| walk trail to greenway
 - town park



WALKING TRAIL DETAIL DESIGN



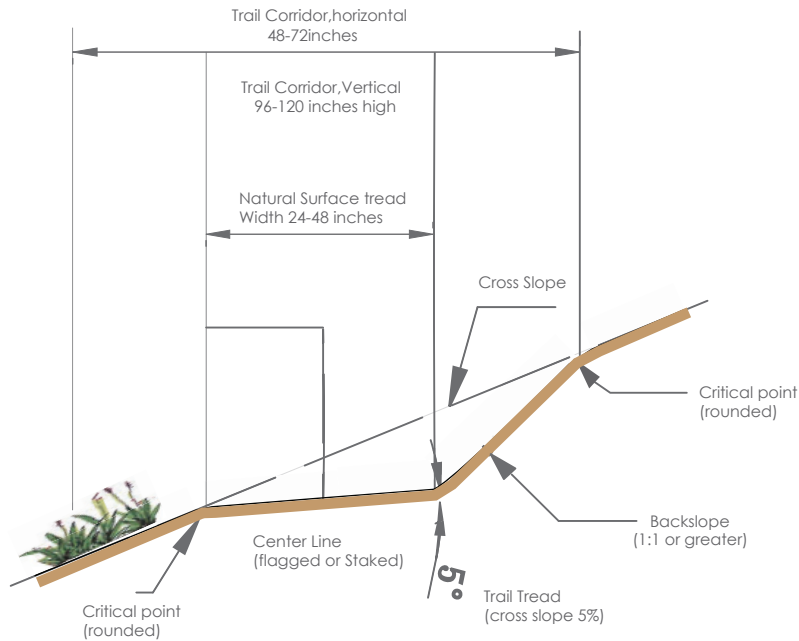
PLAN OF CONNECTION NODE OF WALKING TRAIL AND TOWN PARK



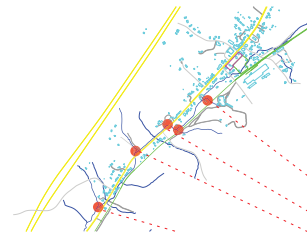
PERSPECTIVE VIEW OF CONNECTION NODE OF WALKING TRAIL AND TOWN PARK

A-A SECTION OF CONNECTION NODE OF WALKING TRAIL AND TOWN PARK

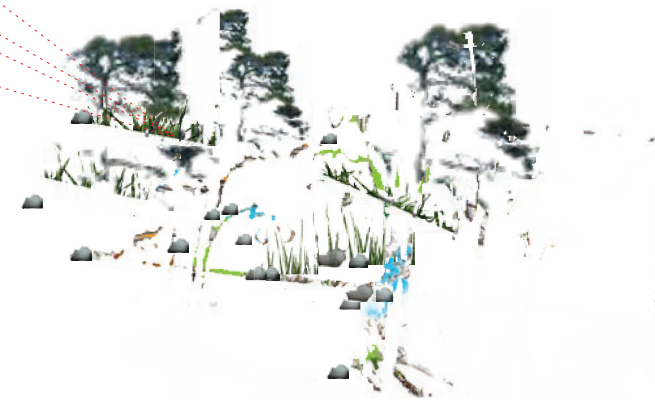
The town park is isolated from the surrounding environment. When the walking trail meets the town park, there is not a good linkage. In order to solve this problem, we designed a wooden trestle, built on top of the creek, connecting to the wooden bridge which leads to the town park.



TYPICAL TRAIL CROSS-SECTION



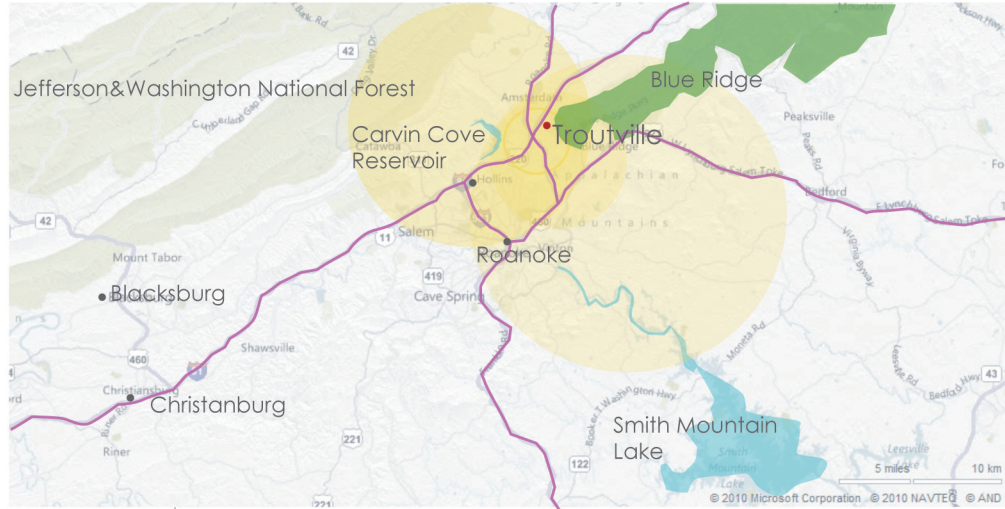
STREAM CROSSINGS NEEDED



7.9.0 TOURISM ROUTE PLANNING

TOURISM RESOURCES

Troutville can be a tourism hub. It has a wealth of good resources nearby, which may have been ignored in the past. North of Troutville are the Jefferson and Washington National Forests. East of the town are the Blue Ridge Mountains which have an abundance of scenery and nature. Southwest of the town is the Carvin's Cove Reservoir. People can also experience lake scenery at Smith Mountain Lake, southeast of Troutville. In addition to natural tourism resources, there are also several cities with unique characteristics. For example, people may go to Blacksburg for a football game or enjoy the Huckleberry Trail to Christiansburg. Roanoke is a commercial center for tourists with a Transportation ART Museum.



National Forests



Blue Ridge Parkway



Roanoke

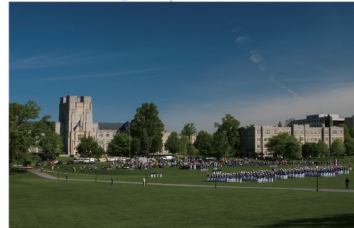


Carvin Cove Reservoir



Smith Mountain Lake

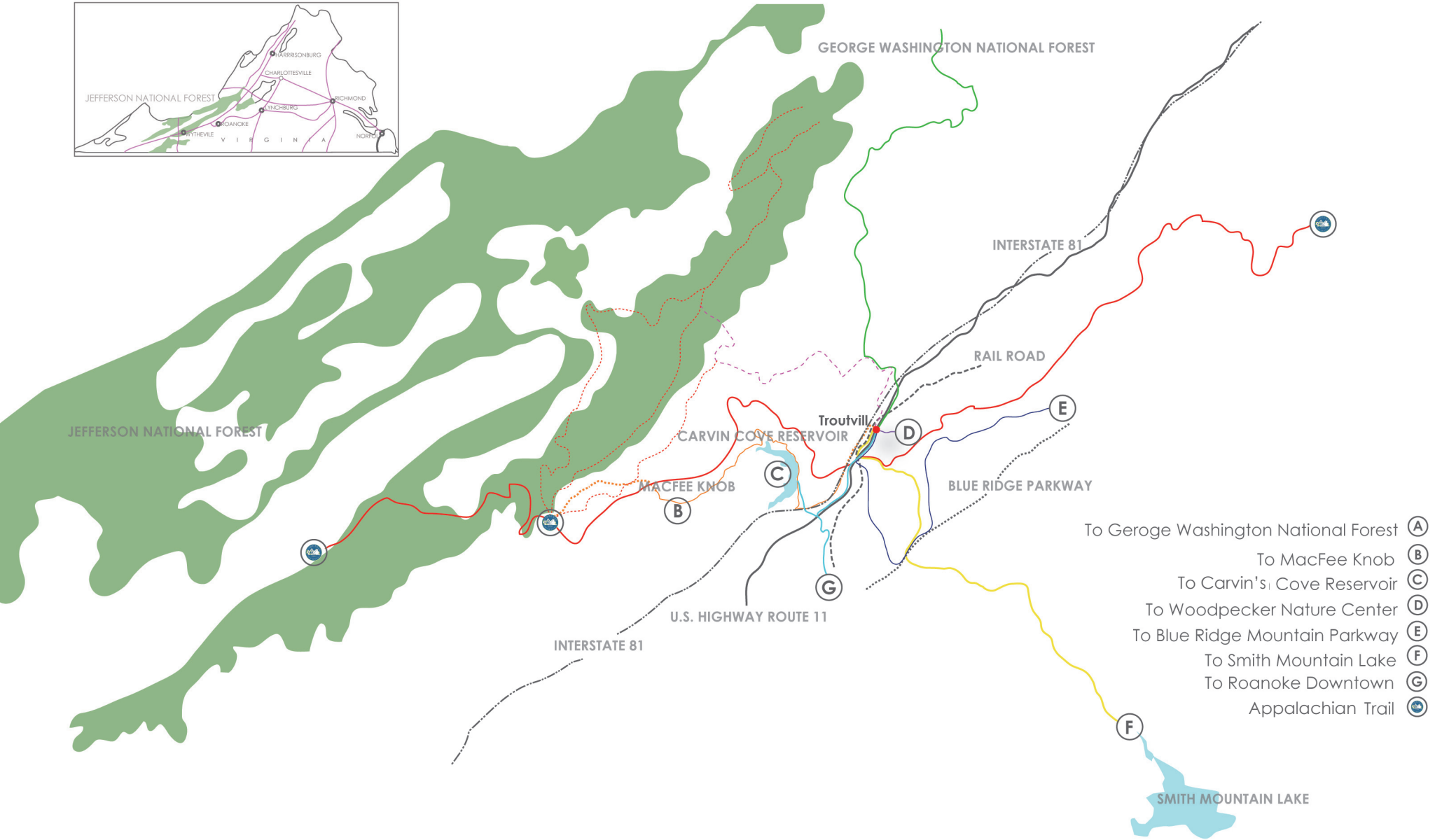
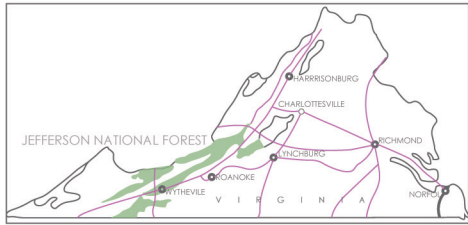
Blacksburg



Christiansburg

Tourism Resources

TOURISM CONNECTIONS



- To George Washington National Forest (A)
- To MacFee Knob (B)
- To Carvin's Cove Reservoir (C)
- To Woodpecker Nature Center (D)
- To Blue Ridge Mountain Parkway (E)
- To Smith Mountain Lake (F)
- To Roanoke Downtown (G)
- Appalachian Trail (Trail Icon)

7.9.0 TOURISM ROUTE PLANNING







TOURISM ROUTES CLASSIFICATION

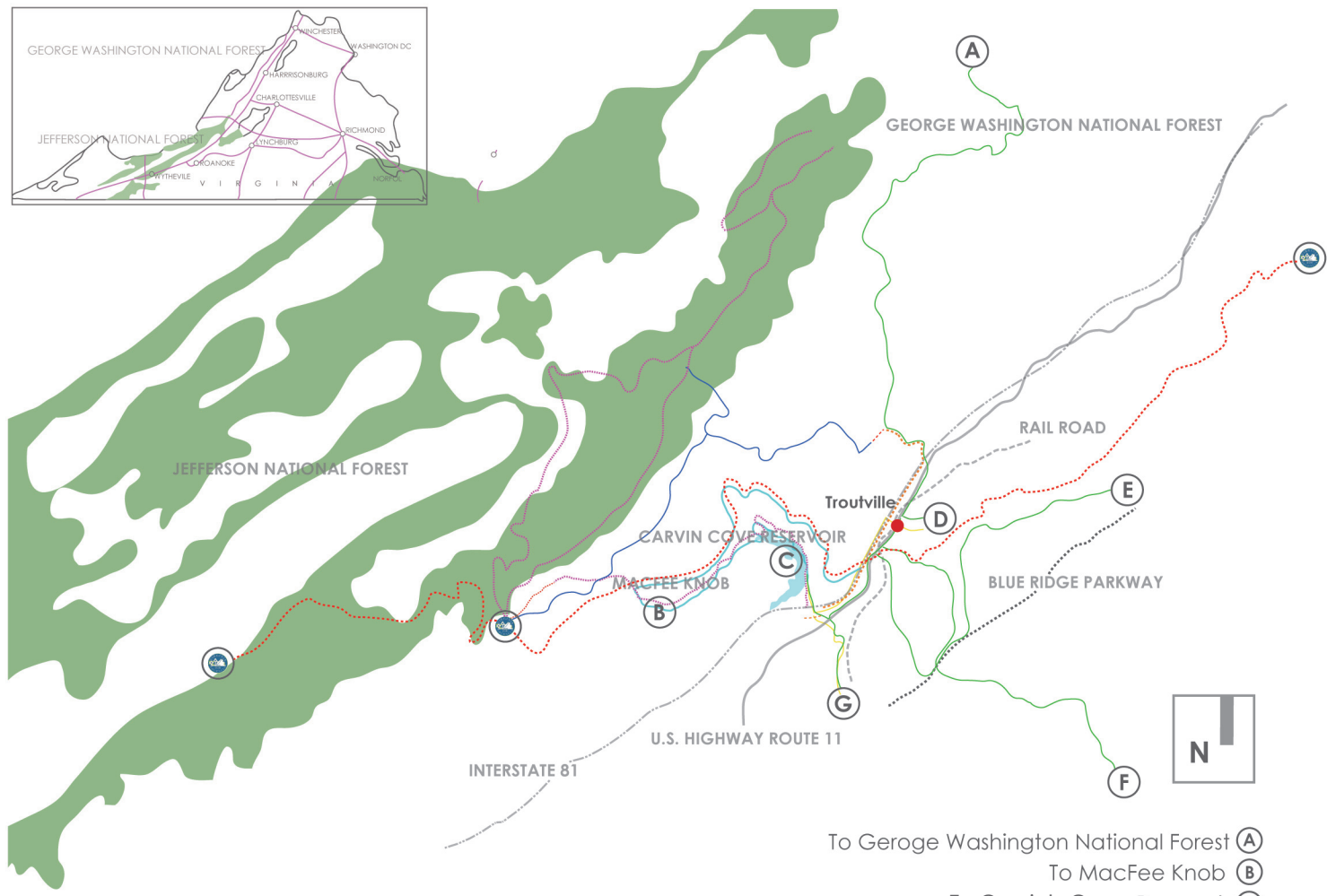
According to the topography of the existing trail situation, the routes will be classified into 6 categories the Appalachian Trail is the main trail and other trails will be connected to it.

Mountain area:
 Mountain walking trails
 Mountain cycling trails
 Horseback riding trails

Plain area:
 Road cycling
 Driving
 Road walking trails

Legend

- Driving Route 
- Appalachian Trail 
- Mountain Walking Trail 
- Road Walking Trail 
- Horse Riding Trail 
- Road Cycling (Bike Lane) 
- Mountain Cycling Trail 



- To George Washington National Forest (A)
- To MacFee Knob (B)
- To Carvin's Cove Reservoir (C)
- To Woodpecker Nature Center (D)
- To Blue Ridge Mountain Parkway (E)
- To Smith Mountain Lake (F)
- To Roanoke Downtown (G)
- Appalachian Trail (AT)

7.9.1 WOODPECKER NATURE CENTER

IMPROVEMENT OF WOODPECKER NATURE CENTER

Several proposals are included to improve the Wood Pecker Nature Center which will enhance tourism.





TROUTVILLE, VIRGINIA

7.9.1 WOODPECKER NATURE CENTER

IMPROVEMENT OF WOODPECKER NATURE CENTER

Proposal 1

More vegetation with berry fruits as provided, conifers and flowering plants can attract more birds and butterflies.

Proposal 2

Clearly classifying the road system inside the Nature Center and provide another entrance which can be easily reached from Troutville.

Proposal 3

Provide activities, such as yoga club in the groove, rock climbing and bird watching.

Provided Berry Fruits Vegetation

Plants	Scientific Name
Chinese holly	<i>Ilex cornuta</i>
Hawthorn	<i>Crataegus pinnatifida</i>
Elaeagnus pungens	<i>Elaeagnus pungens</i>
Soapberry	<i>Sapindus mukorossi</i>



Provided Activities

8.1.0 FUTURE VISION

OPPORTUNITIES

Some final images of a future vision for Troutville



Reconstructed Painter-Layman Company Store Building

Marley's Magic Mirror and
Adjacent Office
Building on Stoney
Battery Road Refaced



