

## Chapter 7: Transportation

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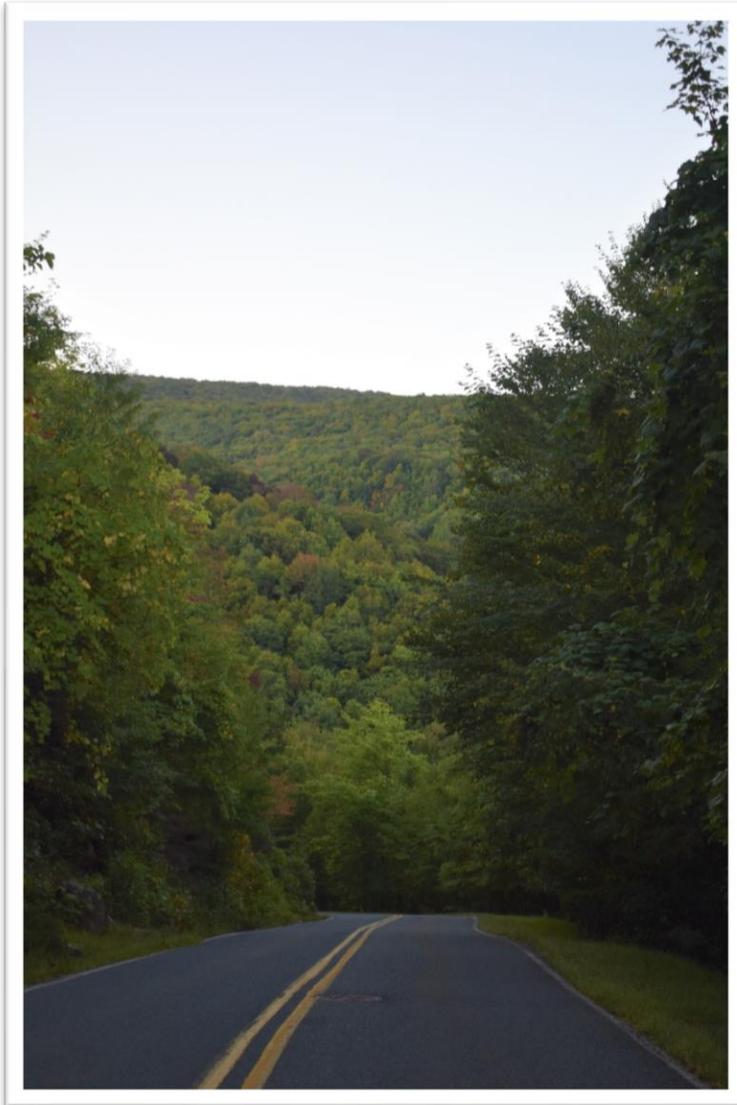
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## Background

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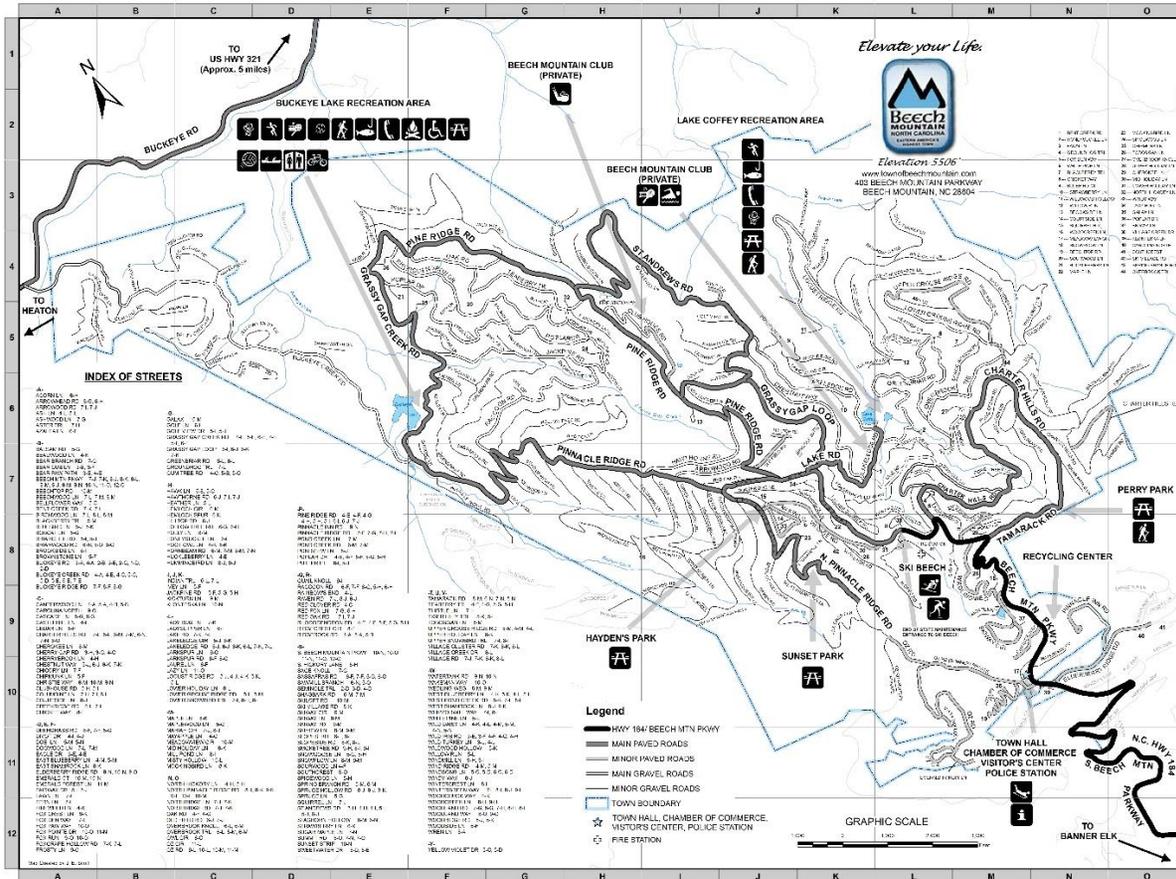
**T**ransportation in Beech Mountain presents an extremely unique set of challenges and opportunities. Unlike most cities and towns, addressing congestion and traffic flow are not major concerns here. While Beech Mountain may be, to a large extent, immune from the major traffic concerns facing other areas, there are an abundant set of different problems with which Beech Mountain is faced. From dealing with our extreme terrain and weather, to maintaining and managing a vast network of paved and unpaved roads, the challenges here rival those of anywhere else.

Safe, convenient, and efficient transportation have major impacts on the overall quality of life of an area. They also form one of the most essential and fundamental functions of the Town. While there can be much debate over the long-term importance of such Town functions as zoning regulation or aesthetic or economic policies or programs, there is little dispute that without maintaining its road infrastructure, the Town would decline.



# Beech Mountain Roads Map

SEE APPENDIX FOR FULL SIZE MAP



## ROAD STATISTICS

65.62 MILES OF MAINTAINED ROADS

- 45.23 miles stone or gravel
- 20.39 miles hard surfaced

198 ROADS

.2 miles of road per capita

\*Highest ratio in the State of North Carolina!!

For comparison:

BLOWING ROCK- .024 mi. per capita

BANNER ELK- .011 mi. per capita

ASHEVILLE- .004 mi. per capita

BOONE- .002 mi. per capita

Source: NCDOT Powell Bill Data 2011

Beech Mountain receives only \$1669.32

per mile of maintained road in State

Powell Bill funding. For comparison,

Boone receives \$9783.05 per mile.

Requires approximately 8,000 tons of ABC gravel for road stabilization per year



## Transportation Goals, Policies, and Strategies

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### Goal T.G1: Provide a top level of service on our transportation infrastructure within Beech Mountain

Maintaining our Town's roads in a high state of usability and functionality is a top priority. The following policies and programs aim to achieve this goal.

#### Policy T.G1.P1: Improve Roads in a manner that enables the efficient use of resources

Providing paved roads encourages development, and Beech Mountain has been no exception to this general rule. Early development under the Carolina Caribbean Corporation was centered around Beech Mountain Parkway, then the Town's only paved route. The paving of Pine Ridge/ Pinnacle Ridge Roads in the early 2000's led to the expansion of the Town in that direction and opened up a whole new flurry of development of new residences in the Westridge and Laurel Gap neighborhoods of Beech Mountain.

When considering future infrastructure projects on Beech Mountain, the town should consider where it wants growth to occur (See Land Use, Chapter 5). Rather than pave outlying roads in the hopes of encouraging new development, consideration should be given to encouraging more infill development for the efficient use of infrastructure resources. Paving the roads in the areas of town that are currently developed would be more efficient because there is already heavy use and demand on these roads. These roads would also be easier to maintain because they are closer in and they are contiguous to other paved roads. Consideration should also be given to the ability to create paved linkages and connections from existing paved routes.

#### Strategy T.G1.P1.S1: Continue to implement gravel and pavement maintenance schedule

The Beech Mountain Public Works Department has currently implemented a gravelling and paving rotation program. It is the goal of the program to ensure that every gravel road surface is maintained at least once every 3-5 years and more highly traveled roads are maintained even more often. Regarding paved roads, the program tries to ensure they are resurfaced approximately every 20 years. Again, more traveled roads and those in greatest disrepair may receive attention more often. In addition to scheduled maintenance, roads in disrepair receive patching, grading, and repair as needed.

This program could be improved by utilizing more advanced analysis techniques to make sure that efforts and funds address the correct roads at the right times. Such analysis could be based on many factors including usage, condition, cost, etc.

#### Strategy T.G1.P1.S2: Look for ways to improve multi-modal connectivity between major destinations

Beech Mountain's sinuous and winding roads can be difficult to navigate. It can take quite a long time to get to a place that is actually geographically very close. Where possible, Beech Mountain should pursue initiatives that will help increase connectivity and decrease travel times.



Strategy T.G1.P1.S3: Continue to monitor the State’s approach to acceptance of existing municipal roads into the NCDOT’s maintenance program.

In certain circumstances, State maintenance of certain larger roads within Beech Mountain could serve to improve the efficiency of Town services. Giving maintenance responsibilities to some of Beech Mountain’s larger roads to the State would allow the Town to more effectively utilize resources on maintenance of neighborhood streets and would lower costs to citizens. However, the increased efficiency that may be achieved must be balanced against the consequences of the loss of Town control over such roads and the Town’s ability to provide more individualized and flexible services to our residents. Currently, NCDOT policy is not favorable to accepting existing municipal roads into their system. Nevertheless, the Town should continue to monitor the State’s approach to accepting roads into their maintenance system and should consider the benefits of turning roads over to the State if the opportunity arises.

### Goal T.G2: Ensure that Beech Mountain is accessible

A quality transportation network means not only the ability to get around in Beech Mountain, but the ability to get here in the first place, and the ability to get from here to somewhere else.

Policy T.G2.P1: Support and undertake measures that make it easier to get to and from Beech Mountain

Beech Mountain is located approximately 40 minutes from the regional center of Boone and approximately 10 minutes up a steep mountain road from Banner Elk, the nearest source for many daily necessities (See chart below for travel times to/ from selected places). Beech Mountain is also nearly two hours from any major airport. While by no means isolated, it is hard to argue that Beech Mountain is not remote. And while distance and freedom from larger cities and their issues provides some of the charm of Beech Mountain, it also causes many difficulties for our businesses and residents. It is extremely rare that anyone “stumbles upon” Beech Mountain while in the area. Contrarily, to get here, you must have meant to come here. And no one passes through Beech Mountain on the way to anywhere else. While it is not possible to overcome some of these geographic constraints, it is possible to advocate for projects and policies that would mitigate some of the problems.

Strategy T.G2.S1: Support measures such as NCDOT plans that would enhance major arteries that lead in the direction of Beech Mountain

The NCDOT is currently undertaking a project to improve NC Highway 105 that would greatly increase the ease of accessibility from Boone and points beyond. As opportunities arise, the Town should support and advocate for such measures, including the improvement of US Highway 184 and US Highway 321. *However, the town should be an advocate for improving these roads in a way that places a high importance on maintaining the character of the landscape and improves roads in the least invasive manner possible.*



Strategy T.G2.S2: Improve the accessibility of Beech Mountain by improving Buckeye Creek Road

Many of Beech Mountain's residents are not even aware that there is a way to get to Beech Mountain other than Hwy. 184/ Beech Mountain Parkway. Buckeye Creek Road provides another entrance to town from the north. Known as the "back gate" this was once a gated entrance. Today it provides open access to the town over a 2 mile stretch of gravel road through an uninhabited area of Town. Though this route might seem remote, it is actually very convenient and functional (see the adjacent chart for comparative travel times from Buckeye Recreation Center to the regional center of Boone and other destinations).

Perhaps more important than its convenience is the role that this route might play in an emergency. Imagine a large forest fire of the magnitude of those experienced in the Western United States travelling quickly up Beech Mountain from the Banner Elk area and you will quickly appreciate the importance of a second exit to the Town. This road should receive high priority on the improvement list because it is important as a relief valve or evacuation route in the event of an emergency.

Strategy T.G2.S3: Create/ Improve other access routes

Besides Buckeye Creek Road, there are other routes that do, or potentially could, provide alternative egress routes from Beech Mountain. These routes, in general, are in poor states of development and usability. Quite often they traverse private property. Nevertheless, the Town should, as a matter of policy, encourage that these avenues be improved to a minimal level of usability. These routes needn't be main arteries into or out of town. They should instead be thought of as safety routes that would assist people in evacuation scenarios. They also may serve to relieve some traffic if Beech Mountain grows to build-out capacity in the future. At the next revision cycle of Watauga and Avery County's Comprehensive Transportation Plans, advocate for the NCDOT to acknowledge these routes and include them in the respective county's transportation improvement plans. If possible, the Town should also negotiate with private landowners regarding town improvements to these routes.

## FUNCTIONAL CONVENIENCE OF THE "BACK GATE"

From Buckeye Rec. Center to Boone:

Via Buckeye Creek Road= **39 minutes**

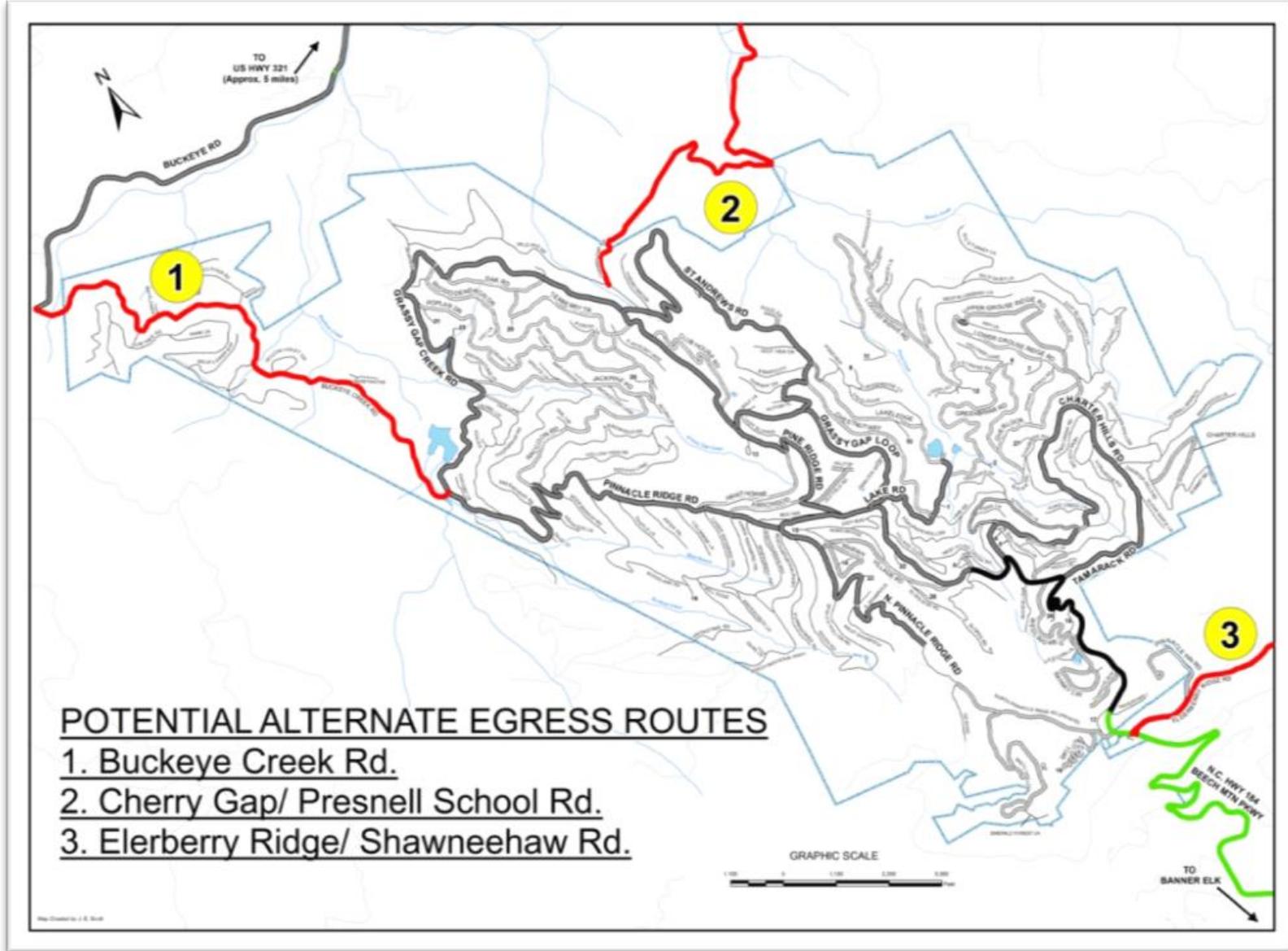
Via Beech Mtn Pkwy/ Banner Elk= **55 minutes**

From Town Hall to Boone:

Via Buckeye Creek Road= **54 minutes**

Via Beech Mtn Pkwy/ Banner Elk= **38 minutes**





## Goal T.G3: Provide for Increased Safety for our transportation infrastructure

Although it is important to create an efficient and functional transportation network, safety should always be of highest importance. Whenever feasible, the Town should support measures and programs to increase the safety of our transportation network. The following strategies are some of the ways the town can help promote the safety of our transportation network:

### Strategy T.G3.S1: Continue to pursue and enforce Right of Way clearance

Many dangerous traffic situations are due to poor line-of-sight on our curvy and undulating roads. The town should also continue to clear vegetation from road right of ways, especially at intersections and other areas of limited visibility. The Town also should vigilantly prohibit encroachments into the right of way by landscaping, parking, etc.

### Strategy T.G3.S2: Improve communication for problem notification

Citizens or visitors often know about problems with roads before the town. The town should consider ways that make it easy for that information to be quickly relayed to maintenance personnel. One means may be to implement an on-line problem “drop box” where citizens can quickly and easily report troubles with the transportation network such as potholes, drainage problems, snow removal issues, etc.

### Strategy T.G3.S3: Continue and improve the effective snow removal program

Snow and ice on the roads can pose some of the greatest challenges to motorist safety. The Public Works Department strives to provide excellent service in clearing the roads and is quick to plow and chat our roads as soon as snow and ice fall. The town is equipped with the machinery for placing rock dust (chat) on snowy roads. Chat is the best method for providing traction on our large number of gravel roads, but is not as effective as road salt on paved roads. In the future, the town may consider acquiring the infrastructure necessary to salt our paved roads as well as chat on the gravel roads.

### Strategy T.G3.S4: Continue to implement driveway and curb-cut regulations and consider modernizing and updating the Beech Mountain Manual on Driveway Regulations

Beech Mountain requires permits to connect driveways to town roads. The standards for permit approval include safety precautions such as the assurance that water drainage (and ice) from a driveway will not drain into the road. Beech Mountain’s manual on Driveway Entrance Regulations, however, is outdated and needs improvement. The manual could incorporate other standards that would ensure adequate sight distance from driveways as well as other safety improvements found in more modern driveway manuals. Also, the Town should discuss the driveway regulations’ restriction against driveways accessing multiple properties and determine if that policy should be continued.

### Strategy T.G3.S5: Continue to implement the Town’s road signage upgrade plan

Visible and adequate signage can significantly contribute to safer roads. In 2011 the Town developed a plan to upgrade our signage to meet Federal standards for retro-reflectivity and night visibility. A major facet of this plan is the use of GIS technology to keep better



records regarding the location and condition of our signs. This data could be used to better monitor the signs and to implement replacement programs.

Strategy T.G3.S6: Identify steep drop offs and emplace guard rails

There are several places on our roads where the shoulder drops off precipitously from the edge of the road. These locations should be identified, and guard rails emplaced to help prevent serious accidents.

Strategy T.G3.S7: Consider emplacing low impact (or no impact) methods of regulating speed at various locations throughout town

Beech Mountain has a town-wide speed limit of 25 mph, which is adequate to promote safety on our roads. However, there are several locations where the design of the road, its grade, lack of curves, etc. contribute to a situation where it is easy to exceed the speed limit without intending to do so. The Town should consider methods of better regulating speed at these locations by using devices or techniques such as “rumble strips,” flashing lights on speed limit signs, or painting of the roadway, among others. Because past experience has shown “speed bumps” to be impractical solutions for Beech Mountain, the type of device used should be one that would accomplish its objective of limiting vehicle speed and ensuring public safety while also minimizing impact on vehicles, snow plows, and emergency equipment.

### Goal T.G4: Increase Transportation Options and Modes

Beech Mountain was originally designed and planned with the automobile in mind. The road layout and the density of the development were meant for people to drive to their homes and their destinations. Overcoming this intrinsic pattern would be difficult if not impossible. This study realizes that the personal automobile, at least for the foreseeable future, will remain the paramount mode of transportation in Beech Mountain. Nevertheless, times have changed since Beech Mountain was conceived in the 1960’s. Gas is no longer cheap, and society has begun to realize the negative environmental impacts of an automobile centric society. Furthermore, there is much evidence that people enjoy an increased quality of life when alternate means of transportation are made available to them. Although travel to Beech Mountain will always require a car to get here, there is potential for other means of travel to access destinations on the mountain once you are here. Short trips to visit friends on the mountain, trips to the Club, and trips to the general store or our restaurants all could possibly be made by alternate means.

Policy T.G4.P1: Provide for alternative methods of travel where practical

Strategy T.G4.S1: Increase pedestrian amenities

The ability to walk to nearby destinations dramatically increases quality of life in a locale. The benefits of developing a walkable community are enormous and include health and wellness and increased property values. Furthermore, studies over the past ten years by organizations such as the Urban Land Institute have indicated multiple economic benefits to businesses of walkable areas. This is especially true of pedestrian friendly tourist areas, where tourists are attracted to smaller, human scale retail centers that successfully mix commercialism with relaxation. There is just something about walking to a



destination rather than driving that is liberating and relaxing- connotations that are well suited to Beech Mountain’s Resort nature.

In 2009, the Town of Beech Mountain developed and adopted a streetscape improvement plan that calls for pedestrian pathways from the commercial “gateway” of Beech Mountain located near Town Hall to the “Parkway Overlook” near the Beech Alpen Inn, and then from there to Beech Mountain Resort (Ski Beech). These trails would provide much needed pedestrian accessibility throughout Beech’s commercial district. A secondary goal of the plan was to create a connection from Beech’s commercial district to its trail system, via a path to Perry Park and Upper Pond Creek Trail. This plan is included herein as Reference C.

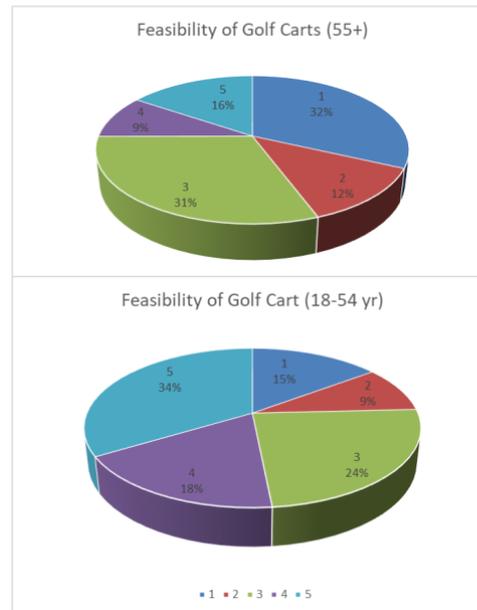
As the town’s pedestrian transportation plans are closely intertwined with its recreational trails program, also see the trails program in the Recreation chapter of this plan.

Strategy T.G4.S2: Develop a plan to make golf carts a viable means of transportation for some locations on the mountain

Golf Cart communities have been extremely successful in various locations in the United States, especially in resort communities. Peach Tree City, GA provides an excellent example of a municipality that has thrived as a resort/retirement/ second home destination due to its golf cart infrastructure. Residents and visitors cherish the ability to travel in the open and outdoor feel of the carts rather than embark on an automobile trip for every small necessity.

While there are convincing arguments either way as to whether such a program is desirable here, there is consensus that there is at least some potential for golf cart transportation in

## Feasibility of Golf Carts



- 44% of respondents 55 and older rated their position towards increasing the feasibility of golf carts as “opposed” to “very opposed”
- On the other hand, 52% of respondents 18-54 rated their position towards increasing the feasibility of golf carts as “supportive” to “very supportive”
- Both groups had a large group of neutral respondents of 31% and 24% respectively

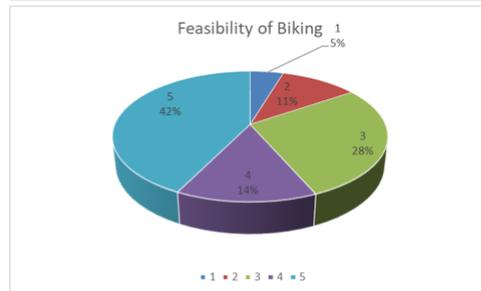
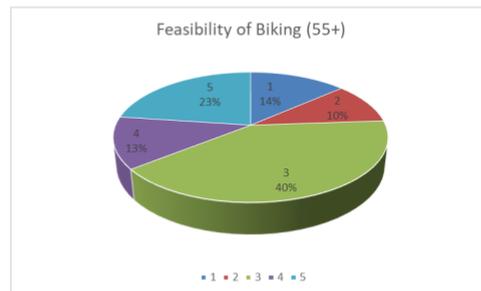


Beech Mountain. However, for such a plan is to succeed, safety must be the highest priority. While the town-wide 25 mph speed limit necessitated by our curvy mountain roads mean that many golf carts can nearly keep up with automobile traffic, it is nevertheless clear that many areas of the mountain are not amenable to the mix of vehicle types on our roads. For these areas and for areas between destinations that could expect high levels of golf cart traffic, the plan should devise alternative golf cart only routes if possible.

Strategy T.G4.S3: Plan for bike lane improvements when repaving roads

Beech Mountain’s steep climbs are well known as the training location for champion cyclists. Lees McRae College in the adjacent town of Banner Elk is home to a National Championship caliber cycling team. Many cyclists venture to this area to follow in their tire tracks and train on our challenging hills. For their safety, we should plan for extra width for bike lane improvements along roads that constitute major bike routes. Also, the Town should advocate for bike lane improvements in NCDOT plans for Beech Mountain Parkway and Hwy. 184. For more info on biking in Beech Mountain, see [www.bikebeechmountain.com](http://www.bikebeechmountain.com).

## Feasibility of Biking



- 40% of respondents 55 and older indicated they were neutral on the issue of increasing the feasibility of biking
- Whereas 56% of respondents 18-54 rated increasing the feasibility of biking as “supportive” to “very supportive”
- Another 28% of respondents 18-54 indicated they were neutral on the issue



## T: Discussion and Conclusion

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As has been mentioned, Beech Mountain faces a unique set of challenges regarding its transportation networks. The following discussion attempts to identify many of these challenges and propose methods to mitigate their impact.

- The Natural Environment

Many of these challenges are intrinsic to the proposition of having a town located atop one of the highest mountains in eastern America. Our terrain has necessitated sharp curves and steep inclines in many portions of Beech Mountain. Successfully maintaining our roads and paths is a constant battle against these factors.

- Underlying Utilities Infrastructure

Beneath Beech Mountain's roads lies the town's aging water and sewer system. Much of the water and sewer system will need to be upgraded in the coming decades. To pave and improve certain sections of road now would be counterproductive as they would likely be destroyed when utility work commences. To address this potential conflict, it is critical that road improvement schedules and utility improvement schedules be synchronized. This should ideally produce a situation in which, when all other factors are equal, the utilities underlying roads that have a high ranking on the paving priority list should be replaced first. Likewise, the paving priority list should give precedence to those roads that either currently have adequate utilities infrastructure, or those that have utilities infrastructure that is scheduled to be replaced soon.

- Difficulty Acquiring Right of Way

Beech Mountain's property ownership and development patterns have rendered it difficult to accomplish projects such as bike lanes or sidewalks or road widening. The roads simply were not designed with adequate width to accommodate these items. In many locations, the road was not built to accommodate more than one car width at a time. This often results in a dangerous situation where one car has to pull over so that another can pass. The town should identify these areas and determine which areas merit acquisition of right of way.

- Specific Problem Areas

Certain areas of Beech Mountain Special present specific problems that should be addressed uniquely, such as parking and winter access to the Skiloft/Beechtop areas. The town should develop a list of these problem areas and special project plans should be developed to address them.

### Conclusion

Maintaining the Town of Beech Mountain's extensive Transportation network is a critical service to its citizens and visitors. Both literally and figuratively, our roads provide our lifeline to the world. Although we face unique challenges and obstacles, the Town of Beech Mountain will continue to serve the users of its transportation network with the highest level of dedication. This plan aims to ensure that the Town's efforts are not in vain, and that our labor addresses issues in a manner that has been forethought and is deliberate with an eye to the future.

