

Town of Pine Knoll Shores Pedestrian Master Plan



Coastal Planning & Design, PLLC



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Pedestrian Master Plan
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Section 1. Vision

Vision Statement

Residents of Pine Knoll Shores and visitors alike enjoy an active healthy lifestyle based largely on walking in an attractive setting boasting sandy beaches and lush vegetation. Walking is desired on safe walkways that connect neighborhoods and provide pedestrian facilities to beach access points, the Aquarium, Public Library, Town Hall and Veterans' Park. A sidewalk along NC 58 with crosswalks provides a safe place to walk or push a stroller and connects with walkways in Atlantic Beach. Walkways are built to Americans with Disabilities Act standards so that everyone can easily use them and are designed to be cost effective. Pedestrians can take a break on benches conveniently located along walkways. Pedestrian facilities contribute to the vitality and ambiance of Pine Knoll Shores.



Section 2. Purpose and Scope

The purpose of the Pedestrian Master Plan is to provide a comprehensive view of pedestrian needs and opportunities within the Town of Pine Knoll Shores, to identify strategies to meet these needs and to enable the Town to take advantage of grants and other funding opportunities to provide pedestrian facilities and programs to facilitate pedestrian activity. This Plan includes the location and standards for future pedestrian facilities that residents and visitors can use for transportation, enjoyment and fitness, policy and program recommendations, and implementation strategies for funding, management and maintenance of facilities.

The Pedestrian Master Plan will enable the Town to make realistic plans for the construction and maintenance of pedestrian facilities with project priorities and cost estimates. The Town will be ready to apply for grants and to respond to funding opportunities as they arise. Since having an approved plan is a prerequisite to many grants, it will enhance eligibility for grants from NCDOT & Parks & Recreation Trust Fund as well as other opportunities.

The Town of Pine Knoll Shores recognizes the multiple benefits of pedestrian facilities to a community. The Town's 2007 Recreation Survey indicated that the future development of a pedestrian/bike path along Hwy 58 as "very important". In response to general interest in walkways and specific support for a pedestrian/bike path along Highway 58, the Town of Pine Knoll Shores applied for and was awarded a grant from the North Carolina Department of Transportation that funds 80% of the costs to develop this Pedestrian Master Plan.



2.1. Benefits of Pedestrian Facilities

A community benefits from having a safe, welcoming, connected pedestrian system that provides choices for moving about.

A safe pedestrian option is particularly important to children, the elderly, those households with no vehicle or where persons share a vehicle. As dependence on vehicles is reduced so is the demand for parking at home and at destinations. Traffic congestion is also reduced with more people walking to destinations. This reduced demand benefits the environment with less impervious surface area, and reduced water and air pollution. It also reduces our dependence on oil and saves our residents money in the expense of operating a vehicle. The health benefits of an active lifestyle where walking for fitness and transportation is the center piece are well known. Some of the lifestyle benefits include a safer community where more people are on the street and noticing their surroundings, thus observing abnormalities that they can alert public safety officials about. A walkable community is one where residents and tourists can take advantage of the natural beauty and climate of Pine Knoll Shores. Many residents, tourists and visitors have leisure time to walk, thus a walkway system enhances their experience. Walkways will attract residents and tourists to Pine Knoll Shores.

Benefits of a Walkable Pine Knoll Shores

- Safe locations to walk
- Walking in an attractive setting
- Health benefits of walking
- Pollution reduction – air, water quality
- Lifestyle – active, outdoors, friendly
- Less area required for parking
- Less personal expense vehicle operation and upkeep
- More transportation options
- Less traffic congestion

Section 3. History of Pine Knoll Shores (from Town of Pine Knoll Shores website)

“How it all started...Substantial acreage on Bogue Banks (known then as "Isle of the Pines") was purchased by Alice Hoffman in 1918 where she made her home, off and on, until her death in 1953. The property was willed to her niece, Mrs. Theodore Roosevelt, Jr., and her four children. It was the Roosevelt family who envisioned the development of the town.

PKA and PIKSCO were the first homeowner associations and played a major role in the area's development with a major emphasis on it being a residential community ... as it remains today. In January 1972 a public meeting was arranged at which a representative of the North Carolina League of Municipalities discussed the advantages of incorporation. The General Assembly ratified the Town Charter on April 25, 1973. Pine Knoll Shores was then officially "The Town of Pine Knoll Shores". The Atlantis Lodge provided a small space to serve as an office for town business soon thereafter.

How it progressed...Later, the Roosevelts gave the town a little house (which had been part of Mrs. Hoffman's home) to serve as a town hall. Then, in July 1974, the house was moved to a 25-acre plot on Pine Knoll Boulevard donated by the Roosevelts.

The present town hall sits on the same 25-acre plot on Pine Knoll Boulevard. The first meeting took place in the newly constructed town hall on April 3, 1979. The official opening ceremony took place in May 1979.

Continuing to grow...Town services expanded with the addition of a public safety building located at 314 Salter Path Road. The property and Wachovia Bank building were purchased and the building was renovated to house the Fire/EMS and Emergency Management Department along with the Police Department.

The Public Safety Building was dedicated on December 14, 2003. The celebration took on more meaning as citizens and town officials celebrated the 30th anniversary of the incorporation of the town along with the dedication of the building.

Critical to the evolution of this community has been the contribution of the hundreds of dedicated volunteers who have given so freely of their time and talents and continue to give. Because of these caring, involved townspeople, a distinctive community has been created which today offers many advantages to its residents.

The ambience of the town was created by the spirit of neighbor helping neighbor and this makes Pine Knoll Shores a community in the truest sense of the word.

Credits: This brief glimpse into the history of Pine Knoll Shores was created from information gathered from the Story of Pine Knoll Shores by Authors Mary Korff, Ken Hanan and Art Browne of the original work by Ken Haller and from town hall records.”

Section 4. Current Conditions/Background Information

4.1. Location

Pine Knoll Shores is located in Carteret County, North Carolina. It is in the midsection of Bogue Banks, a south facing island with the Atlantic Ocean to the south and Bogue Sound to the north. Atlantic Beach borders it on the east and Indian Beach borders it to the west. Access to the island is either by water, a bridge between Morehead City and Atlantic Beach at the east end or a bridge between Emerald Isle and Cape Carteret on the west end of the island. NC 58 is the State roadway that runs parallel to the beach connecting all the municipalities on Bogue Banks.



4.2. Land Use

Pine Knoll Shores is a unique community in many respects. It does not have many of the land uses typically associated with towns. There are no schools or churches. It does not have a central business district. There is only one public restaurant and that is associated with a hotel. The predominate developed land use is residential. This includes multi-family developments and motels. Most neighborhoods have property owners associations that manage private neighborhood parks and water accesses.



The Country Club of the Crystal Coast has a golf course and is open to the public. Veteran's Park located adjacent to Town Hall is the only Town owned park. There are both private neighborhood beach and water access areas and public beach access areas managed by the Town. There is one small business area centrally located adjacent to the public Law Enforcement and

Emergency Services with one building containing offices and the public library. Roosevelt Reserve is a large conservation area located centrally in Pine Knoll Shores between NC 58 and Bogue Sound. It is managed by the NC State Park - Fort Macon. The NC Aquarium is located adjacent to this natural area. The NC Aquarium at Pine Knoll Shores is a major regional public tourism attraction. Water plays an important role. Both the beach and sound are popular destinations. There are man-made canals in many of the neighborhoods that provide boat access to residential properties as well as constructed basins for community based marinas. The canals disconnect the neighborhoods creating a greater dependence on NC 58 for vehicular, bicycle and pedestrian circulation.



Natural vegetation is an important component of land use in Pine Knoll Shores. Native trees and shrubs abound in the neighborhoods. Streets in the eastern portion of Town are named for trees and large shrubs with names like arborvitae, willow, cypress, and oakleaf. These streets are lined with native vegetation. On the western side of Town in the Beacon's Reach Development, views of the homes from NC 58 are concealed by dense native vegetation. The Roosevelt Nature Preserve managed by the NC Fort Macon State Park is a large 265 acre area of protected area of native vegetation and wildlife.

Water bodies comprise an important land use component in Pine Knoll Shores. The Atlantic Ocean borders the south side of Town. Bogue Sound borders the north edge of Town. A system of canals in the neighborhoods east of Pine Knoll Boulevard provide lots with waterfront access for boating and enjoyment. Many of these lots are directly accessible to the sound without interference of a street bridge allowing masted boats and taller boats with tee tops or towers to utilize the canals. The provision of access for taller boats does not allow for the provision of a connective street network. There are private marinas associated with Beacons Reach, PKA and McGinnis Point neighborhoods. Water accessibility for boats is an important land use in Pine Knoll Shores. The canals require that vehicles and pedestrians must use NC 58 to go from the eastern neighborhood to Pine Knoll Boulevard.

Roosevelt Nature Preserve.

The 265 acre Roosevelt Nature Preserve is east of the Aquarium to roughly just east of the Clam Digger between NC 58 and Bogue Sound. It is a nationally recognized Significant Natural Heritage Area and will remain undeveloped with no roadways. Improved walkways are not allowed in the area. This natural asset ensures that NC 58 will remain the only east west route linking the Town.

4.3. Demographics

Pine Knoll Shores has a year round and seasonal population with a population surge during the peak of tourist season. 37.9 percent of residences are occupied year round. 61.3 percent of residences are seasonal. Additionally, many of the residents host a large number of guests during various times of the year.

Employment and Income: There are many retired or semi-retired residents in Pine Knoll Shores. Of the full time population, 36.8 percent are in the labor force. Of those who work, 7.4 percent work at home, .4 percent walk to work, .6 percent take public transportation, 10 percent carpooled, and 79.8 percent drove alone.

The 2000 Census states the median household income at \$53, 800.

Only 1.8 percent of families in 1999 were classified as poverty status.

Age: In the year 2000, 9.1 percent of the households included children under 18 years. According to the 2000 Census the median age was 61.8 years. 48.62 percent of the population was between 55 and 75 years with 15.94 percent older than 75 years. 53.6 percent of the households include a resident greater than 65 years.

Race: Pine Knoll Shores has a low percentage of minority residents with 99.1 percent White. Other races of residents include African American or Black, American Indian or Alaskan, Asian, Native Hawaiian, other race, or multiple races.

2000 Census Population	Recent Population Estimate Source	Population Estimate	% Change
1524	July 1, 2007 population - per US Census Bureau	1,545	1.4 %
1524	July 1, 2007 population per NC Office of State Budget & Management	1,601	5.0%
1524	July 1, 2008 population -per US Census Bureau	1,547	1.5%

Demographics – from 2000 Census

Item	#	%
Population		
Total	1524	
Male	725	47.6
Female	799	52.4
Age		
0-5	20	1.31
5-14	63	4.13
15-24	65	4.27
25-54	392	25.72
55-75	741	48.62
75 and over	243	15.94
Households		
Total households	776	
Households with children under 18	71	9.1
Non-family households	218	28.1
Households with individuals 65 years and older	416	53.6
Average household size	1.96	
Housing occupancy		
Total households	2049	
Occupied households	776	37.9
Vacant for seasonal recreational or occasional use	1256	61.3
School population		
Population enrolled in school	135	8.85
Disability : % refers to % of that age group		
Age 5-20	6	5.9%
Age 21-64	105	14.8
Age 65 and greater	140	21.1
All ages	251	16.5
Labor Force		
Population in the labor force	522	36.8
Workers 16 or greater	499	100

Labor transportation mode		
Drove alone to work	398	79.8
Carpooled	50	10
Walked	2	.4
Other means	9	1.8
Worked at home	37	7.4
Income		
Median income	\$53,800	
Poverty Status 1999 of Families	10	1.8
Vehicles per household		
None	17	2.2
1	231	30.0
2	435	56.4
3 or more	88	11.4

4.4. Existing Pedestrian Facilities

Beach: The beach is a popular public pedestrian facility in Pine Knoll Shores. It is accessible to residents that have properties with beach frontage or residents that live near neighborhood beach access locations or the public beach access locations. It connects the entire eastern side of Town except for times of abnormally high tides and storm events. It provides a safe location for residents and visitors to walk for transportation, fitness and to enjoy beautiful scenery.

Sidewalks: There are three streets on NCDOT rights of way in Pine Knoll Shores. They are NC 58, Pine Knoll Boulevard between NC 58 and Roosevelt Drive and Roosevelt Drive which leads to the NC Aquarium at Pine Knoll Shores. There are no sidewalks on any public street right of way in Pine Knoll Shores.

The major developments are PKA, Beacons' Reach and PIKSCO. All the streets in Beacons' Reach are private. Streets in PIKSCO and PKA are on public rights of way. The streets in these neighborhoods serve only neighborhood traffic. There is no through traffic within the individual neighborhoods. Except for Oakleaf Drive between NC 58 and the Country Club of the Crystal Coast, neighborhood streets are considered safe for pedestrians.

There are limited walkways on private streets in Beacons Reach on the north side of Coral Drive between Marina Drive and Fiddlers Ridge Road . The sidewalk below connects with a walkway through the development that leads to NC 58 opposite a private beach access for Beacons Reach.



Sidewalks along Coral Drive in Beacons Reach Development

The walkway continues on the north side of Coral Drive between it and Fiddlers Ridge Road on homeowners association property to a location opposite Murex Drive. The sidewalk connects to a walkway leading on homeowners association property to Bogue Sound.

There are private walkways on Beacons Reach Homeowners Association property linking residential areas within Beacons Reach on the south side of Highway 58. These sidewalks connect the private streets and parking areas of residential areas.



There is a walkway on Beacons Reach Homeowners Property from the end of Pelican Drive, a private street, around the east end of the lake to a private drive that intersects NC 58 opposite the Clam Digger Inn near the public beach access.



Private sidewalks connect private drives and parking areas on the south side of NC 58 in Beacon's Reach.

Section 4.5. Pedestrian Destinations:



The beach is a great pedestrian destination and a pedestrian facility. It connects the entire eastern side of Town except for times of abnormally high tides and storm events. It provides a safe location for residents to walk for transportation, fitness and to enjoy beautiful scenery. For residents who do not live on the beach or belong to a homeowners association with a private access location, it can be difficult to reach this popular destination. Even though residents may live a short distance from public beach access many are reluctant to walk to the beach access area because there are no pedestrian facilities along or across NC 58. They feel that walking along and across NC 58 is not safe.

Other pedestrian destinations include Town Hall, private neighborhood parks, Bogue Banks Library, Atlantic Beach, Indian Beach, NC Aquarium at Pine Knoll Shores, Clam Digger restaurant and the Country Club of the Crystal Coast.



NC Aquarium is a popular destination.

Bogue Banks Library is another pedestrian destination.



Veterans Park at Town Hall is a new park with a deck overlooking the wetlands and Bogue Sound, restrooms, and a nature trail.

Pine Knoll Shores Town Hall is a frequent destination for pedestrians.



Clam Digger Inn as viewed from the Ramada Inn Beach Access parking area on the north side of NC 58.

Section 4.6 Existing Plans and Programs

Town of Pine Knoll Shores - CAMA Core Land Use Plan

The Town of Pine Knoll Shores Board of Commissioners adopted the CAMA Core Land Use Plan on September 25, 2008 and it was certified by the Coastal Resources Commission of November 20, 2008. This plan is “comprehensive in setting goals and objectives for all aspects of the community”, “part of a continuous planning process that is timely and responsive to the needs and desires of the community”, and “the legal basis for land use regulations and a guide for a capital improvements plan for town budgeting.” The plan focuses on future development and conservation issues for the Town and region.

The Community Vision of the CAMA Core Land Use Plan is *“To the fullest extent possible, Pine Knoll Shores will strive to maintain a community dedicated to preserving its diverse forestlands, Roosevelt Natural Area, wetlands, marine life and respectable, predominately single-family community. Residential areas will be strictly preserved and protected. Commercial development will be limited and not allowed to infringe upon non-commercial land uses. Pine Knoll Shores will continue to be a community in which the best possible services are provided to its citizens at the most reasonable cost.”*

The Town has implemented many of the policies included in the 1996 CAMA Land Use Plan including the following that pertain to this planning effort.

- They will maintain low density residential (4 units per acre) in single family areas, a density of 8 units per acre in multi-family areas, a density of 22 units per acre for hotels and motels, and maintain commercial zoning in areas existing in 1992.
- Areas classified as conservation and natural recreation areas shall be protected in their natural state and development not allowed.
- The Town supports the North Carolina shoreline access policy and will prepare and shoreline access plan and seek funding for the construction of additional shoreline access facilities.
- The Town will vigorously enforce Chapter 74 of the Town’s Zoning Ordinance. This provision establishes requirements for the removal of vegetation and designates plants of “special concern” that are protected.
- The Town supports the designation of a sea turtle sanctuary on the beaches.
- The Town considers its existing community facilities to be adequate to serve the Town’s needs (exempting water and waste water and the expansion of the meeting room in Town Hall).
- The Town supports the activities of the North Carolina Division of Travel and Tourism.
- The Town opposes a third bridge to the main land.

Public Access:

- The Town will provide required public access to beaches, estuarine shorelines, estuarine waters and public trust waters using State and Federal grants and private investment.
- “The Town supports recreational-related developments that protect and preserve the natural environment while promoting the Town as a vacation destination while consistent with the residential nature of the Town. It supports the private and public development of waterfront access through private funds and federal/state grant monies/” P.1
- Access facilities shall meet Federal requirements to provide access for disabled persons and US Army CORPS Requirements and State requirements. P.2, P.7
- “ The Town will provide parking for all public beach access sites as required by US Army CORPS of Engineers and will petition NCDOT to provide pedestrian crosswalks. Schedule Fiscal Years 2009-2009/2009-2010.” I.5

Land Use Compatibility Policies:

- “The Town supports quality development reflecting the spectrum of housing needs ranging from single family homes to multi-family where indicated on the future land use map and planned developments.”P.11
- “The Town” “supports the continued establishment and maintenance of buffers along major thoroughfares.” P.13

Infrastructure Carrying Capacity Policies:

- “The Town of Pine Knoll Shores supports providing adequate community services and facilities which meet the needs of the Town’s citizens and businesses.” P.28
- “ The Town” “supports the provision of public recreational facilities and areas and will pursue funds and donations for open space and recreational facilities.” P.30
- “The Town” “ supports limited access from development along all roadways to provide safe ingress and egress.” P. 34
- “The Town” “ opposes the construction of a third bridge accessing Bogue banks from Morehead City.” “ This will have substantial adverse impacts on the Town’s existing transportation and parking problems.” P. 37

Local Areas of Concern Policies:

- The Town of Pine Knoll Shores supports tourism, including eco-tourism as an important asset to overall economic development.” “The Town is primarily a residential community and relies on commercial establishments in Atlantic Beach and Emerald Isle.” P. 68

Transportation policies: According to Section VI.4., the Town strongly opposes the construction of a third bridge across Bogue Sound. Highway 58 is the Town’s thoroughfare. The Plan opposes widening Highway 58 to four lanes. The Town is considering the installation of sidewalk infrastructure. The Town will seek to paint crosswalks at beach access locations to calm traffic on Highway 58 and supports the installation of bike paths and walking trails.

Town of Pine Knoll Shores – 2007 Recreation Survey

The Town of Pine Knoll Shores Recreation Advisory Committee surveyed the community in summer of 2007 concerning recreation. 487 surveys were returned by fulltime and part time residents. The survey did not target a specific recreation activity and provided ample opportunity to express preferences, concerns and interests not listed on the survey. The data collected is presented in a comprehensive report complete with graphs that make it simple to understand the input gathered.

This survey designated the *beach* as the top recreation interest followed by *walking, jogging and running*.

The results of the Recreation Survey rated a bike/pedestrian path along Highway 58 as the number 1 future recreation facility. This pedestrian facility ranked more than 2 times in importance of the second most important item by respondents.

It was followed by *pet waste* at number 2, *festivals* at number 3, *nature trails* at number 4 and a *playground* at number 5.

The Survey was submitted on October 9, 2007 to the Town Board of Commissioners.

4.7. Regulations

Town of Pine Knoll Shores - Tree Protection Ordinance

The retention of natural vegetation is a core value in Pine Knoll Shores. The Town enacted a tree protection ordinance that pertains to trees and shrubs on Town property and easements. It is not applicable to NC 58 which is a NC Department of Transportation right of way. The purpose of the ordinance is " *to regulate the planting, maintenance, and removal of trees and shrubs in public land, easements and rights-of-way owned or held by the town, including easements and rights-of-way for streets, alleys, sidewalks, median strips and other town facilities. The second purpose of this article is to express the town's intent to use trees to create a more natural and congenial living environment. The tree board shall be responsible for promoting the best use, selection and care of trees in public areas and for the administration of the long-range public tree master plan*".

Prior to removal of trees, shrubs or vegetation from Town property, written approval from the Tree Board with provision for removal to address emergencies and safety concerns must be obtained. The Community Appearance Commission serves as the Tree Board.

The Tree Board has the following authority.

"(1) *Direct, manage, supervise, and control the town landscape program to include all plantings, removal, maintenance, and protection of all trees and shrubs in all public areas.*

(2) *Guard all vegetation in any public area to prevent the spread of plant disease or pests and to eliminate conditions deemed by the tree board to be dangerous to the safety of persons or property.*

(3) *Administer the provisions of this article.*

(4) *Accept requests for planting, removal, or maintenance of plantings in any public area, and accept or deny the request as required by the provisions of this article.*

(5) *Remove any vegetation placed without approval in a public area."*

Subdivision Regulations

Subdivision regulations set standards for creating multiple parcels from a single parcel or combining or recombining multiple parcels of property. Subdivision regulations also set the standards for improvements when property is developed into lots. These standards typically set the street width, type of pavement and base, block length, street drainage requirements, and utility requirements. They may include standards for street trees, provision of sidewalks, street lights, underground utilities.

Pine Knoll Shores subdivision regulations do not include any requirements to provide sidewalks or other walkways.

When a developer wants to create a subdivision plan, he files an application for a preliminary plat with the Town. The review of an application for the preliminary plat is an objective review to ensure that the proposed development meets the standards set in the Subdivision Ordinance. The Town may not impose standards greater than those in the Subdivision Ordinance.

The development may proceed after adoption of the preliminary plat and only in accordance with the plans set forth in the preliminary plat.

The Subdivision Ordinance also calls for compliance with the Zoning Ordinance in regards to minimum lot requirements. All lots created or residual must meet the dimensional requirements of the Zoning Ordinance.

Zoning Ordinance

The Pine Knoll Shores Zoning Ordinance and adopted Zone Classification Map determine the permitted land uses, setbacks, yard requirements for properties in the Town's jurisdiction. There are no requirements for sidewalks or other walkways in the Zoning Ordinance. It includes general development standards for parking and signage on developing properties. The Zoning Ordinance is an implementation mechanism for the CAMA Core Land Use Plan and any other planning policies.

Article 74-26 of the Zoning Ordinance establishes the responsibilities, powers and duties of the Community Appearance Commission.

“(a) *Responsibilities.* It shall be the general responsibility of the commission to study and evaluate the visual problems and needs of the town, including new construction, alterations and additions by property owners and developers, and to make any plans and carry out any programs that will, in accordance with the powers set forth below, enhance and improve the visual quality and aesthetic characteristics of the town. In particular, it shall strive to ensure that any proposed new construction or development will make effective use of existing terrain and environment, preserve to the extent possible the maritime forest and shrubbery indigenous to the town and employ exterior designs and materials that harmonize well with the natural environment and are compatible with the town programs and policies. The community appearance commission shall submit an annual report of its activities and accomplishments to the board of commissioners not later than April 15 of each year.

(b) *Powers and duties.* The commission shall have the following powers and duties:

- (1) Initiate, promote, and assist in the implementation of programs of general community beautification in the town;
- (2) Coordinate the activities of individuals, and organizations, public and private, whose plans, activities and programs bear upon the appearance of the town. In this connection, the commission shall review all site and building plans relating to proposed construction within the town before a building permit is issued, and present its suggestions, comments, objections and criticisms regarding their aesthetic suitability to the affected parties. Where appropriate, it also will hold pre-planning consultations with developers and property owners, and their representatives, to provide guidance for their proposed activities. In considering clearing or construction proposals, the commission shall work closely with and assist any architectural control committee or property owners' associations to eliminate unnecessary duplication;
- (3) Provide leadership and guidance in matters of specific lot, subdivision, area or community design and appearance;
- (4) Make studies of the visual characteristics and problems of the town, including surveys of an appropriate nature, and recommend standards and policies of design for the entire area, and portions of neighborhoods thereof, or any project to be undertaken;
- (5) Prepare both general and specific plans for the improved appearance of the town, which plans may include the entire area or any part thereof, and may set forth desirable standards and goals for the aesthetic enhancement of the town or any part thereof, including public ways and open spaces, and public and private buildings and projects;
- (6) Participate, in any way deemed appropriate by the board of commissioners, in the implementation of its plan;
- (7) Request from the proper officials of any public agency or body, including agencies of the state and its political subdivisions, its plan for public building, facilities, or projects to be located within the town;
- (8) Review these plans and make recommendations regarding their aesthetic suitability to the appropriate agency, or the board of commissioners. All plans shall be reviewed by the commission and all recommendations of the commissioners with regard to any public project shall be made in writing in a prompt and expeditious manner;
- (9) Formulate and recommend to the planning board for adoption or amendment ordinances (including the zoning chapter, subdivision regulations, and other local ordinances regulating the use of property) that will, in the opinion of the commission, serve to enhance the appearance of the town;
- (10) Direct the attention of the town or county officials to needed enforcement of any ordinance that may in any way affect the appearance of the town;
- (11) Seek voluntary adherence to the standards and policies of its plans;
- (12) Enter, in the performance of its official duties and at reasonable times, upon private lands and make examination or surveys;
- (13) Subject to the approval of the board of commissioners.
 - a. Promote public interest in and an understanding of its recommendations, studies, and plans, and to that end prepare, publish, and distribute to the public such studies and reports as will, in the opinion of the commission, advance the cause or improve municipal appearance; and
 - b. Conduct public meetings and hearings, giving reasonable notice to the public thereof.

No clearing is allowed until a landscape permit is issued. The plan indicates existing vegetation, proposed grade changes if any, vegetation that is to remain, vegetation that is to be removed and

new vegetation that is to be planted. The Community Appearance Commission reviews the site plan and landscape plan and provides comments as to compliance with Zoning Ordinance criteria. The Planning Board acts on the site plan and landscape plan.

American Beach Grass	Live Oak
American Holly	Loblolly Pine
American Olive	Magnolia
Bayberry	Mimosa
Black Cherry	Northern Bayberry
Black Gum	Panic Grass
Black Locust	Purpleleaf Plum
Cherry Laurel	Smilax
Chickasaw Plum	Sumac
Chinese Holly	Red Maple
Common Crepe Myrtle	Sea Oats
Crabapple	Southern Wax Myrtle
Dogwood	Sweet Gum
Eastern Red Cedar	Virginia Creeper
Hickory	Yaupon Holly
Ironwood	Water Oak
Japanese Black Pine	White Poplar
Japanese Maple	Willow Oak
Laurel Oak	

It is the policy of the town to protect to the maximum extent feasible those trees and shrubs native to the maritime forest in which the town is located. The Town requires that all structures, walls, decks, drives or other property improvements shall be designed in such a way so as to minimize the destruction of plants of special concern, and to preserve and to protect those remaining as much as practicable. Where re-landscaping is required by this chapter, re-landscaping shall be accomplished as much as feasible through the use of those plants which naturally occur within this area, including plants of special concern. The plants listed in the following table are those that the Town considers of special concern.”

Section 4.8. Transportation Issues

Traffic Counts

The North Carolina Department of Transportation surveyed traffic on NC 58 east of Pine Knoll Boulevard annually beginning in 2002. The chart below lists the traffic counts for each year. 2006 had the highest count at 12,000 trips per day. In 2008 the count rose from 8200 trips per day to 9100 trips per day. NC 58 experiences greater traffic volumes on weekends and during the summer tourists season.

Year	Trips per day
2002	11,000
2003 *	11,000
2004	11,000
2005	10,000
2006	12,000
2007	8,200
2008	9,100

* location just west of Pine Knoll Boulevard

Thoroughfare Plan

The North Carolina Board of Transportation approved Thoroughfare Plan indicates a third bridge from the mainland to Bogue Banks and a divided highway cross section for Highway 58 through Pine Knoll Shores. Neither of these projects is on the Transportation Improvements Plan, thus they are not scheduled. Carteret County and its municipalities do not support either project. An alternative cross section of three lanes is being discussed. The Thoroughfare Plan has not been amended in regards to either project. Illustrations of the existing and proposed cross sections follow.

Transportation to public schools

There are no public or private schools in Pine Knoll Shores. Children in Pine Knoll Shores attend school located off Bogue Banks and travel there by vehicle. Some parents transport their children to and from schools. Other children ride the school bus to school. There are signs on the curvy section of Oak Leaf Drive alerting motorists of school bus stops. There are no sidewalks in this location. Therefore children must walk on the shoulder to bus stops. There are not many students in Pine Knoll Shores that ride the bus to school.



Section 4.9. Community Needs & Priorities including Beach Access

Beach Access

Within Pine Knoll Shores there are public beach access areas and private beach access areas. The private areas are owned by neighborhood homeowner associations and limit access to residents of the neighborhood and guests.

Public Beach Access

The public access areas are managed by the Town of Pine Knoll Shores. There are currently 6 public beach access areas with an additional 5 planned to open during 2009-2010. Two of the existing beach accesses have parking on the beach side of NC 58.



Parking is provided at Memorial Park Beach Access located midway between Cedar Road and Mimosa Drive.



The Iron Steamer public beach access is located about 200 feet west of Pine Knoll Boulevard. Parking and rest rooms are provided.



Ramada Inn Beach Access is along the west side of the Clam Digger. Parking is located directly across NC 58 from the driveway into the Clam Digger. One must cross the highway and walk on the shoulder to reach the beach access. This is a dangerous and congested area.



Parking for the western most beach access near Ocean Glen is on the north side of NC 58 at the water tower. Conditions on the shoulder of NC 58 are not conducive for pedestrians.

Private Beach Access Areas



The major developments in Pine Knoll Shores provide neighborhood based beach access areas for residents and their guests. Some like Ocean Park shown below have parking for members of the neighborhood home owners association. Many residents also walk to Ocean Park beach access.

Others like this one in Beacons' Reach have walkways leading to it. Pedestrian from the north side of NC 58 must cross the highway to reach the beach. The lush vegetation on the approaches to the walkway conceals pedestrians as they enter the roadway from approaching vehicles. These pedestrian crossings are not official and are not marked.



Desire for Facilities: The desire for a multi-use facility along NC 58 is well documented by the Recreation survey conducted in 2007. There was public support for the application for this pedestrian master planning effort. The residents of Pine Knoll Shores are generally active and enjoy the mild climate and natural setting of the beach, sound and native vegetation. They like walking in their neighborhoods, on the beach and on facilities in nearby communities.

Successes of Neighboring Communities: The Town of Atlantic Beach located contiguous to the east of Pine Knoll Shores implemented a sidewalk construction program beginning in 2001 resulting in 4.2 miles of walkway along NC 58 including the causeway. The current phase of implementation will connect this walkway to Pine Knoll Shores. The sidewalk is very popular with residents and visitors including residents of Pine Knoll Shores. Emerald Isle, the western most municipality on Bogue Banks, has been successful during recent years in constructing sidewalks and multipurpose facilities along NC 58 and several other streets including Coast

Guard Road. These walkway programs in Atlantic Beach and Emerald Isle are extremely popular with citizens of those communities. They serve as a model to Pine Knoll Shores.

4.10. Pedestrian Safety – Accidents Reports

The NC Department of Transportation list of pedestrian and pedal-cyclists crash report list only one accident involving a pedestrian and 2 involving a cyclist between January 1, 1990 and September 30, 2008. The pedestrian accident occurred on Oakleaf Drive .001 mile south of Holly Road in the direction of Willow Road on July 4 2008 at 8:00 p.m. It was a B type injury.

Reported Pedalcyclist and Pedestrian Crashes
January 1, 1990 to September 30, 2008

On Road	Mi.	Direction	From Road	To Road	Crash Severity	Date	Time	Crash Type
NC 58	.076	W	Oakleaf Dr.		Disabling	8/24/90	12:00 PM	Bike
NC 58	.034	W	Mimosa Dr.	Arborvitae Dr.	Evident	7/2/06	2:45 PM	Bike
Oak-leaf Dr.	.001	S	Holly Dr.	Willow Dr.	Evident	7/4/08	8:00 PM	Ped.

Section 5. Public Input

5.1. Steering Committee and Support

The Town Board of Commissioners appointed a Steering Committee to work with the consultant to draft the Pedestrian Master Plan. Persons were selected for this committee to provide a broad range of interest, expertise and opinion. Membership represents homeowners associations, Town boards and commissions, advocates of fitness, recreation and accessibility and local business interests. Also serving on the Steering Committee are persons from NC Department of Transportation.

Steering Committee Members

Brian Kramer, - Town Manager

Robert Danehy - Commissioner, Town of Pine Knoll Shores

Jay Barnes – Director, NC at Pine Knoll Shores Aquarium

Norma McClellon – PKA Homeowners’ Association

Larry Kacmarcik – PIKSCO Homeowners’ Association

Elaine Tempel – Carteret County Mayor’s Committee for Persons with Disabilities

Kathy Werle – Town of Pine Knoll Shores Community Appearance Commission

Ken Jones – Town of Pine Knoll Shores Planning Board

Maureen Kilgallen – Town of Pine Knoll Shores Recreation Advisory Committee

Bonnie Ferneau - Resident active in promoting fitness

Helen Chaney – NC Department of Transportation Project Administrator

Steve Hamilton – NC Department of Transportation Division 2 Traffic Engineer

Reed Smith – NC Department of Transportation District 2 Engineer

Ernie Rudolph – Town of Pine Knoll Shores Public Services Director

Chief Joey Culpepper – Town of Pine Knoll Shores Police Chief

5.2. Survey

A non statistical survey was circulated via the Town’s website, at the public open house which was held on June 23, 2009. 71 surveys were returned from the June circulation of the survey. At their July 10th meeting, the Steering Committee decided to also circulate the survey as an insert in the August 2009 issue of the Shoreline, the local public information publication that is circulated throughout the community. 81 surveys were returned from the circulation in the Shoreline in August. A copy of the survey and the complete results is in **Appendix A**.

Findings from both circulations of the survey were consistent.

Results from all surveys – 152 returned

1. Residential status

	#	%
Full Time	119	77%
Part- time	35	23%

2. Homeowners Association

	#	%
PKA	86	58%
Beacons’ Reach	26	17.5%
PIKSCO	26	17.5%
Other	11	7%

3. Age: Please select the appropriate age bracket for every individual in your household including frequent visitors. Check all that apply, and provide the number of individuals in each bracket.

Age	#	%
0-5	14	3%
6-16	44	13%
17-25	24	6%
26-70	205	58%
70+	71	20%

4. Check all locations that you currently walk to in Pine Knoll Shores.

Pedestrian Destination

Location	# times identified	%
Beach Access	105	30%
Library	23	7%
Neighborhood	164	47%
Atlantic Beach	7	2%
Country Club	2	.5%

Town Hall	5	1%
Aquarium	5	1%
Beach	8	2%
Westport Harbor	1	
Beacon's Reach	4	1%
Memorial Park	2	.5%
Town Center	1	
Salter path	2	.5%
Clam Digger	2	.5%
Trinity Center	1	
McNeil Park	3	1%
Garner Park	4	1%
Brock Basin	3	1%
Rt. 58	2	.5%
Soundside park	3	1%
Access east side of Town	2	.5%
Golf course	2	.5%
Parks	1	
Along Oakleaf	1	

Walk to beach access

Beach Access	Number	% of beach access
All beach access	103	
Ocean Glen	1	1%
Bay Drive	2	2%
Clam Digger	3	3%
Oakleaf Drive	2	2%
Royal Pavilion	2	2%
Beacon's Reach	5	5%
McGinnis Point	2	2%
PKA Sittum	3	3%
Iron Steamer	2	2%
Hammer Park	7	7%
Mimosa	8	8%
Ocean Grove	2	2%
Ocean Park	39	40%
Dogwood Circle	13	13%
Pinewood	1	1%
Murex Coral	1	1%
280 Salter Path	1	1%
Bream	1	1%
Westport	1	1%
Municipal Park	1	1%

Forest Dunes	1	1%
Across Westport	1	1%

5. Check all the reasons that you currently walk in Pine Knoll Shores.

Reason	# times identified	%
Walk for fitness	131	36%
Walk to enjoy scenery	115	31%
Walk as social outlet	63	17%
Walk dog	29	8%
Save on gas	8	2%
Go to parks & beach access	9	2%
Visit neighbors	2	.5%
Go to work	1	
Go to library	1	
Transportation	7	2%
Walk with children	1	
Check violations	1	
DWI deterrent	1	
Beach as sea turtle volunteer	1	
Don't walk	2	.5%

6. Name destinations that you would like to have walkways to and identify your top priority.

Destination	#
NC 58	41
Atlantic Beach	30
Library	29
Aquarium	20

7. List the top 3 unsafe locations for a pedestrian to cross a street in PKS. Be specific.

Location	#	Notes
Mimosa @ 58	61	Near neighborhood beach access
Oakleaf @ 58	32	Near public beach access & Hampton Inn
NC 58	22	Entire length is unsafe

8. List your top 3 priorities for public pedestrian facilities in Pine Knoll Shores by location & description.

Priority	#	
Highway 58 entire length	42	Entire length is unsafe
Mimosa @ 58	13	Near neighborhood beach access
Oakleaf @ 58	13	Near public beach access & Hampton Inn
Pine Knoll Blvd.	12	Street at traffic signal, leads to Town Hall and Roosevelt Drive
Crosswalk @ beach access	11	Pertains to any beach access

See Appendix A for complete list and number of times each location is listed for items in 6,7,and 8.

5.3. First Public Open House

More than 55 persons attended a public open house held on June 23, 2009 at Town Hall. The flier was circulated by members of the Steering Committee to publicize the event. An article in the Shoreline also publicized the Open House. The consultant provided a presentation on the Pedestrian Master Plan and facilitated a spirited discussion. The survey was circulated. There was a visual preference survey that attendees could respond to. There was also a dot exercise where attendees placed dots where they wanted pedestrian facilities.

Summary of verbal comments

Participants voiced concern about cost of improvements and that the length of a facility is related to its cost. They noted that maintenance and upkeep incurs on-going long term costs of facility

Once you have a facility, then the safety of those persons using the facility is a concern. There are also staffing issues related to the safety issue. Staff may have to enforce safety rules if there are rules. Will there be rules for users of pedestrian facilities? Who will enforce the rules? Will there be lighting?

At destinations there should be sidewalks on private properties leading to the entrance of those facilities. It may not be good to encourage people to walk to the library or to the Aquarium because these areas are congested.

Walkways are impervious surfaces and contribute to flooding. Flooding is already a problem on Hwy. 58 after a gully washer. The right of way of Hwy. 58 dips. The walkway will have to dip with the grade and will be dangerous. It will not be even.

There are water mains on both sides of Hwy. 58 and walkways should not be located where there are water mains.

A park with walking and fitness trails and nature trails would be a good option to consider.

Learn from neighboring towns that have been building pedestrian facilities recently.

Phase the facilities as funding is practical.

Safety for pedestrians was a concern. Crosswalks are needed as well as safe facilities for safety for those walking along the street.

In other towns (Atlantic Beach, Morehead City and Emerald Isle) with pedestrian facilities, they are used. They contribute to the enjoyment, health and safety of citizens.

What is the Town's liability with the current situation particularly with the crossing of the highway to reach the beach access points?

Consider pedestrian overpasses to get people across Hwy. 58.

Summary of Dot Exercise

This exercise was popular with attendees at the Public Open House. They were instructed to place a dot on a map of Pine Knoll Shores where they wanted walkways. Each dot symbolized 1/4 mile of walkway. Attendees were given 4 dots or 1 mile of walkway. There was a location on the map to place dots that indicates no new walkways.

There are 52 dots in the no walkways box. The opponents to walkways attended the meeting, filled out the survey and were very vocal at the meeting. This seemingly accounts for all 4 dots from 13 attendees.

The section receiving the most dots is Hwy 58 between Pine Knoll Blvd. and Mimosa Drive. There are 47 dots in this .7 mile section or 67 dots per mile.

The next priority section is Hwy. 58 between Mimosa and Oakleaf Drive. There are 25 dots on this 1.3 mile section or 19 dots per mile.

The lowest priority section is Hwy. 58 from Pine Knoll Blvd. west to the edge of Town. There are 28 dots on this 2.5 mile section or 11.2 per mile.

There are 3 dots at the canal at the west end of Oakleaf Drive symbolizing a pedestrian draw bridge across a canal. There is only one dot on Pine Knoll Boulevard. It is at the intersection with Roosevelt Road.



Summary of the Visual Preference Exercise

Attendees were given the opportunity to rate images of pedestrian facilities on 3 posters. The purpose of this exercise was to illustrate various types of walkway treatments and gain input on which types of pedestrian facilities the public prefers. The posters illustrated general design, walkway placement in relation to the roadway, vegetative treatments, crosswalks at driveways and street intersection, accommodation of sloping grades, and ancillary facilities. The exercise was not popular with attendees. Only 7 persons filled out the Survey Tally Sheet, thus the input is not sufficient to incorporate into the plan. Results are located in Appendix A.



5.4 Second Public Open House

The Town of Pine Knoll Shores Pedestrian Master Plan Steering Committee held a second public open house on November 17, 2009 from 6:00 – 7:30 p.m. at Town Hall. This open house was publicized in the *Shoreline* and through distribution of a flier. Approximately 24 persons attended the meeting including members of the Steering Committee.

Town Manager Brian Kramer opened the meeting. Next Steering Committee member and Mayor-elect Ken Jones provided a statement about the plan and responded to questions from the attendees regarding the expenditure of funds and need for pedestrian facilities.

Susan Suggs, consultant planner presented the work thus far of the committee including the following:

- Membership of the steering committee
- Role of NC Department of Transportation
- Importance of the Pedestrian Master Plan
- Description of Pine Knoll Shores
- Summary of public input
- Key issues: safety, costs, vegetation management, and NCDOT standards
- Rational for project selection and prioritization
- Projects by priority with cost estimates
- Program recommendations
- Funding opportunities

After the presentation, citizens asked questions and commented on the work of the plan. General concerns were costs of building and maintaining facilities, impacts of construction to vegetation, and questioning the need for facilities. There were questions about a five foot concrete sidewalk versus a 10 asphalt path and bicycles using the concrete walk. Susan and Ken Jones explained the reasons for recommending the 5 foot sidewalk were to minimize the impacts to vegetation and cost containment. They further explained that the Town could choose to enact use ordinances that addressed bicycles on the walkway. There seemed to be agreement that serious

bicyclist prefer riding on the road where there is a 2 foot wide bike lane marked and that bike use of the sidewalk would not be an issue.

Specific comments are summarized below:

- The driving issues of the plan should be safety and cost.
- There is concern about the impact of removing vegetation on the right of way and the impact to adjacent residences.
- Attendees questioned the need for a walkway on Oakleaf between NC 58 and the Country Club.
- Possibly reduce speed limit on Oakleaf and enforce reduced speed limits, Construction workers speed.
- Recommendations on traffic calming could be included in the plan for Oakleaf Drive such as the installation of stop signs and reduced speed limits
- Oakleaf Drive floods and is not a good location to encourage pedestrians.
- Concrete walkways heave with roots.
- Boardwalks should be constructed of marine grade materials including hardware.
- Concern about the safety of people who use motorized wheelchairs operating them on public streets. They have no other options to get to grocery and drug stores.

Section 6. Issue Identification

The Steering Committee identified the following critical issues based on their knowledge and public input.

Issue. Safety of pedestrians in Pine Knoll Shores.

Residents recognize that NC 58 is an unsafe roadway for pedestrians walking along the highway on the shoulder or on the edge of the pavement and crossing the highway. Highway 58 runs east west, thus the sun angle is low reducing the visibility of pedestrians during the morning and evening commute to work when many residents are walking for exercise.

There are no marked crosswalks in Pine Knoll Shores and only 1 stoplight. Many residents live on the north side of Highway 58 within walking distance of their neighborhood association's private neighborhood beach access. Some people walk to the beach access locations and others would do so if crossing the highway were safe. Crossing Highway 58 en route to these neighborhood beach accesses is unsafe. Likewise many of the public beach access locations have parking on the north side of Highway 58 forcing beach goers to cross the highway. During peak tourist season, there are more people crossing the highway to reach the beach and large amounts of vehicles on Highway 58. The area near the Hampton Inn and Oakleaf Drive is a particularly congested area with many people crossing the highway to reach the public beach access location.

With the exception of the curvy section of Oakleaf Drive between NC 58 and the Country Club and the canal bridge area of Mimosa Drive residents feel safe walking along the neighborhood streets.

Issue. Concern of cost of construction and maintenance of public pedestrian amenities.

Residents and property owners in the Town of Pine Knoll Shores are hesitant about spending large sums of Town funds on the construction and upkeep of pedestrian facilities. With the current economic climate, the Town Board did not raise the municipal tax rate in the 2009-2010 budget even with declining revenues. The recommendations by the Steering Committee take this issue to heart and include the most cost effective recommendations in the type of facility and the potential for partial funding by grants. An encroachment permit from NC Department of Transportation is required prior to any construction activity on a NC Department of Transportation right of way. This concern impacted the decision to recommend a 5 foot wide sidewalk versus a 10 foot wide multi-use facility.

Issue. Retention of vegetation.

Residents of Pine Knoll Shores identify with the lush native vegetation in their community. The Town has ordinances and programs to protect native trees and vegetation. Residents want to see the retention of the vegetation on the public road right of way to the greatest extent feasible. They would like for vegetation to be established if grading to locate a walkway removes vegetation and there is a location where it can be located. The North Carolina Department of Transportation Guidelines for Planting within Highway Right of Way must be followed. This document sets the criteria for the location of vegetation within NC Department of Transportation rights of way. Local streets must conform to the Town's Public Tree Ordinance. This issue

impacted the decision to recommend a 5 foot wide sidewalk versus a 10 foot wide multi-purpose path.

Issue. NCDOT Requirements.

The North Carolina Department of Transportation awarded a grant to the Town that substantially funds this pedestrian master planning effort. Therefore the plan must meet the Department's requirements for content and also NCDOT's requirements for standards. For example a pedestrian facility must be at least 5 feet wide. A multi-purpose facility accommodates pedestrians and bicycles and must be at least ten feet wide. This plan may not include facilities intended to serve only bicycles. A five foot sidewalk is not designed to accommodate bicycles.

Pine Knoll Shore is located in the area of North Carolina Department of Transportation Division 2. This Division has its specific requirements that impact the location, design, funding and maintenance of pedestrian facilities that are located on their rights of way. They require a ditch between the travel lane and the facility. They do not permit the construction of parking spaces on their rights of way. The Department of Transportation will not maintain sidewalks on NCDOT rights of ways. The Division reviews all plans for construction of pedestrian facilities on NCDOT rights of ways in Pine Knoll Shores and all plans must meet their requirements.

Section 7. Plan Recommendations

7.1.Overview

The Steering Committee developed the following criteria to determine and rate which projects are included in the Pedestrian Master Plan.

The categories of rating include the following categories.

- Top priority: These projects will be pursued immediately either prior to or upon adoption of the Pedestrian Master Plan.
- 1-5 years: These projects will be pursued from 1-5 years of adoption of the Pedestrian Master Plan.
- 5-10 years: These projects will be pursued between 5-10 years of adoption of the Pedestrian Master Plan.
- + 10 years: These projects will be pursued after 10 years of adoption of the Pedestrian Master Plan.

The ratings are to be used as a guide recognizing that opportunities for funding of a particular project may arise before the timing of the priority. Conditions within the Town may change with new development that increases the need and support for a particular project. It is the intent of these ratings to guide future decision makers in planning for project expenditures and grant applications.

Items to consider in selecting the **location** of proposed facility and the rating of the facility.

- a) Safety concern : The location represents a current or future safety hazard for pedestrians.
- b) Demand - need
 - 1) Pedestrians use is currently high.
 - 2) It is predicted that the location will likely experience high pedestrian use in the future.
- c) Public support: There is strong public support for a pedestrian facility in this location.
- d) Provides a link or connection: The proposed facility provides a link between existing or future pedestrian destinations or between existing and proposed pedestrian facilities in or adjoining the Town of Pine Knoll Shores.
- e) The proposed project provides a pedestrian facility to a pedestrian destination including the following destinations.
 - 1) Library
 - 2) Atlantic Beach
 - 3) Public Beach Access
 - 4) Private Beach Access
 - 5) Country Club
 - 6) Neighborhood Park
 - 7) Town Hall – Veterans Park

- 8) Aquarium
- 9) Clam Digger
- f) Cost effectiveness: The project is planned in a cost effective manner.

The Steering Committee determined that the following items will be considered in the determination of the **type of proposed facility**, design of a pedestrian facility and the rating of the facility. An example of type of facility is a crosswalk, 5 foot wide concrete sidewalk or a 10 foot wide multi-purpose bicycle and walkway.

- a) Aesthetic compatibility
- b) Use of facility – walking, carrying items, jogging, bicycle
- c) Accessibility
- d) Maintenance
- e) Cost effectiveness
- f) Public safety
- g) Funding potential

Appendix B contains the prioritization matrix.

The Steering Committee used the prioritization matrix to determine the priority for sections of walkway on NC 58, which crosswalks were most critical and where other improvements should be included in the plan.

7.2. Facility Recommendations

Crosswalks:

The most popular pedestrian crossings are:

- adjacent to the beach access near Oakleaf Drive
- Mimosa Drive
- Pine Knoll Boulevard
- Clamdigger and Clamdigger beach access
- Beacons’ Reach beach access near Coral Drive

Crosswalks are recommended at these locations, Juniper Drive and at the western most beach access. Most of these crosswalks are spaced at least one half mile apart to maintain the flow of vehicular traffic on NC 58.

Crosswalk near Oakleaf Drive: This project includes a sidewalk adjacent to the beach access parking spaces on Oakleaf Drive to a sidewalk along the north side of NC 58 between Oakleaf Drive and the Hampton Inn Driveway. The crosswalk is located directly opposite the beach access because this is where people will naturally desire to cross. This crosswalk will be used by residents of PIKSCO neighborhood and tourists alike.

Crosswalk at Juniper Drive: The crosswalk can be located on either side of Juniper. It includes the length of sidewalk on either end to reach across the NC 58 right of way perpendicular to the highway. This crosswalk will be primarily used by residents of PIKSCO or those persons renting units in the area. It will also be used by residents or visitors that live on the south side of NC 58 when they desire to reach the north side of NC 58.

Crosswalk at Mimosa. The crosswalk is located on the east side of Mimosa. It includes a portion of sidewalk on either side of NC 58 that reaches across the NC 58 right of way generally perpendicular to the highway. It will be used by residents of PKA neighborhood to reach the neighborhood beach access. It will also be used by residents or visitors that live on the south side of NC 58 when they desire to reach the proposed sidewalk on the north side of NC 58.

Crosswalk at Pine Knoll Boulevard: This project is located at an existing traffic signal. It includes sidewalk to connect the crosswalk to the proposed beach access parking lot and sidewalk between the end of the crosswalk and the proposed walkway beginning on the south side of NC 58. This is an important project because the walkway on NC 58 is on the south side west of this point and the north side east of this point thus the location where pedestrians walking on NC 58 will cross the highway. This walkway will be used by residents and visitors living on the south side of NC 58 that wish to go to Town Hall, the library, or the Aquarium. It will be used by pedestrians walking along the sidewalk on NC 58 because the walkway is located on the north side of NC 58 east of this cross walk and on the south side of NC 58 west of this crosswalk. It will also be used by residents and visitors that are walking to the public beach access from the parking area on the north side of NC 58.

Crosswalk at Clam Digger Beach Access: This project provides a crosswalk between the parking for the beach access located on the north side of NC 58 and the beach access located just west of the Clam Digger. It includes a sidewalk across the NC 58 right of way between the beach access parking lot and the highway adjacent to the driveway to the beach access. The crosswalk goes from this point across NC 58 to the west side of the driveway. A sidewalk continues across the right of way and then along the edge of the right of way to the beach access. There will be a boardwalk at the west end of the walk way so that it can meet on grade with the boardwalk to the beach. This walkway will be used by Beacons' Reach residents that are walking to the public beach access at the Clam Digger. It will be used by people parking in the beach access parking lot on the north side to reach the beach access. It will be used by persons staying at the Clam Digger to cross to facilities at Beacons' Reach neighborhood.

Crosswalk at Beacon's Reach Beach Access west of Coral Drive: The crosswalk is at an existing sidewalk to the beach access that belongs to Beacons' Reach just west of Coral Drive. It will be used primarily by Beacon's Reach residents walking to the private beach access at the cross walk and Beacon's Reach residents desiring to walk to in Beacons' Reach on the north side of NC 58.



Boardwalk and sidewalk across right of way to proposed crosswalk at beach access on south side of NC 58

Crosswalk at the western most beach access: A boardwalk from the western edge of the beach access parking lot across the NC 58 connects with a sidewalk to the crosswalk location on the north side of NC 58. On the southside of the crosswalk a section of sidewalk connects to the beach access. No significant vegetation will need to be removed to locate the sidewalk in this location.

NC 58

The Steering Committee deliberated at length to determine what type of facility should be along NC 58 and which side of the highway it should be located on. Ideally they wanted a ten foot wide multi-purpose walkway/bikeway along the highway. Realizing the impact such a facility would have on the native vegetation and the costs of a wider facility, the Steering Committee decided that a 5 foot wide walkway was best for the overall community.

The Steering Committee discussed which side of NC 58 the sidewalk should be located. The following conditions influenced their decision. The beach destinations are the most popular pedestrian destinations in Pine Knoll Shores. On the east end of Pine Knoll Shores most of the residences are on the north side on NC 58 and must cross NC 58 to reach the beach. Due to the system of canals, the eastern neighborhoods do not connect by roadway or walkway to Pine Knoll Boulevard other than by NC 58.

If the walkway were on the south side of NC 58, all pedestrians living east of Mimosa that wish to walk to the destinations in the Pine Knoll Boulevard area would either cross NC 58 two times en route or walk on the shoulder on the north side of NC 58. Residents on the south side of the highway can walk on the beach. A walkway on the north side of NC 58 would best serve the most residents on living east of Pine Knoll Boulevard.

A sidewalk on the south side of NC 58 west of Pine Knoll Boulevard would not adversely impact the Roosevelt preserve and would connect beach accesses and popular crossings. The neighborhood of Beacons' Reach has private walkways that serve the residents. The proposed sidewalk on the south side of NC 58 west of Pine Knoll Boulevard would best serve the residents and connect to facilities on the north side of NC 58 in Beacons' Reach using crosswalks.

West of Pine Knoll Boulevard and especially adjacent to the Roosevelt protected lands, many of the residences are located on the south side of NC 58 in individual developments including Beacons' Reach.

A sidewalk on the north side of NC 58 east of Pine Knoll Boulevard provides for safe connectivity for neighborhoods separated by canals and in time will connect to a proposed walkway on the north side of NC 58 in Atlantic Beach that reaches Pine Knoll Shores thus allowing residents to safely walk to Atlantic Beach.

Thus the recommendation is for a 5 foot wide walkway on the south side of NC 58 from Salter Path to Pine Knoll Boulevard where a pedestrian can safely cross at the only signal in Pine Knoll Shores. The sidewalk shall continue on the north side of NC 58 from Pine Knoll Boulevard to Atlantic Beach serving the greatest number of residents and allowing for safe pedestrian passage between neighborhoods in PKS to the Pine Knoll Boulevard area.

Sidewalk to lot with library:

A five foot walkway recommended on the north side of NC 58 between Pine Knoll Boulevard and the parcel containing the public library. Additional walkway will be needed on the private property that ties in to the proposed public walkway.

Sidewalk locations other than NC 58:

A five foot walkway is recommended on Oakleaf Drive between NC 58 and the Country Club. This section of roadway is curvy with poor sight distances and dangerous for pedestrians. There is a lot of vehicular traffic on this section of roadway and pedestrians walking for exercise, to public beach access, to the Country Club or to Atlantic Beach from the neighborhood. Traffic calming is also recommended in Section 8.1 for portions of Oakleaf Drive.

A five foot walkway is recommended on Pine Knoll Boulevard between NC 58 and Town Hall. Town Hall and Veteran's Park are pedestrian destinations. There is a wide flat shoulder along the street that will require little grading to accommodate a sidewalk. The Aquarium, another pedestrian destination is accessible from Pine Knoll Boulevard via Roosevelt Drive.

A five foot walkway is recommended for Roosevelt Drive providing safe pedestrian passage to the Aquarium at Pine Knoll Shores.

7.3. Project recommendations by priorities

0-5 year priority projects

Project	Amount
Highest Rated Projects	
Crosswalk 58 @ Oakleaf beach access	75,340
Crosswalk 58@ Mimosa	22,400
Crosswalk 58 @ Pine Knoll Blvd. including sidewalk south side NC 58 from Pine Knoll Blvd. to beach access lot 311	40,390
Sidewalk on 58- Mimosa to Pine Knoll Blvd	321,550
Crosswalk @ NC 58 @ Clam Digger	22,750
Crosswalk @ NC 58 & western beach access	22,820
Crosswalk NC 58 @ Juniper	23,510
Sidewalk north side NC 58 from Atlantic Beach to Oakleaf Drive	39,100
Sidewalk north side NC 58 Hampton Inn driveway to Mimosa	609,200
Sidewalk south side of NC 58 beach access lot 597 –to east end Trinity Center	159,600
Sidewalk – east side of Mimosa from NC 58 to Beechwood	13,950
Short term signage projects	3,360
TOTAL PROJECTS 0-5 years	\$ 1,353,970

5-10 years priority projects

Project	Amount
Crosswalk NC 58 @ Coral beach access	20,800
Sidewalk on Pine Knoll Blvd. from NC 58 to Roosevelt	24,600
Sidewalk on Pine Knoll Blvd. from Roosevelt to Town Hall	29,250
Sidewalk on Roosevelt from Pine Knoll Blvd. to Aquarium	48,500
Sidewalk project: north side of NC 58 from Indian Beach to proposed crosswalk at westernmost public beach access	14,700
TOTAL PROJECTS 5-10 years	\$ 137,850

+ 10 year priority projects

Project	Amount
Sidewalk south side of NC 58 from lot 311 to Clam Digger	656,450
Sidewalk south side of NC 58 from Clam Digger to Coral Drive beach access	332,500
Sidewalk on south side of NC 58 from Coral Drive beach access to beach access lot 587	100,275
Sidewalk on south side of NC 58 from east end of Trinity Center to Indian Beach	158,110
Sidewalk north side of NC 58 from Pine Knoll Blvd. to library	69,200
Sidewalk Oakleaf from NC 58 to Country Club	94,800
TOTAL PROJECTS + 10 years	\$ 1,411,335

7.4. Cost Estimates by Project

Pine Knoll Shores Pedestrian Plan Projects/Cost Estimates Table

Project	Quantity	Unit Cost	Item Cost	Notes
Crosswalk Projects				
Crosswalk, NC 58 @ west side of Oakleaf at Hampton Inn beach access including sidewalk from parking space on Oakleaf and sidewalk on NC 58 between Oakleaf & Hampton Inn Driveway	Sidewalk 180 lf on Oakleaf	\$30	\$3,240	On-grade, min. prep work
	Sidewalk 540 lf on NC 58	\$75	\$40,500	Challenging terrain
	1 Crosswalk - 3 lanes	\$200	\$200	
	Pedestrian-activated light signage	\$20,000	\$20,000	
	2 ADA truncated dome sections	\$300	\$600	
	540 lf landscaping per 10 feet	2,000/100 lf	\$10,800	
Total project cost:			\$75,340	
Crosswalk, NC 58 @ east side of Juniper including a landing pad on the south side	1 Crosswalk - 2 lanes	\$150	\$150	
	Signage - 2	\$280	\$560	
	Sidewalk 30 lf on north side	\$30	\$900	
	Sidewalk 30 lf on south side	\$30	\$900	
	2 ADA truncated dome sections	\$300	\$600	
	20 lf landscaping	2000/ 100 lf	\$400	
Total project cost:			\$3,510	
Crosswalk, NC 58 @ east side of Mimosa including a landing pad on the north end and sidewalk across right of way on south side of NC 58	1 Crosswalk - 3 lanes	\$200	\$200	
	Pedestrian-activated light signage	\$20,000	\$20,000	
	Sidewalk 30 lf on south side	\$30	\$900	
	Sidewalk 10 lf on north side	\$30	\$3,000	
	2 ADA truncated dome sections	\$300	\$600	
	20 lf landscaping	2000/ 100 lf	\$400	
Total project cost:			\$22,400	

Project	Quantity	Unit Cost	Item Cost	Notes
Crosswalk, NC 58 @ west side of Pine Knoll Blvd. including a landing pad on each end	1 Crosswalk - 3 lanes	\$200	\$200	
	Rework traffic signal for pedestrians	\$10,000	\$10,000	
	Sidewalk 60 lf from beach access parking	\$50	\$3,000	
	Sidewalk 30 lf on south side	\$50	\$1,500	
	Sidewalk project: south side of NC 58 - west side of Pine Knoll Blvd. to planned public beach access at lot 311-254 lf	\$75	\$19,050	
	254 lf landscaping	2000/ 100 lf	\$5,080	
	2 ADA truncated dome sections	\$300	\$600	
	Signage - 2	\$280	\$560	
	20 lf landscaping	2000/ 100 lf	\$400	
Total project cost:			\$40,390	
Crosswalk, NC 58 @ Beach access at Clam Digger including a pad on north side and walkway - boardwalk connection on the north side	Sidewalk - 10 feet on north side	\$30	\$300	
	Sidewalk - 120 lf on south side	\$50	\$600	
	Boardwalk - 10 foot to connect with beach access boardwalk at right of way line	\$100	\$1,000	
	2 ADA truncated dome sections	\$300	\$600	
	1 Crosswalk - 54 lf	\$250	\$250	
	Pedestrian-activated light signage	\$20,000	\$20,000	
Total project cost:			\$22,750	
Crosswalk, NC 58 @ west side of Coral Drive	1 Crosswalk - 3 lanes	\$200	\$200	
	2 ADA truncated dome sections	\$300	\$600	
	Pedestrian-activated light signage	\$20,000	\$20,000	
Total project cost:			\$20,800	
Crosswalk, NC 58 @ western beach access	Boardwalk with handrail - 21 lf from parking lot across ditch	\$110	\$2,310	
	Sidewalk - 12 lf from boardwalk to edge of pavement	\$30	\$360	
	1 Crosswalk - 2 lanes	\$150	\$150	
	Pedestrian activated light signage	\$20,000	\$20,000	
Total project cost:			\$22,820	

Project	Quantity	Unit Cost	Item Cost	Notes
Sidewalk Projects				
Sidewalk, north side of NC 58 - east Town limits to west side of Oakleaf Drive	Sidewalk 570 lf	\$50	\$28,500	
	1 Crosswalk on Oakleaf	\$200	\$200	
	570 lf landscaping	2000/ 100 lf	\$10,400	
Total project cost:			\$39,100	
Sidewalk, north side of NC 58 - Hampton Inn driveway to east side of Mimosa	6,400 lf sidewalk	\$75	\$480,000	
	6,400 lf landscaping	2000/ 100 lf	\$128,000	
	8 side street crosswalks - 2 lane	\$150	\$1,200	
Total project cost:			\$609,200	
Sidewalk, north side of NC 58 - Mimosa to crosswalk on west side of Pine Knoll Blvd.	3,380 lf sidewalk	\$75	\$253,500	
	3 side street crosswalks	\$150	\$450	
	3,380 lf landscaping	2000/ 100 lf	\$67,600	
Total project cost:			\$321,550	
Sidewalk, south side of NC 58 - public beach access at lot 311 to beach access at Clam Digger	6,910 lf sidewalk	\$75	\$518,250	
	6,910 lf landscaping	2000/ 100 lf	\$138,200	
Total project cost:			\$656,450	
Sidewalk, south side of NC 58 - public beach access on west side of Clam Digger to west side of Coral Drive	3,500 lf sidewalk	\$75	\$262,500	
	3,500 lf landscaping	2000/ 100 lf	\$70,000	
Total project cost:			\$332,500	
Sidewalk, south side of NC 58 - west side of Coral Drive to planned public beach access at lot 587	1,055 lf sidewalk	\$75	\$79,125	
	1,055 lf landscaping	2000/ 100 lf	\$21,100	
Total project cost:			\$100,275	

Project	Quantity	Unit Cost	Item Cost	Notes
Sidewalk, south side of NC 58 - Planned public beach access at lot 587 to proposed parking on east end of Trinity Center	1,680 lf sidewalk	\$75	\$126,000	
	1,680 lf landscaping	2000/ 100 lf	\$33,600	
Total project cost:			\$159,600	
Sidewalk, south side of NC 58 from east end of Trinity center to Indian Beach	1665 lf sidewalk	\$75	\$124,810	
	1665 lf landscaping	2000/ 100 lf	\$33,300	
Total project cost:			\$158,110	
Sidewalk, north side of NC 58 from Indian Beach to proposed crosswalk at westernmost public beach access	210 lf sidewalk	\$50	\$10,500	
	210 lf landscaping	2000/ 100 lf	\$4,200	
Total project cost:			\$14,700	
Sidewalk, southwest side of Oakleaf from NC 58 to Country Club	3160 lf sidewalk	\$30	\$94,800	
Total project cost:			\$94,800	
Sidewalk, east side of Mimosa – Beechwood to NC 58	465 lf sidewalk	\$30	\$13,950	Curb & gutter
Total project cost:			\$13,950	

Project	Quantity	Unit Cost	Item Cost	Notes
Sidewalk, west side of Pine Knoll Blvd. – NC 58 to Roosevelt Road	820 lf sidewalk	\$30	\$24,600	
	Total project cost:		\$24,600	
Sidewalk, west side of Pine Knoll Blvd.- Roosevelt to Town Hall	970 lf sidewalk	\$30	\$29,100	
	1 crosswalk on Roosevelt	\$150	\$150	
Total project cost:			\$29,250	
Sidewalk, north side of Roosevelt Road to Aquarium property	970 lf sidewalk	\$50	\$48,500	
	Total project cost:		\$48,500	
Sidewalk, north side of NC 58 – west side of Pine Knoll Boulevard to Library	730 lf sidewalk	\$75	\$54,600	
	730 lf landscaping	2000/ 100 lf	\$14,600	
Total project cost:			\$69,200	

Project	Quantity	Unit Cost	Item Cost	Notes
Signage Projects (Cost totaling \$3,360)				
Signage, NC 58 near the Oakleaf Drive intersection	2	\$280	\$560	
Signage, NC 58 near Clamdigger	2	\$280	\$560	
Signage, NC 58 near Coral Drive intersection	2	\$280	\$560	
Signage, NC 58 near western most beach access	2	\$280	\$560	
Signage, Oakleaf Drive between where golf course crosses Oakleaf and the Country Club	2	\$280	\$560	
Signage, Curve where Oakleaf and Mimosa intersect	2	\$280	\$560	
TOTAL ESTIMATE ALL PROJECTS				\$2,883,155

Note: Landscaping is based on 6: 10 gallons plants, 4: 7 gallon plants, 6: 5 gallon plants and 10: 3 gallon plants and 50 plugs/liners per 100 feet with multiplier of 3 times typical wholesale cost to provide for soil preparation, installation, mulching and a 2 year warranty per 100 linear feet of walkway.

7.5. Ancillary Facilities

Ancillary facilities may include benches. These will be provided through private donations. The bench may have a small plaque that states the name of the donor or entity for whom the donation is made.

There will be signage near crosswalks explaining the rules associated with the use of the walkways.

This plan does not anticipate any trash receptacles or water fountains due to maintenance concerns. The walkways will not be illuminated and therefore will be used primarily during the day.

7.6. Standards

All facilities shall meet standards of the Americans with Disabilities Act. Facilities on North Carolina Department of Transportation rights of way shall meet North Carolina Department of Transportation Guidelines for Planting within Highway Right of Way.

Vegetation.

The native vegetation of Pine Knoll Shores is lush and dense. Plants grow quickly. Much of the right of way of NC 58 has dense native vegetation on the back side of the ditches. Adjacent to Beacon's Reach, there is a combination of planted dense vegetation, much of which is native species and naturalized native vegetation. In areas where dense vegetation is not desirable, routine mowing, or removal of unwanted plants is necessary.

Walkways shall be sited to preserve native vegetation as much as feasible. They shall be generally located near the property line as recommended by engineers from Division 2 of the NC Department of Transportation. The alignment of a walkway may curve to avoid significant vegetation. Boardwalks and retaining walls are recommended to limit the extent of grading, to save existing vegetation and to preserve existing drainage patterns.



A retaining wall was installed to save existing vegetation so that the native trees can shade the walkway.

Protection of vegetation during construction: The construction documents shall include specifications for the protection of vegetation during construction. The plans shall clearly show the limits of clearing and vegetation that is to be protected. Limits of clearing shall be delineated

in the field with temporary fencing. The Contract for construction shall include a requirement that the Contractor is responsible for the replacement of any vegetation damaged that is located outside the area of clearing.

Revegetation: In areas where the removal of vegetation is required to construct a walkway, vegetation shall be re-established upon completion of the walkway. The re-vegetation shall be included as an item of the work in the project.

Method A: The simplest way to revegetate an area is to designate an area where no cutting or removal of vegetation is permitted. In a few years the native vegetation shall return. This method is not recommended where aesthetics are important because while the vegetation is returning, the area appears unkempt.

Method B: If a more immediate establishment is desired, native plants can be planted. *Seacoast Plants of the Carolinas* by Karl Graetz, US Department of Agriculture Soil Conservation Service contains a comprehensive list of trees, shrubs, vines and herbaceous plants that are native to the area. This method provides for the installation of desired species of native plants in a cost effective manner. In larger areas where immediate curb appeal is not desired, bare root plants or small plugs may be planted in areas where all vegetation has been removed. The plan should include the species of plants, combinations of species of plants and the spacing of each species. The plan should state the approximate size of the bare roots plants and the container size of the plugs. All bare root plants should be soaked in slurry to hydrate the roots and coat them with fine silts prior to planting. Plants should be watered in after installation. The area should be mulched heavily after planting to retard weed growth. The plant installation rates should exceed the desired quantities of plants because of anticipated low survival rates.

Method C: This method installs larger plants of selected species. It should be used where immediate aesthetics are desired. Larger containerized plants may be planted according to the NC Department of Transportation Guidelines for Planting within Highway Right of Way. All plants should be watered in after installation. All landscape areas should be mulched to retain moisture and provide an attractive area. A two year contract for maintenance and a two year guarantee are recommended if Method C is used.

A combination of Method B and Method C are recommended to reestablish native vegetation in most situations with primary vegetation installed using containerized plants and vegetation that is less visible using plugs and bare root plants. This will provide immediate impact with cost savings on the less visible plant materials.

Maintenance of vegetation: During the first several years of establishing vegetation, unwanted species of vegetation should be removed. Unwanted vegetation includes invasive species, poisonous species, and unattractive species. Upon establishment of native vegetation, pruning the edges of the vegetation will be the primary maintenance required.

Pruning: Where vegetation is located adjacent to walkways, it should be pruned to a height of seven feet above the walkway to allow for pedestrian activity.

Grass: Where grass has been removed, it may be re-established using sod or by seeding. All re-seeding of public rights of way shall be in accordance with the North Carolina Erosion and Sediment Control Planning and Design Manual as updated.

Protection of tree roots. The roots of significant trees that are located adjacent to a walkway may be protected by using a boardwalk in the area thus spanning the roots. Another method of root protection is shown in the images below. Gravel has been placed above grade to facilitate drainage and the walkway is constructed to span the root zone. The slats are spaced to allow drainage through the walkway to the root zone.

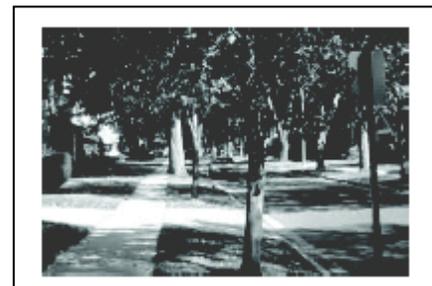


The Bicycle and Pedestrian Transportation Division (BPTD) of the North Carolina Department of Transportation (NCDOT) created the following pedestrian guidelines to assist municipalities in planning and engineering a safe and comfortable walking environment for pedestrians. The guidelines presented are in accordance with standards set by the American Association of State Highway Transportation Officials (AASHTO), the Manual for Uniform Traffic Control Devices (MUTCD) and the Americans with Disabilities Act (ADA).

Sidewalks

Sidewalks are extremely important public right-of-way components often times adjacent to, but separate from automobile traffic. In many ways, they act as the seam between private residences, stores, businesses, and the street. Sidewalks are spaces where children play, neighbors meet and talk, shoppers meander casually, parents push strollers, and commuters walk to transit stops or directly to work.

The Federal Highway Administration (FHWA) defines sidewalks as “walkways that are parallel to a street or highway” and walkways as generally being “pedestrian paths, including plazas and courtyards.”



Sidewalk 5 feet in width

Sidewalk Widths

BPTD recommends a minimum travel path width of 5 ft. for a sidewalk or walkway, in accordance with the American Association of State and Highway Transportation Officials (AASHTO), the Federal Highway Administration (FHWA), and the Institute of Transportation Engineers (ITE). A sidewalk width of 5 feet is considered ample room for two people to walk abreast or for two pedestrians to pass each other.

Often areas of high pedestrian activity call for much wider sidewalks. Sidewalks are typically built with curb and gutter sections. In Pine Knoll Shores, NC 58 and most other streets where sidewalks are proposed do not have curb and gutter. Sidewalks should be separated from the edge of the street with a vegetated strip and where possible a ditch section.

Area with significant pedestrian traffic should feature eight- to ten-foot wide sidewalks. Where sidewalks align with the edge of an angled or 90-degree parking lot, a minimum of 30 inches of parked car overhang obstructing the sidewalk shall be taken into account in order to maintain the minimum travel path width.

AASHTO recommends the construction of sidewalks on all town streets, including those in rural areas. The Institute of Transportation Engineers (ITE) recommends sidewalk installation on both sides of the street whenever possible for new urban and suburban streets, especially in commercial areas, residential areas with 4 or more units per acre, or residential areas on major arterials and collectors. If sidewalks on both sides of the road are not possible, lower density rural residential or suburban areas might adequately serve its pedestrians with a sidewalk on only one side. Under certain low-traffic, low-density situations, a wide paved shoulder can serve as an adequate pedestrian path.

It is important to note the potential for conflict between pedestrians and bicyclists on paved shoulder. Both bicyclists and pedestrians must exercise caution in order to avoid potential crashes on paved shoulders.

Construction Materials and Methods

Improvements for new sidewalks throughout the municipality should be constructed using the following methods and materials:

Materials — Sidewalks should be constructed of Portland Cement Concrete (PCC) with a 14-day flexural strength that is not less than 3,000 pounds per square inch (psi). Fiber mesh concrete is recommended for reinforcing due to the harsh salt environment of Pine Knoll Shores.

Subgrade Preparation — Subgrade should be thoroughly compacted and finished to a smooth, firm surface, and should be moist at the time the concrete is placed.

Subgrade Compaction — Except in areas where it is impractical to use standard type rollers, compaction should be by means of vibratory hand compactors.

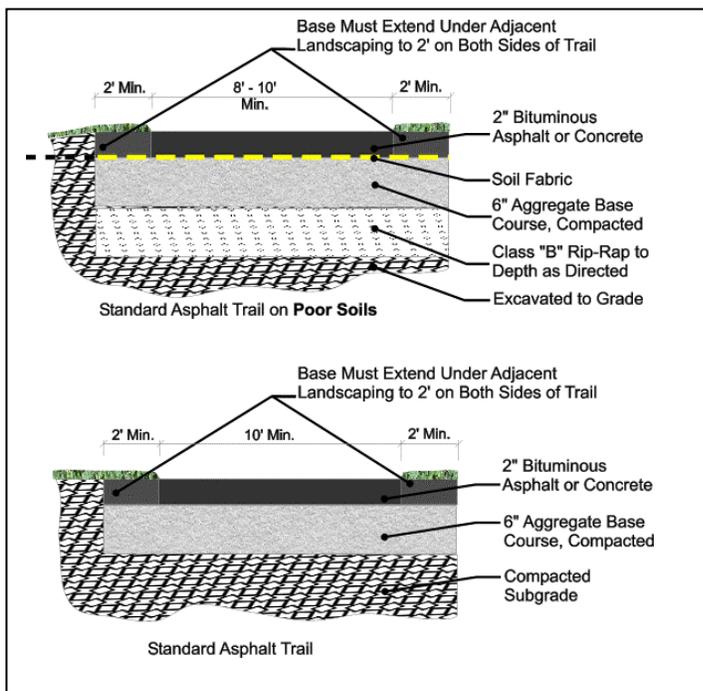
Retaining Walls – Retaining walls may be used as needed. They may be masonry or timber. Marine grade hardware and marine grade treated wood shall be used for all timber structures. For masonry retaining walls, the sidewalk may be contiguous with the retaining wall. The retaining wall shall form a 6 inch curb at the edge. Railings when required by Americans for Disabilities Act standards and the North Carolina Building Code shall be installed. Walkways may not abut timber retaining walls. There shall be a minimum of four inches of soil between the edge of the retaining wall and the sidewalk.

Final Finish — Surface finish for sidewalks should be completed by brushing (with brooms) or by another approved method to provide a uniform non-skid surface.

Driveways – Sidewalks shall continue across non-paved driveways. On paved driveways, sidewalks shall meet Americans for Disabilities Act standards.

Inspections and Performance — Sidewalk forms should be inspected by municipal staff prior to the placement of concrete. Concrete that does not meet minimum mixture and strength standards or settles after placement should be removed and replaced by the installer.

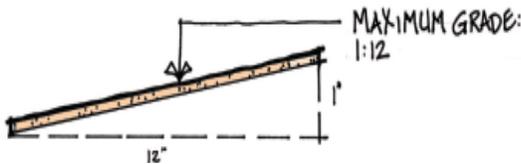
Alternative Materials Usage — Use of materials for sidewalks other than concrete and the construction methods used therewith must be approved by the city or town engineer or designated representative on a case by case basis. There are some successful examples where other materials such as asphalt, crushed stone, granite fines, or other slip resistant material have been used. Concrete is preferred surface, providing the longest service life and requiring the least maintenance.



Pervious Concrete – This concrete is a recent invention which allows storm water to percolate, reducing pollutants included in the stormwater runoff, when used over permeable soils, superior traction, unfavorable to rollerblading and skateboarding, higher installation cost.

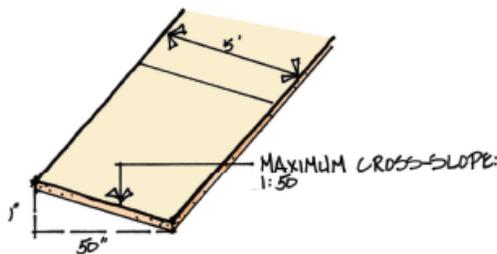
Grade

AASHTO recommends the following grades for sidewalks: Continuous sidewalk grades should not exceed 5% (1:20). However, in areas where the existing topography or the adjacent street cause grades of more than 5%, sidewalk grades of up to 8.33% (1:12) may be used for a rise of no more than 2.5 feet, provided that level landings (grades less than 0.5%) are provided at the end of such grades and are at least 5 feet long.



In cases where grades greater than 8.33% (1:12) must be negotiated, switchbacks or other approved ramping techniques must be provided and will conform to ADA requirements. Additional right-of-way and/or easements necessary to accommodate these features will be obtained by the applicant and legally dedicated to the city or town.

Cross-Slope

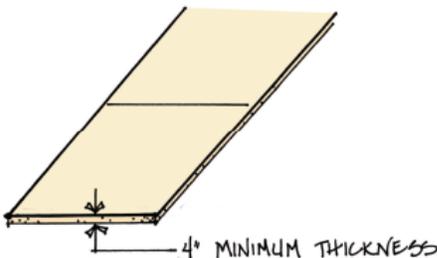


Sidewalks and walkways should be designed such that grades and cross slopes are minimized to allow those with mobility impairments to negotiate with greater ease. The maximum allowable cross-slope for sidewalks is 2% (1:50). At driveways, curb cuts, and both marked and unmarked crosswalks, the maximum allowable cross-slope must be maintained for a minimum width of 3 feet. Cross-slope should be oriented toward the adjacent roadway and sufficient to

provide storm water runoff without creating standing water on the walkway.

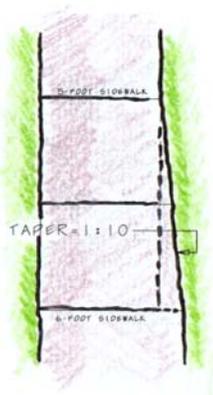
Sidewalk Thickness

A minimum thickness (or depth) of 4 inches of concrete is required for all new sidewalks except as noted. To accommodate the additional loading caused by pedestrian density or by vehicles crossing a sidewalk, a thickness of 6 inches is required where sidewalks intersect at wheelchair/crosswalk ramps, and at driveways that use a ramp or apron-type access to cross the sidewalk from the adjacent public street.



Transitions

Wheelchair ramp and driveway transitions to or crossing sidewalks must conform to current ADA requirements.



Tapers

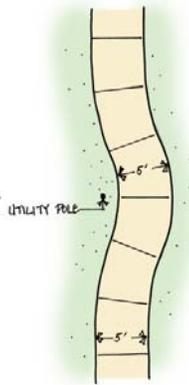
Transitional tapers to and from sidewalks of different widths are to be at a maximum rate of 1-foot of width per 10 feet of length (1:10) except as approved by the city or town.

Sidewalk Alignment

Sidewalks should parallel the roadway. Typical exceptions include:

Horizontal Curve Sections on Roadways —

In situations where a roadway curves at an angle greater than 60 degrees (and where right-of-way permits), the designer is permitted to adjust the curve of the sidewalk to more easily accommodate pedestrians.



Presence of Natural and Manmade Features —

The 5-foot minimum width of the travel path must be free of obstructions. The designer is permitted to alter the sidewalk path to avoid significant obstructions including but not limited to: significant vegetation, transformers, utilities and utility poles, fire hydrants, and traffic signal hardware. Sidewalk path exceptions should be evaluated and approved on a case-by-case basis by the city or town. Care should also be used to ensure that the travel path does not interfere with the integrity of trees or of historic features.

Sidewalk path exceptions should be evaluated and approved on a case-by-case basis by the city or town. Care should also be used to ensure that the travel path does not interfere with the integrity of trees or of historic features.

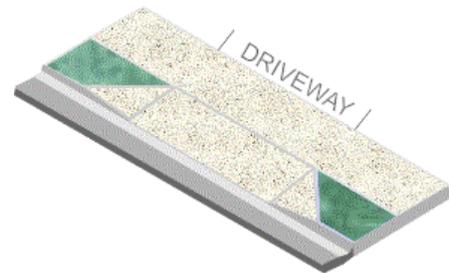
Meanders — Sidewalk meandering is strongly discouraged.

People generally prefer to walk in a straight line.

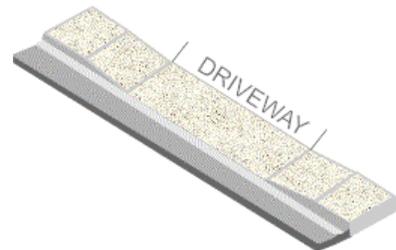
Meanders must meet minimum ADA requirements unless otherwise approved by the municipality.

ADA: Dealing with Cross-Slope from Driveways

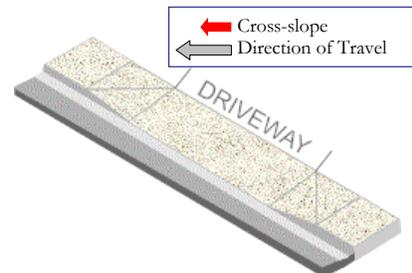
The figures above at right indicate the preferred (top), conditionally acceptable (middle), and unacceptable (bottom) design solutions for new driveways as they interface with sidewalks. The intent is to make wheelchair travel safe along the sidewalk without directing the user into traffic through angled (cross) slope designs. Cross-slope on sidewalks should not exceed 2%, preferably not 1.5% where possible.



Preferred – The sidewalk is set behind the driveway apron and planting strip.



Conditionally Acceptable – The “dip” at the driveway apron allows for safer passage with no cross-slope.



Not Acceptable – The cross-slope at the driveway apron provides a difficult challenge for a person using a wheelchair or cane.

Sidewalk Buffers

Buffer zones between pedestrian paths and vehicular traffic provide a sense of security to those on foot or in wheelchairs and give the path a comfortable scale and clear definition. Buffers can also provide other benefits to pedestrians depending on the type used. Buffer zones may either be paved, providing space between the pedestrian and traffic, or they may involve a planting strip with trees and shrubs, but is not recommended for high-traffic pedestrian areas. Much like the sidewalk itself, the form and topography of a buffer may vary greatly. For streets with curb and gutter, AASHTO recommends a buffer width of two to four feet for local or collector streets, and a buffer width of five to six feet for arterial or major streets, whether for a paved buffer zone or a planting strip. For streets without curb and gutter, there should be a vegetated buffer between the edge of the pavement and the sidewalk and preferably a drainage feature. The Division Engineer can provide guidance where it is not feasible to locate a drainage feature between the sidewalk and the edge of street pavement.

Planting Strips

Continuous zones of landscape, located between the sidewalk and the street curb or the edge of road pavement, perform a multitude of essential tasks. Planting strips contribute to the walkability of a street by providing shade. In addition to providing shade, street trees - along with turf and other plantings - help reduce urban temperatures, improve water quality, lower stormwater management costs, and add beauty to the street for the pedestrian, the driver, and the adjacent land use.

The recommended planting width to permit healthy tree growth is 4 to 10 feet measured from the back of curb. Planting strips, or tree lawns, are the preferred means of providing a buffer, but are not feasible or appropriate in all pedestrian situations.

The width of the planting strip shall increase with a greater plant density and potential as the intensity of development increases. This separation from motorized traffic decreases road noise while increasing a pedestrian's sense of security and comfort. Added benefits of this separation include space for signage, utilities (fire hydrants), and vegetation.

Additional Considerations

Though the buffers described above each provide some sort of physical barrier from moving vehicular traffic, it is vital for pedestrians on the sidewalk to have a clear view of drivers and vice-versa. This is a particularly important consideration in designing and maintaining planting strips. It is important to eliminate both high and low contact points with tree branches, mast-arm signs, overhanging edges of amenities or furniture. In addition, it is necessary to provide two feet of clear space from store fronts to accommodate shy distance from walls and the opening and closing of doors.

Crosswalks

A Rectangular-Shaped Rapid Flashing LED Crosswalk Beacon (Enhancer) device is recommended at crosswalks where there is no traffic light. At non-signalized crosswalks,

motorist often fail to yield to pedestrians in the crosswalk. At locations where the traffic volume or high cost of a traffic signal does not justify its installation, this relatively inexpensive device should be installed to increase the rates of motorists yielding to pedestrians.

It uses pairs of rectangular yellow LED beacons that employ a stutter flash pattern similar to that used on emergency vehicles and will definitely be included in the new MUTCD. It has received interim approval from FHWA, so there is no need for state agencies to request approval for its usage. A study evaluating the efficacy of the rectangular rapid-flash LED flash beacons mounted to pedestrian signs along with advance yield markings during daytime and nighttime operation has concluded that:

“no other amber flashing beacon has obtained and sustained the high rate of motorist yielding compliance we have with this device (for over one-year from the date of installation). “



R. D. Jones Stop Experts, Inc is the best company from which to purchase these devices. R. D. Jones developed the first of these signs, which was piloted in St. Petersburg, Florida. All of the signs that they sell are pedestrian actuated (not continually flashing). This company has a patent pending on this device.

The signs must be engineered by Stop Experts to the specific location. The sign will have to be made to swivel for locations along a curve of any kind. In addition, the lights must be adjusted and engineered so that they are aiming directly into the line of vision of the driver at the specific location.

Paths/Greenways

Multi-Use Paths

Multi-use paths are paved road-like facilities designed to be used by pedestrians and bicyclists as well as others, including those on roller blade, skateboards and other alternative modes of transportation. Paths can be paved or unpaved, can be along creeks or streams, and can be designed to accommodate a variety of path users.

The alignment of these corridors should avoid road right-of-way whenever possible to minimize intersection and driveway crossings. Because these paths typically do not cross roads at

signalized intersections, they should include pedestrian crosswalks, underpasses, culverts, or overpasses at each road crossing for safety.

Design Criteria

Multi-use paths shall be designed with clearance requirements, minimum radii, stopping sight distance requirements, and other criteria — similar to the criteria for roadway design. High standards should be observed when designing these paths.

Multi-use paths shall be a minimum of 10 feet wide; with minimum 2 foot wide graded shoulders on each side (AASHTO recommends 5 foot shoulders) to protect users from grade differences. These shoulders can be grass, sand, finely crushed rock or gravel, natural groundcover, or other material. Sections of the path where shoulders cannot be provided due to stream crossings or other elevated grade issues should have protection such as rails, fences, or hedges.

Paths of 12'-14' in width are preferred for areas where high volumes of users are expected. If it is not possible to increase the width, including a divider line down the center for bi-directional traffic can be helpful as a means of increasing safety for path users. Width of a path may be reduced to 8 feet, depending upon physical, environmental or right-of-way constraints and topography.

These paths should keep the contour of the land for aesthetic and environmental reasons, but for practicality reasons should not be unnecessarily curved. The minimum radii or curvature recommended by AASHTO is 30-50 feet, and the cross slope should typically be less than 2%. The grade should not be more than 5%, but could reach 11% for short distances according to ADA and AASHTO guidelines. Right angles should be avoided for safety reasons, especially when considering bridge and road crossings.

Vertical and Horizontal Clearance

Selective thinning of vegetation along a path increases sight lines and distances and enhances the safety of the path user. This practice includes removal of underbrush and limbs to create open pockets within a forest canopy, but does not include the removal of the forest canopy itself. A total of 8 to 10 feet of vertical clearance should be provided.

Section 8. Program and Policy recommendations

8.1. Programs to promote safe pedestrian activity

Programs for Children

Public safety officers can teach school age children the basics of pedestrian safety. These concepts include how to watch for vehicles before crossing a street or driveway or while in a parking lot, how to understand traffic signals and pedestrian signals, how to be visible to drivers of vehicles, how to safely wait for the school bus and get on and off the school bus. They can also teach them good pedestrian good citizenship. This includes concepts such as being polite to other pedestrians, assisting and /or showing respect for those with pedestrian limitations. Children should also be taught not to accept rides from anyone unless pre-approved by their caretakers.

Parents should be taught when and where to allow and encourage children to walk. They should be encouraged to walk with their children and to teach them safe pedestrian behaviors. They should be taught how to assess when their child has the knowledge and maturity to walk a short distance unassisted, then when a child can walk unassisted on a more complicated walk. This can be done at school events or community events. Sponsors could be public health personnel and/or local law enforcement.

Programs for seniors

The Town can provide public education for seniors promoting safe pedestrian activity for transportation and fitness. The Public Safety Department can provide a general pedestrian safety program with emphasis on safe usage of motorized wheelchairs.

General Pedestrian Safety Program

The Town can provide a public education program that addresses at a minimum the following safety issues associated with pedestrians.

- State laws about pedestrians
- How to cross a street safely
- How to walk on the roadway shoulder when there is not a sidewalk
- Pedestrian visibility
- Pedestrian good citizenship
- Bicycles and pedestrian
- Local regulations regarding the use of pedestrian facilities

Pedestrian Facility Brochure

The Town can produce a brochure and include a PDF file on the Town website that includes locations of pedestrian facilities, the rules for their use including who can use a facility and pedestrian safety tips.

Examples of rules for sidewalks.

Pedestrians, wheel chairs, strollers and bicycles with wheels less than 16 inches may use a sidewalk.

Roller blades, skate boards are not permitted.

Exercise common courtesy.

No loitering, littering, alcohol use, or loud activity is permitted.

Pick up dog waste when walking dog.

Traffic Calming on Oakleaf Drive

Speeding is a perceived problem on Oakleaf Drive particularly between NC 58 and the Country Club of the Crystal Coast and in the vicinity where Oakleaf Drive and Mimosa Drive meet. Town Administration and the Police Department will implement traffic calming measures in these areas.

8.2. Programs that promote walking and facilities for walking

Recreation and fitness programs

The Town of Pine Knoll Shores could develop a model fitness program that residents could participate in. This program could establish a walking circuit and walking buddy system or provide a self lead walking for fitness group that meets regularly. The program could begin at Town Hall. The neighborhood associations could sponsor their own walking group. The Town could sponsor walking sporting events with profits used for the construction, operation and maintenance of pedestrian facilities.

Volks Walks

The North Carolina Aquarium at Pine Knoll Shores sponsors 2 Volks Walk routes. Both the 6 kilometer and 10 kilometer routes begin and end at the Aquarium. Both walks include a walk through the Roosevelt Natural Area on trails, beach walk and walks on the streets of Pine Knoll Shores. The handouts for the Volks Walks include safety walking tips. The Aquarium allows walkers to use the restrooms and water fountains without charge.

Carteret Department of Public Health

North Carolina Public Health agencies are advocating the Eat Smart Move More™ program “that promotes increased opportunities for physical activity and healthy eating through policy and environmental change.” They hope to reduce chronic diseases such as stroke, heart disease, and diabetes that are related to inactivity and unhealthy eating. The program promotes exercise as a part of a healthy life style and the provision of safe community based pedestrian facilities to promote a healthy life style. The Carteret County Health Promotion Coordinator can work with

other entities such as the Town of Pine Knoll Shores and the Carteret County Parks and Recreation Department to co-host walking events and to display educational materials promoting Eat Smart Move More at community events . The Carteret County Department of Public Health can also promote the use of walking facilities in Throughout Carteret County including the Town of Pine Knoll Shores. The Public Health Department can apply for grants to establish pedestrian facilities and promote their use.

Pedestrian Advocacy Group

The Town will create a pedestrian advocacy group with the following duties.

- Educate leaders about the importance of pedestrian facilities to Pine Knoll Shores.
- Encourage compliance with pedestrian facility development regulations.
- Recommend the funding of specific pedestrian facilities through the annual budget development process and Capital Improvements Plan.
- Identify grant opportunities and recommend that the Town apply for grants for pedestrian projects and related activities.
- Sponsor events that promote pedestrian activities and safety for pedestrians.
- Sponsor activities that raise funds for pedestrian facilities.

8.3. Guide for Pedestrian Friendly Development

The intent of this section is to provide a guide that the development community may wish to use when planning new developments or redevelopments of properties. They may select the concepts that they wish to utilize. Use of this guide is voluntary.

When planning for new development and redevelopment of properties, one should assume that there will be pedestrians and plan for them accordingly. Plans should incorporate facilities that encourage walking. These concepts apply to all developments including the following:

- large properties where new neighborhoods are planned
- business developments
- mixed use developments
- parcel with a single building intended for non-single or two family dwelling

Concepts for New Developments and Redevelopments

Interconnected pedestrian network: New developments should be planned with interconnected pedestrian networks. The pedestrian facilities should connect with those on adjoining properties and plan for the future development of undeveloped properties and properties likely to be redeveloped.

Interconnected street network: An interconnective street pattern provides multiple routes into and through a development reducing the overall traffic volume on individual streets.

Traffic calming: Traffic calming may be utilized to slow down traffic along streets in neighborhoods and in areas with pedestrian activity. Devices as simple as stop signs every couple of blocks will slow down traffic. Wide travel lanes encourage faster speeds. Therefore

travel lanes should not exceed 11 feet in neighborhoods. Parking along the street also slows down traffic. Streets with curves are not only more aesthetically appealing but also calm traffic.

Vegetation management: Ornamental and shade trees make pedestrian facilities more inviting and attractive. When located between the street and the walkway they provide visual separation and make the sidewalk more comfortable. Trees and shrubbery may also keep pedestrians from noticing oncoming traffic when they are crossing a street or driveway. However, trees and other vegetation may also make it difficult for a motorist to see a pedestrian entering a driveway or street. When locating vegetation, fencing, signs and other visual obstacles, be careful to maintain a clear area for pedestrians in locations where there are potential conflicts with vehicles shall be maintained.

Vegetation planted near a walkway can grow into the walkway. Tree roots may lift the sidewalk resulting in an unsafe condition. Regular maintenance of vegetation located near walkways is necessary to keep them clear of obstructions and safe. The condition of walkways should be checked where trees are located nearby.

Recommended standards to promote walkability.

- Interconnected street patterns
- Interconnected pedestrian facilities
- Sidewalks on all streets
- Pedestrian connections to destinations – beach accesses, parks, Atlantic beach, public library, Town Hall, Aquarium, other neighborhoods
- Maintain clear view at intersections and driveways
- Traffic calming as needed

Site Development

During the initial stages of planning a site, the following questions should be answered.

- *How can someone safely walk from the street to the primary building entrance(s)?*
- *How can someone safely walk from the parking area to the primary building entrance(s)?*
- *How can someone safely walk from the primary building entrance(s) to the existing pedestrian facilities on adjacent properties or to a probable future location of pedestrian facilities on adjacent properties?*
- *How can this property be developed to be pleasant and encouraging for pedestrians?*
- *How can this site be developed to accommodate the needs of a pedestrian with disabilities?*

Voluntary guidelines for new site development and redevelopment

Provide a walkway from the public sidewalk to the primary building entrance(s). This walkway should be located so that it crosses parking areas, internal street and drives minimally and in locations where it is easy for drivers to see pedestrians and for pedestrians to see approaching vehicles. Landscaping should not conceal pedestrians from view or hinder their view of vehicular areas. In locations where the primary pedestrian route crosses an internal drive mark

where pedestrians cross with painted stripes or a paving material that contrasts with the street/driveway paving material.

Design parking areas with pedestrians in mind. Consider one way aisles with angle parking. One way traffic is safer for pedestrians because they only have to look for on coming vehicles in one direction. Angled parking increases the visibility between pedestrians and motorists. Provide sidewalks that are separate from the parking lot similar to the image below. Sidewalks that are in front of parking spaces should allow at least 30 inches for the car bumpers to extend beyond the curb or tire stop.

Provide ancillary facilities for pedestrians such as benches, attractive pedestrian level lighting and landscaping. Keep the site open to provide a clear view in areas where pedestrians are encouraged. Trees should be upright and shrubs kept pruned to provide for a safe atmosphere. Pedestrian level lighting should illuminate the faces of pedestrians – not the tops of their heads.

In neighborhoods and multi- building developments, provide a gathering location where citizens can socialize. The gathering location can be as simple as a few benches in a landscaped setting or as elaborate as a community center or neighborhood park.

Connect pedestrian facilities that serve a transportation need to recreation facilities and to community amenities.

Design all pedestrian facilities to be accessible to persons with disabilities. Locate accessible parking spaces convenient to building entrances. Design ramps and other accessible features so that they will be used by all.

8.4. Ordinance Recommendations for Pedestrian Friendly Development

The current development regulations do not address the provision of pedestrian facilities on residential or non residential developments. Many local governments have zoning and subdivision regulations requiring the provision of pedestrian facilities when property is developed or redeveloped. These regulatory recommendations are not effective unless the Town Board of Commissioners chooses to hold a public hearing and votes to amend the Zoning and Subdivision Ordinance.

Zoning Regulations

Add the following requirements to Section 74. Miscellaneous Provisions.

Section 74-213. Walkways shall be provided if any of the following conditions are true.

- a) A property is zoned from a single family designation to a non single family designation.
- b) The Pedestrian Master Plan indicates a walkway on adjoining right of way and an application for a zoning compliance permit or building permit for new construction is submitted. The site plan for the building permit – zoning compliance permit application shall include the walkway in accordance with the adopted Pedestrian Master Plan. No certificate of occupancy shall be issued

until the walkway is constructed that meets or exceeds the standards of the Pedestrian Master Plan.

- c) A walkway is required by the Division 4 of the Zoning Ordinance as stipulated below.
- d) All required walkways shall meet the minimum construction standards in Section 66-4 of the Subdivision Standards of the Town of Pine Knoll Shores

In the Town of Pine Knoll Shores Zoning Ordinance, amend item e. of DIVISION 4. MULTIFAMILY, COMMERCIAL, OFFICE, PROFESSIONAL, MUNICIPAL SERVICE AND INSTITUTIONAL DISTRICTS

74-333. Restrictions. Of the Town of Pine Knoll Shores Zoning Ordinance to read as follows.

e. Walkways: Provide a walkway that connects the public sidewalk to the primary building entrance(s). This walkway shall be located so that where it crosses parking areas and internal drives, it is easy for drivers to see pedestrians and for pedestrians to see approaching vehicles and the pedestrian route is delineated by a painted crosswalk or a contrasting paving material. Walkways shall be a minimum of 4 feet wide. Provide an additional 30 inches of sidewalk width beyond the curb or tire stop where a proposed sidewalk is adjacent to the front of designated parking spaces. All sidewalks shall meet the minimum construction standards in Section 66-4 of the Subdivision Standards of the Town of Pine Knoll Shores. The site plan shall indicate the location of all walkways. All walkways shall meet the standards of the Americans with Disabilities Act.

Subdivision Regulations

The subdivision ordinance should be updated to recommend interconnectivity of transportation facilities including streets, walkways and bicycle facilities. These regulatory recommendations will require a public hearing and enactment by the Town Board of Commissioners

This plan recommends the following possible additions requiring sidewalks.

To (a) General Provisions of Section 66-4 of the Subdivision Regulations, add the following:

(6) Sidewalks

1. Sidewalks are required on one side of a public or private street with greater than 10 residential lots.
2. Sidewalks are required on both sides of a public or private street where adjacent lots are zoned for a district other than R-1, R-2, R-3 or R-4.
3. Sidewalks shall be either:
 - (a) 5 feet wide by 4 inches thick 3000 psi reinforced concrete on compacted base.
 - (b) 8 feet wide asphalt with a 6 inch compacted gravel base

(c) Sidewalks may be constructed of brick, concrete pavers or other material approved by the Town of Pine Knoll Shores Building Inspector if the applicant demonstrates that the alternative material is durable and provides a safe walking surface.

(d) Boardwalks may be constructed to serve as public sidewalks. The walking width of the board walk shall be a minimum of 5 feet. Boardwalks shall be constructed of treated wood, synthetic wood approved for exterior use, cementitious material. They shall be designed by a Professional Engineer or Landscape Architect of materials and construction methods to meet the harsh coastal environmental conditions.

4. All sidewalks shall meet Americans with Disabilities Act requirements.
5. Sidewalks shall be located outside all drainage facilities and a minimum of 5 feet from the edge of pavement if there is no curb and gutter or a minimum of 3 feet from the back of curb if there is curb and gutter.
6. Sidewalks shall be located either on the right of way of the public or private street or on an easement dedicated to the Town of Pine Knoll Shores or to the private property owner's association in perpetuity that connects to the public/private street at each end of the sidewalk.

Section 9. Implementation

9.1. Key Implementation Steps.

Formation of the Pedestrian Task Force: The Town Board of Commissioners shall appoint a Pedestrian Task Force whose function is to advocate pedestrian improvements and programs. The Task Force should include broad based representation similar to that on the Pedestrian Master Plan Steering Committee. Section 8.2 outlines the role of this task force.

Transportation Improvements Program: The Town shall immediately submit an application to include all the projects included in the *Top Priority* and *0-5 Year Priority* in the East Carolina Rural Planning Organization Transportation Improvements Program (TIP). Inclusion on the TIP is required for eligibility for grants from NC Department of Transportation including Enhancement Grants, a common source of funds for walkways. Additional information is available from the RPO Planner at the East Carolina Council of Governments in New Bern, NC (252-638-3185).

Programs: The Public Safety Department and the Pedestrian Task Force shall schedule an annual event promoting pedestrian activity and safety. This event shall include information on safe walking techniques for all ages, walking to and from the school bus, driver awareness of pedestrian safety, health benefits of walking, and information about walking groups and events.

Grant Applications: The Pedestrian Task Force and Town Administrative Staff shall identify grant opportunities. With the support of the Town Board of Commissioners, applications shall be submitted for grants to fund pedestrian facilities when the Town has earmarked sufficient resources for required matches.

9.2. Project Priority

The specific projects are listed by priority in Section 7.3. Project recommendations by priorities.

0-5 year priority projects -HIGHEST RATED PROJECTS

The Town should proceed with implementation of these top priority projects upon adoption of the Pedestrian Master Plan. These projects should be placed immediately on the East Carolina Rural Planning Organization Transportation Improvements Plan. The Town should identify grant opportunities and apply for grants. Matching funds should be identified and budgeted for these projects.

Other 0-5 year priority projects

These projects should be placed immediately on the East Carolina Rural Planning Organization Transportation Improvements Plan. The Town should identify grant opportunities for these projects and identify matching funds through the Town's Capital Improvements program thus scheduling them for the 1 to 5 year period. In 3 years the Town should evaluate progress on projects in the 0-5 year priority and take steps to implement those that are not scheduled.

5-10 years priority projects

In 4 years the Town should identify grant opportunities for these projects and place them on the East Carolina Rural Planning Organization Transportation Improvements Plan and the Town’s Capital Improvements Program.

+ 10 year priority projects

In 8 years the Town should place these projects on the East Carolina Rural Planning Organization Transportation Improvements Plan and the Town’s Capital Improvements Program. In 9 years they should identify grant opportunities for these projects in anticipation of applications.

9.3. Maintenance/ Staffing Programs

NCDOT shall be responsible for the maintenance of the crosswalks on NC 58 and other North Carolina State roadways including signage and devices that alert motorists. The Town of Pine Knoll Shores Public Services Department shall be responsible for maintenance of the walkways on State rights of ways and other public property.

Regular maintenance

Maintenance activity	Frequency
Removal of sediment from the surface of walkway	As needed
Edging of walkway – removal of vegetation from surface	2 times a years
Removal of vegetation above walkway to a height of seven feet	2 times a year
Removal of vegetation from the sides of walkways to maintain a clear distance of 1 foot	2 times a year

Repairs

Pedestrian walkways and boardwalks are constructed to last and withstand public use. Repairs are not anticipated for many years. Reinforced concrete walkways should remain intact for years unless the roots of vegetation under the walkways heave them up making adjoining sections uneven or if they are undermined during a large storm. When the Public Services Department is performing routine maintenance they should monitor the condition of the walkway and check to see if there are tree roots growing under the walkway, and if so trim them away. Likewise if they see the beginnings of erosion near a walkway, they should remedy the condition before major maintenance is necessary.

Signage will deteriorate over time and should be replaced before the paint has faded. Posts can be retained. If vandalism occurs, repairs should be made immediately to keep the facilities in good condition.

Staffing: It is anticipated that regular Public Service staff can handle the maintenance of the pedestrian facilities. Public Safety Department will monitor activity of pedestrians on the facilities during their regular patrols. Administrative staff will handle grant applications and the administration of grants. No additional positions will be required.

Section 10. Funding for Pedestrian Improvements

Funding of pedestrian improvements will be from private sources, grants, Powell Bill funds and the Town of Pine Knoll Shores general fund and creative public financing. This section describes possible funding sources that the Town may select from to fund pedestrian facilities.

10.1. Sources through NC Department of Transportation

NCDOT Transportation Improvements Plan

In North Carolina, the Department of Transportation, Division of Bicycle and Pedestrian Transportation (DBPT) manages the Transportation Improvement Program (TIP) selection process for bicycle and pedestrian projects. Projects programmed into the TIP are independent projects – those which are not related to a scheduled highway project. Incidental projects – those related to a scheduled highway project – are handled through other funding sources described in this section.

The Division of Bicycle and Pedestrian Transportation has an annual budget of \$6 million. Eighty percent of these funds are from STP-Enhancement funds, while the State Highway Trust provides the remaining 20 percent of the funding. A total of \$5.3 million dollars of TIP funding is available for funding various bicycle and pedestrian independent projects, including the construction of multi-use trails, the striping of bicycle lanes, and the construction of paved shoulders, among other facilities. Prospective applicants are encouraged to contact the DBPT regarding funding assistance for bicycle and pedestrian projects. For a detailed description of the TIP project selection process, visit:

http://www.ncdot.org/transit/bicycle/funding/funding_TIP.html Another \$500,000 of the division's funding is available for miscellaneous projects.

The North Carolina Department of Transportation Enhancement Grant Program

The Enhancement Grant program includes categories for Bicycle and Pedestrian Projects and Bicycle and Pedestrian Safety Projects. Eligible pedestrian project types include sidewalks, new pedestrian crosswalks, new stand alone pedestrian signs, upgrade of existing traffic signals to include pedestrian timing, ADA ramps, pedestrian scale lighting, and replacing existing sidewalks to meet ADA standards, maintenance of existing walkways, pedestrian safety training and related training materials including brochures. The minimum local match is twenty percent.

Enhancement grant program is administered by the North Carolina Department of Transportation Program Development Branch. Funds are allocated based on an equity formula approved by the Board of Transportation. The formula is applied at the county level and aggregated to the regional level. Available fund amount varies. In previous Calls, the funds available ranged from \$10 million to \$22 million.

For more information, visit: www.ncdot.org/financial/fiscal/Enhancement/

Incidental Projects – Bicycle and pedestrian accommodations such as bike lanes, widened paved shoulders, sidewalks and bicycle-safe bridge design are frequently included as incidental features of highway projects. In addition, bicycle-safe drainage grates are a standard feature of all

highway construction. Most bicycle and pedestrian safety accommodations built by NCDOT are included as part of scheduled highway improvement projects funded with a combination of National Highway System funds and State Highway Trust Funds.

Sidewalk Program – Each year, a total of \$1.4 million in STP-Enhancement funding is set aside for sidewalk construction, maintenance and repair. Each of the 14 highway divisions across the state allocates \$100,000 annually from each division’s budget for this purpose. Funding decisions are made by the district engineer. Prospective applicants are encouraged to contact their district engineer for information on how to apply for funding.

Governor’s Highway Safety Program (GHSP) – The mission of the GHSP is to promote highway safety awareness and reduce the number of traffic crashes in the state of North Carolina through the planning and execution of safety programs. GHSP funding is provided through an annual program, upon approval of specific project requests. Amounts of GHSP funds vary from year to year, according to the specific amounts requested. Communities may apply for a GHSP grant to be used as seed money to start a program to enhance highway safety. Once a grant is awarded, funding is provided on a reimbursement basis. Evidence of reductions in crashes, injuries, and fatalities is required. For information on applying for GHSP funding, visit: www.ncdot.org/programs/ghsp/.

Powell Bill Funds

Powell Bill Funds are funded by State gasoline taxes and are allocated annually to municipalities according to a formula based on population and miles of local streets. “These funds shall be expended only for the purpose of maintaining, repairing, constructing, reconstructing or widening of any street including bridges, drainage, curb and gutter, and other necessary appurtenances within the corporate limits of the municipality, or for the planning, construction, and maintenance of bikeways located within the rights-of-way of public streets and highways, or for the planning, construction, and maintenance of sidewalks (HB 1661 ratified 7/6/94) along public streets and highways. Funds may also be spent for traffic control devices and regulatory signs and for the payment of principal and interest on municipal street bonds, and as shown on the Powell Bill Expenditure Guidance.”

10.2. Grants

Grants for pedestrian projects are increasingly competitive and most require a significant match of funds or in kind services

North Carolina Parks and Recreation Trust Fund (PARTF)

The fund was established in 1994 by the North Carolina General Assembly and is administered by the Parks and Recreation Authority. Through this program, several million dollars each year are available to local governments to fund the acquisition, development and renovation of recreational areas. Applicable projects require a 50/50 match from the local government. Grants for a maximum of \$500,000 are awarded yearly to county governments or incorporated municipalities. The fund is fueled by money from the state's portion of the real estate deed transfer tax for property sold in North Carolina.

The Parks and Recreation Trust Fund is allocated three ways:

- 65 percent to the state parks through the N.C. Division of Parks and Recreation.
- 30 percent as dollar-for-dollar matching grants to local governments for park and recreation purposes.
- 5 percent for the Coastal and Estuarine Water Access Program. (See below: North Carolina Department of Environmental and Natural Resources Division of Coastal Management Grants for Public Beach and Waterfront Access for more information about these grants.)

For information on how to apply, visit: www.partf.net/learn.html

North Carolina Department of Environmental and Natural Resources Division of Coastal Management Grants for Public Beach and Waterfront Access.

“The Division of Coastal Management awards about \$1 million a year in matching grants to local governments for projects to improve pedestrian access to the state's beaches and waterways. Funding for the Public Beach and Coastal Waterfront Access Program comes from the N.C. Parks and Recreation Trust Fund.” A local match of 25 percent is required for projects that fund site amenities and improvements including pedestrian access walkways. At least 50 percent of the match must be cash. For additional information refer to the following web site: <http://dcm2.enr.state.nc.us/Access/grants.htm>

North Carolina Department of Environment & Natural Resources Recreation Trails Grant.

The Recreational Trails Program (RTP) is a grant program funded by Congress with money from the federal gas taxes paid on fuel used by off-highway vehicles. This program's intent is to meet the trail and trail-related recreational needs identified by the Statewide Comprehensive Outdoor Recreation Plan.

This grant funds up to 80% of a recreational trails program. The maximum grant is \$50,000. The match can be local dollars or property purchases for recreational trail use. Eligible projects include new trail construction and trail renovation projects, trail head and trail side facilities; limited tools and equipment and land acquisition; all for public trail projects.

The grant application and instruction handbook is available through the State Trails Program website at <http://www.fhwa.dot.gov/environment/rectrails/>.

North Carolina Department of Environment and Natural Resources Adopt a Trail Grant. This grant funds up to \$5000 per project. Eligible activities include the new construction of trails; repair/renovation of trails; trail head or trail side facilities items included: horse tie-racks, bike racks, ORV loading ramps, canoe access points, and trail-head parking facilities – examples of items excluded: picnic shelters, picnic tables, fitness trail equipment, and birding equipment); educational or informational items including trail maps, trail brochures, trail signs and markers – examples of items included: park/greenway/trail entrance signs, trail newsletters, and trail websites, construction and maintenance equipment, engineering studies and/or environmental studies, provided that these services are required by the appropriate land managing agency in order to complete a trail or trail segment. No match is required for this grant. A total of \$108,000 in Adopt-A-Trail money is awarded annually to government agencies. Applications are due

during the month of February. For more information, visit :
<http://ils.unc.edu/parkproject/trails/grant.html>.

Eat Smart, Move More...North Carolina Community Grants Program

This grant program administered by the Physical Activity and Nutrition Branch Chronic Disease and Injury Section of the NC Division of Public Health supports community-based interventions to promote physical activity and healthy eating. Walking trails and associated facilities are eligible for funding.

Fit Community Grant Application and Award Process

Fit Community grants provide funding and technical assistance to North Carolina communities for innovative strategies that increase routine physical activity and/or healthy eating among a defined target setting(s) and target population(s). Additional criteria include demonstrated need, proven capacity, and promising opportunity for positive change in addressing physical activity and/or healthy eating. The NC Health and Wellness Trust Fund is committed to selecting a portfolio of grantee communities that represent a broad geographic range, diversity of needs, and range of strategies used to address those needs.

The Fit Community grants program awards communities with funding to increase routine physical activity and/or healthy eating for a particular population with specific health needs. \$60,000 grants are awarded over a two-year period. A community-wide multidisciplinary partnership with at least one health-related partner is required. The target setting (e.g. neighborhood, school, workplace, church) and/or target population (e.g. minority group, seniors, youth, employees, congregation) must be narrowly defined (i.e. not the entire community). Applicants must demonstrate a solid understanding of ALBD's Community Action, or "5P," Model (See sample tactics at: www.activelivingbydesign.org/our-approach/community-action-model). Applications and additional information may be found on the Fit Community web site: www.fitcommunitync.com.

National Trails Fund

In 1998, the American Hiking Society created the National Trails Fund, the only privately supported national grants program providing funding to grassroots organizations working toward establishing, protecting and maintaining foot trails in America. Each year, 73 million people enjoy foot trails, yet many of our favorite trails need major repairs due to a \$200 million in badly needed maintenance. National Trails Fund grants give local organizations the resources they need to secure access, volunteers, tools and materials to protect America's cherished public trails. For 2005, American Hiking distributed over \$40,000 in grants thanks to the generous support of Cascade Designs and L.L.Bean, the program's Charter Sponsors. To date, American Hiking has granted more than \$240,000 to 56 different trail projects across the U.S. for land acquisition, constituency building campaigns, and traditional trail work projects. Awards range from \$500 to \$10,000 per project.

What types of projects will the American Hiking Society consider? Securing trail lands, including acquisition of trails and trail corridors, and the costs associated with acquiring conservation easements. Building and maintaining trails which will result in visible and substantial ease of access, improved hiker safety, and/or avoidance of environmental damage.

Constituency building surrounding specific trail projects - including volunteer recruitment and support.

Web site: www.americanhiking.org/alliance/fund.html.

Urban & Community Forestry Grant Program

The goal of the Urban & Community Forestry Grant Program is to improve public understanding of the benefits of preserving existing tree cover in communities and assist local governments with projects which will lead to a more effective and efficient management of urban and community forests.

Grants are awarded on an annual basis through the [USDA Forest Service](#) and are administered by the NC Division of Forest Resources, Urban & Community Forestry Program. The program awards matching funds to encourage citizen involvement in creating and sustaining urban and community forestry programs. One of the eligible categories of grants is the *NATURALIZATION PROJECTS OR GREENWAY DEVELOPMENT*. These types of projects can be combined with tree planting, where native species are used and environmental benefits to the community are emphasized. Planning and development, assessments and studies, maps and drawings, promotional and educational materials may be eligible for funding when matched with a solid volunteer and in-kind staffing match. Forest buffers, connecting corridors between fragmented wooded areas, riparian buffers/protection, or reduction of mowing maintenance in municipal parks through edge naturalization, are some naturalization projects that will be considered for grants. For communities participating in the Tree City USA, up to \$5000 may be used for the purchase of trees in a single grant.

10.3. Funding Allocated by Federal Agencies

USDA Rural Business Enterprise Grants

Public and private nonprofit groups in communities with populations under 50,000 are eligible to apply for grant assistance to help their local small business environment. \$1 million is available for North Carolina on an annual basis and may be used for sidewalk and other community facilities. For more information from the local USDA Service Center, visit: <http://www.rurdev.usda.gov/rbs/busp/rbeg.htm>

10.4. Local Funding Sources

Capital Improvements Plan

The City may include pedestrian projects in its Capital Improvements Plan. Thus they can anticipate revenues and schedule the use of local funds to match grants or expenditures to pay for improvements entirely.

Capital Reserve Fund

Municipalities have statutory authority to create capital reserve funds for any capital purpose, including pedestrian facilities. The reserve fund must be created through ordinance or resolution that states the purpose of the fund, the duration of the fund, the approximate amount of the fund,

and the source of revenue for the fund. Sources of revenue can include general fund allocations, fund balance allocations, grants and donations for the specified use.

Taxes

Many communities have raised money through self-imposed increases in taxes and bonds.

Sales Tax

In North Carolina, the state has authorized a sales tax at the state and county levels. Local governments that choose to exercise the local option sales tax (all counties currently do), use the tax revenues to provide funding for a wide variety of projects and activities.

Any increase in the sales tax, even if applying to a single county, must gain approval of the State Legislature. For example, in 1998, Mecklenburg County was granted authority to institute a one-half cent sales tax increase for mass transit by the State Legislature.

Property Tax

Property taxes generally support a significant portion of a municipality's activities. However, the revenues from property taxes can also be used to pay debt service on general obligation bonds issued to finance greenway system acquisitions. Because of limits imposed on tax rates, use of property taxes to fund greenways could limit the municipality's ability to raise funds for other activities. Property taxes can provide a steady stream of financing while broadly distributing the tax burden. In other parts of the country, this mechanism has been popular with voters as long as the increase is restricted to parks and open space. Note, other public agencies compete vigorously for these funds, and taxpayers are generally concerned about high property tax rates.

Fees

Three fee options that have been used by local governments to assist in funding pedestrian facilities are listed here. Passage of a special act by the North Carolina General Assembly authorizing a specific fee is recommended prior to establishing the fee program.

Streetscape Utility Fees

Streetscape Utility Fees could help support streetscape maintenance of the area between the curb and the property line through a flat monthly fee per residential dwelling unit. Discounts would be available for senior and disabled citizens. Non-residential customers would be charged a per foot fee based on the length of frontage on streetscape improvements. This amount could be capped for non-residential customers with extremely large amounts of street frontage. The revenues raised from Streetscape Utility fees would be limited by ordinance to maintenance (or construction and maintenance) activities in support of the streetscape.

Impact Fees

Developers can be required to provide greenway impact fees through local enabling legislation. Impact fees, which are also known as capital contributions, facilities fees, or system development charges, are typically collected from developers or property owners at the time of building permit issuance to pay for capital improvements that provide capacity to serve new growth. The intent of these fees is to avoid burdening existing customers with the costs of providing capacity to serve new growth ("growth pays its own way"). Greenway impact fees are designed to reflect

the costs incurred to provide sufficient capacity in the system to meet the additional needs of a growing community. These charges are set in a fee schedule applied uniformly to all new development. Communities that institute impact fees must develop a sound financial model that enables policy makers to justify fee levels for different user groups, and to ensure that revenues generated meet (but do not exceed) the needs of development. Factors used to determine an appropriate impact fee amount can include: lot size, number of occupants, and types of subdivision improvements. If Pine Knoll Shores is interested in pursuing open space impact fees, it will require enabling legislation to authorize the collection of the fees.

Exactions

Exactions are similar to impact fees in that they both provide facilities to growing communities. The difference is that through exactions it can be established that it is the responsibility of the developer to build the greenway or pedestrian facility that crosses through the property, or adjacent to the property being developed.

In-Lieu-Of Fees

As an alternative to requiring developers to dedicate on-site greenway sections that would serve their development, some communities provide a choice of paying a front-end charge for off-site protection of pieces of the larger system. Payment is generally a condition of development approval and recovers the cost of the off-site land acquisition or the development's proportionate share of the cost of a regional facility serving a larger area. Some communities prefer in-lieu-of fees. This alternative allows community staff to purchase land worthy of protection rather than accept marginal land that meets the quantitative requirements of a developer dedication but falls a bit short of qualitative interests.

Bonds and Loans

Bonds have been a very popular way for communities across the country to finance their pedestrian and greenway projects. A number of bond options are listed below. Contracting with a private consultant to assist with this program may be advisable. Since bonds rely on the support of the voting population, an education and awareness program should be implemented prior to any vote.

Revenue Bonds

Revenue bonds are bonds that are secured by a pledge of the revenues from a certain local government activity. The entity issuing bonds, pledges to generate sufficient revenue annually to cover the program's operating costs, plus meet the annual debt service requirements (principal and interest payment). Revenue bonds are not constrained by the debt ceilings of general obligation bonds, but they are generally more expensive than general obligation bonds.

General Obligation Bonds

Cities, counties, and service districts generally are able to issue general obligation (G.O.) bonds that are secured by the full faith and credit of the entity. In this case, the local government issuing the bonds pledges to raise its property taxes, or use any other sources of revenue, to generate sufficient revenues to make the debt service payments on the bonds. A general obligation pledge is stronger than a revenue pledge, and thus may carry a lower interest rate than a revenue bond. Frequently, when local governments issue G.O. bonds for public enterprise

improvements, the public enterprise will make the debt service payments on the G.O. bonds with revenues generated through the public entity's rates and charges. However, if those rate revenues are insufficient to make the debt payment, the local government is obligated to raise taxes or use other sources of revenue to make the payments. G.O. bonds distribute the costs of land acquisition and greenway development and make funds available for immediate purchases and projects. Voter approval is required.

Special Assessment Bonds

Special assessment bonds are secured by a lien on the property that benefits by the improvements funded with the special assessment bond proceeds. Debt service payments on these bonds are funded through annual assessments to the property owners in the assessment area.

State Revolving Fund (SRF) Loans

Initially funded with federal and state money, and continued by funds generated by repayment of earlier loans, State Revolving Funds (SRFs) provide low interest loans for local governments to fund water pollution control and water supply related projects including many watershed management activities. These loans typically require a revenue pledge, like a revenue bond, but carry a below market interest rate and limited term for debt repayment (20 years).

Other Local Options

Partnerships

Another method of funding pedestrian systems and greenways is to partner with public agencies and private companies and organizations. Partnerships engender a spirit of cooperation, civic pride and community participation. The key to the involvement of private partners is to make a compelling argument for their participation. Major employers and developers should be identified and provided with a "Benefits of Walking"-type handout for themselves and their employees. Very specific routes that make critical connections to place of business would be targeted for private partners' monetary support following a successful master planning effort. Potential partners include major employers which are located along or accessible to pedestrian facilities such as multi-use paths or greenways. Name recognition for corporate partnerships would be accomplished through signage trail heads or interpretive signage along pedestrian systems. Utilities often make good partners and many trails now share corridors with them. Money raised from providing an easement to utilities can help defray the costs of maintenance. It is important to have a lawyer review the legal agreement and verify ownership of the subsurface, surface or air rights in order to enter into an agreement.

Local Trail Sponsors

A sponsorship program for trail amenities allows smaller donations to be received from both individuals and businesses. Cash donations could be placed into a trust fund to be accessed for certain construction or acquisition projects associated with the greenways and open space system. Some recognition of the donors is appropriate and can be accomplished through the placement of a plaque, the naming of a trail segment, and/or special recognition at an opening

ceremony. Types of gifts other than cash could include donations of services, equipment, labor, or reduced costs for supplies.

Volunteer Work

It is expected that many citizens will be excited about the development of a pedestrian walkway system. Individual volunteers from the community can be brought together with groups of volunteers from church groups, civic groups, scout troops and environmental groups to work on walkway development on special community work days. Volunteers can also be used for fund-raising, maintenance, and programming needs.

10.5. Private Sources

Private sources will construct sidewalks when required by the Town's development regulations along the streets in new developments.

Donations of private funds may be used to construct pedestrian improvements. These may be used for ancillary facilities such as benches.

Corporate Sponsorship: Local businesses may sponsor a section of sidewalk. Realators may wish to sponsor a section near their office or near a location where they are selling real estate. A corporate sponsor could provide the match for a grant that the Town applies for. Funding Allocated by Federal Agencies

Appendix A: Public Input

Pedestrian Master Plan - Public Input Survey Town of Pine Knoll Shores

The Town of Pine Knoll Shores has appointed a committee of residents representing all areas of Town to study, develop and suggest a pedestrian master plan for its review and approval. This is being studied in response to public input from the Town's 2007 Recreation Survey indicating the future development of a pedestrian/bike path along Hwy 58 as "very important". The purpose of the Pedestrian Master Plan is to provide a comprehensive view of pedestrian needs and opportunities within the Town, to identify strategies to meet these needs and to enable the Town to take advantage of grants and other funding opportunities to provide pedestrian facilities and programs to facilitate pedestrian activity. The Plan will identify the location and standards for future pedestrian facilities that residents and visitors can use for transportation, enjoyment and fitness. Please take a few moments to complete this survey. If you submitted a completed survey in June, do not fill out the survey again. Input from those surveys has been tallied and will be used with information gathered through this distribution of the survey in development of the Town of Pine Knoll Shores - Pedestrian Master Plan. **Please return this survey to Town Hall at 100 Municipal Circle, Pine Knoll Shores, NC 28512 by August 14th.**

Please check all items that apply.

- | | |
|---|--|
| 1. Residential status: | 2. Homeowners Association: |
| <input type="checkbox"/> Full time resident | <input type="checkbox"/> Beacons Reach |
| <input type="checkbox"/> Part time resident | <input type="checkbox"/> PKA |
| <input type="checkbox"/> Visitor | <input type="checkbox"/> PIKSCO |
| <input type="checkbox"/> Other _____ | <input type="checkbox"/> Other _____ |

3. Age: Please select the appropriate age bracket for every individual in your household including frequent visitors. Check all that apply, and provide the number of individuals in each bracket.

- 0-5 6-16 17-25 26-70 70+

4. Check all locations that you currently walk to in Pine Knoll Shores.

- Walk to beach access, Name access point _____
- Walk to library _____
- Walk in neighborhood _____
- Other destination, Identify _____

5. Check all the reasons that you currently walk in Pine Knoll Shores.

- Walk for fitness _____
- Walk to enjoy scenery _____
- Walk as social outlet _____
- Other reason to walk, Describe _____
- Don't walk, Reason _____

6. Name destinations that you would like to have walkways to and identify your top priority.

7. List the top 3 unsafe locations for a pedestrian to cross a street in PKS. Be specific.

1. _____
2. _____
3. _____

8. List your top 3 priorities for public pedestrian facilities in Pine Knoll Shores by location & description.

1. _____
2. _____
3. _____

Additional comments from Pedestrian Master Plan Public Input Survey

There seems to be an idea that within Beacon’s Reach that everybody is against sidewalks. We are strongly for sidewalks as it would make enjoying all parts of the island much safer. Biking, walking – not along the street is a great way for people to see more of our community- church, aquarium, library, stop & shop, etc. Thank-you for considering this request.

Atlantic Beach has marked crossing but they fail to enforce the Law-Why?

The questions on this page are somewhat confusing to me. We don’t need sidewalks “here & there”. We need continuous walkways along 58 and again from 58 to Town Hall, Aquarium & Brock Basin – To Start.

Top priority is safety in neighborhoods and on Hwy. 58.

If a pedestrian facility is constructed on Hwy. 58, would like to see it wide enough to accommodate the bicycles that will invariably use it. Oakleaf Drive is the longest street in PKS with no stop signs and no place to walk when boats/cars/ trucks/service vehicles are traveling on it. Would like to see sidewalks on Oakleaf. Because Oakleaf is artery to 2 boat ramps, traffic is sometimes heavy, fast and dangerous for pedestrians.

It is hard to believe that there is anyplace that is unsafe other than Slater Path Road. Come on. It’s a 25 MPH speed limit in residential neighborhoods. I would hat to see sidewalks in PKS. A waste of money, unnecessary. Pedestrians and vehicles can coexist as long as the former pays attention and does not insist on their right to the road and the latter obeys the law and is

courteous. Sidewalks will not compensate for either group who does not adhere to these principles. We have the same situation here in our neighborhood and no sidewalks, hope it stays that way.

Because of the 45 MPH speed limit the crossover at Mimosa and Dogwood has been an issue for years. This area needs to have a highly visible crosswalk to alert drivers about people trying to cross who are not as nimble as they used to be in their younger years. Also, during holiday periods, a lot of people walk down to Ocean Park pushing strollers and toting stuff (lawn chairs, etc.) to use on the beach & they should be celebrated for walking instead of driving!!

This survey is misleading by its design. You asked where we want sidewalks & you should have first asked do you want sidewalks. Both my husband & myself are strongly opposed to sidewalks. This assumes that the respondent wants them somewhere whether we want them or not- a simple yes no should have been the first question and only the yes's should have filled out 6,7,& 8.

PKS is the most natural, scenic section of the island. Installing sidewalks and exposing buildings would be a desecration.

We are against putting sidewalks in PKS. This is an unwise way to spend our money. There are ample places to walk in PKS.

Current walkways are more than sufficient. Additional walkways will only increase security concerns at Beacon's Reach. Leave our beaches alone.

I do not need walkways- the right of ways are fine as they are. In fact, generally hard surfaces are a negative to me walking. In general I do not conspire any that I use as unsafe so long as I am patient and careful. Except in height of vacation season I usually can cross Rt. 58 at Dogwood with no or a little wait.

We can walk safely everywhere but on 58. If 58 could be outfitted with sidewalks we'd be all set.

All of our family members who come bicycle and would like safer places to bicycle. Note: We will use Veteran's Park Trail. We regret its diminished nature since the budget cuts. Recreation is worth paying for in the budget even if taxes are increased.

The only public pedestrian plan currently supported by residents per survey is sidewalk along hwy 58 – connecting our community with rest of island communities. Also, since, PKS elected- in its founding years, to decline retail outlets, it would be beneficial if we could walk or bike to Atlantic Station for ?. Also, being able to do likewise from the library, Aquarium & Town Hall & recreation area behind Town Hall – Vet's Park.

Anyone walking across Rt. 58 is a safety concern. We can not protect everyone. 99% of all people owning a house (not condo) have to cross Rt. 58. Public pedestrian facilities should be

limited and focus on public safety only. A sidewalk the entire length of Town is a waste of tax dollars

I moved here 15 years ago knowing that there were no sidewalk here. I like it that way. People make locations unsafe – They don't practice common sense.

I have no destinations that require walkways and am opposed to walkways in PKS.

If PKS moves forward with any construction it must include both bike and pedestrian access or it should not be built.

I prefer a walk, track & children's park.

We do not walk on Salter Path Road due to safety factors! A sidewalk would improve that situation and also facilities walking around the Aquarium & soundside neighborhoods. Let's elevate PKS to the standards we all aspire to and that Atlantic Beach and Emerald Isle already enjoy with safe sidewalks.

Bike not walk – no sidewalk

Look to other areas in PKS. Beacons's Reach should not be a priority since we already have walking paths.

What is wrong with using treadmills? Safer and all season. Destinations – Only to improve safety in places that need it in Town. I have not seen any unsafe locations. I question the statistical validity of the survey! I have not seen the "Master Plan" and my comments are limited due to that. I would suggest that it be sent out by email. Improvements to the town's pedestrian ways probably are small in nature and would not support any large construction efforts. The money being spent (25K) sounds like a waste to me!

We have enough. No additional

I am perfectly happy walking without sidewalks. I like feeling I live in the country. This is not the city! Instead of just a survey where you hear from people who might or might not walk, why not ask people as they are walking, an actual survey of walkers. Ask them if they feel they need sidewalks. All that I have spoken to do not want sidewalks. Let's think before we leap.

I don't believe that we need any pedestrian facilities. People can walk on the side streets and the speed limit could be lowered. When I walk my dog I make sure I am out of the way of cars.

Concrete sidewalks are very bad for knees, hips and inner body parts. Blacktop not much better. We don't want or need sidewalks in PIS!! No more expenses or taxes!! Huge expense a few might use – look at Atlantic Beach's usage. Don't do it!!!

The people who thought a pedestrian/bike path along 58 was "very important" were thinking of somebody else- they themselves would never use it. PKS is not Atlantic Beach or Emerald Isle-

we don't need to "keep up" – our population is different from the tourist areas. Safe crosswalks – highly visible in a 45 MPH zone are more important for the use of people who have to park on the other side of 58 to use public beach accesses, as well as for people who walk to Ocean Park. The town keeps the rights of way in PKS mowed and that is always available for walking. Any obstacles (plantings) should be removed in order to have complete access – the rights of way are our sidewalks. Isn't there an ordinance that states the ROW should be kept free & clear?

We do not need expensive sidewalks now a new bridge on Mimosa. The beauty of living here are no sidewalks. That was a selling point many years ago. We have enough concrete now! No more stop lights!!! Only walkway on Hwy 58!!! There are no unsafe cross areas. We do not need more stoplights. Have lived here 23 years – never had to wait more than 4 minutes to cross hwy.58. We do not need walkways. If you take my property I would expect at least \$20,000 – My lot is valued at more than \$200,000.

Pedestrian/bike path must be widen north or south side if it is contemplated – hwy 58.

The streets of PKS are quite safe. I see no need for sidewalks. Regard the sidewalk project as a waste of money and eye sore!

Unlike Atlantic Beach and emerald Isle, PKS has no commercial development along SR 58. I believe it would be out of character to develop a pedestrian walk along this route. It would be difficult & expensive to do so. There are ample walking opportunities along the beach and the back streets of PKS. A pedestrian walk along SR 58 would also required extra maintenance and will contribute to unwanted and unnecessary tax increases.

I walk less than I would like because of lack of sidewalks or paths – would love a greenway and or a sidewalk on 58 connecting to the AB sidewalks,

I just enjoying walking – I have some back trouble. My doctor says walking is excellent. I park at Rite Aid & walk to PKS & back. Around the Circle etc.. If we had a sidewalk at the light going to the aquarium, all the way up to the Sheraton, I would work out of oor town and go to AB.

Would love to have a simple map of PKS with maps of parks & handicap ramps – love the one on beach at PISKO.

Sidewalk should be on the sound side of Rte. 58 and taxes adjusted per owner. Remember all owners on the beach side already pay a higher beach tax. Even it out now!

I would like to see a pedestrian bike path along Hwy 58 from one of PKS to the other and absolutely thorough Beacons' Reach. Although I an not a biker or a runner it terrifies me as a motorist to see people at so much risk so close to the traffic. I want people to have a safe passage through Beacons' Reach and all of Pine Knoll Shores. Please ask our associations to poll the homeowners themselves if our master association representatives are reluctant to approve this sidewalk.

Pedestrian Master Plan
Survey Input June 2009

		TOTALS
1. Residential Status	Full time	50
	part time	21
	visitor	
	other	
2. Homeowners Association	Beacons Reach	17
	PKA	35
	PIKSCO	10
	other	3
3. Age	0-5	7
	6-16	27
	17-25	9
	26-70	85
	70+	29
4. Locations that you walk	Beach Access	58
		Royal Pavillion
		1
		Oakleaf Dr.
		1
		Pinewood
		1
		Murex & Coral
		1
		Beacon's Reach
		1
		280 Slater Path
		1
		Whaler
		1
		Bream
		1
		Juniper
		1
		McGinnis Pt.
		1
		Westport
		1
		Bay Drive
		1
		Municipal Park
		1
	PKA Sittum	
	2	
	Iron Steamer	
	2	
	Forest Dunes	
	1	
	Hammer Park	
	4	
	across Westport	
	1	
	Mimosa	
	4	
	Knollwood	
	2	
	Ocean Park	
	19	
	Dogwood Circle	
	5	
	Library	
	9	
	Neighborhood	
	61	
	Other	
	25	
	Atlantic Beach	
	3	
	Country Club	
	1	
	Town Hall	
	2	
	Aquarium	
	3	
	Beach	
	4	
	Westport Harbor	
	1	
	Beacon's Reach	
	3	
	Memorial Park	
	1	

Pedestrian Master Plan
Survey Input June 2009

		TOTALS
	Town Center	1
	Salter Path	2
	Clam Digger	1
	Trinity Center	1
	McNeil Park	2
	Garner Park	4
	Brock Basin	1
	Rt. 58	1
	Private Soundside Park	1
	Access east side of Town	1
5. Reasons to Walk	Fitness	63
	Enjoy Scenery	52
	Social outlet	26
	Other	23
	Walk dog	13
	Save on gas	3
	Go to parks & beach access	4
	Visit neighbors	2
	Go to work	1
	Go to library	1
	Transportation	2
	Don't walk	2
6. Walking destinations	Highway 58	20
	Atlantic Beach	13
	Beacon's Reach Marina	1
	Library	13
	Beacon's Reach to Library	1
	Town Hall	6
	Wachovia Center	1
	Aquarium	11
	Ocean Park	1
	Access #1	1
	Access by Atlantis	1
	Beach Accesses	5
	PKA Sittum	1
	Safety factor	1
	Memorial Park	1
	Oakleaf to beach	2
	58: Arborvitae-Mimosa	1
	Hampton Inn to library	4
	None from Beacon's Reach	1
	None	11
	Hampton Inn Beach Access	2
	In front of lot C next to PS Bldg	1
	Mimosa both sides to Beachwood	1
	Along Oakleaf	1
	From Mimosa bridge to 58	1
	Friends' residences	1
	Hwy 58 Oakleaf - Atlantic Beach	1

Pedestrian Master Plan
Survey Input June 2009

		TOTALS
7. Unsafe locations	Highway 58	14
	Mimosa @ 58	21
	Arborvitae @ 58	5
	Oakleaf @ 58	9
	Juniper to Knollwood	1
	Juniper @ 58	3
	Yaupon @ 58	1
	Knollwood @ 58	1
	All public & private beach access	2
	From N side of Mimosa at bridge to beach access	1
	58- Mimosa to Dogwood	2
	Cedar St. @ 58	1
	Cedar @ Pinewood	1
	Clamdigger across 58	0
	All 58 crossings	2
	58 crossing @ beach access	1
	Atlantis Lodge beach access	2
	Mimosa	3
	Near Memorial Park	1
	Crossing @ Oakleaf & Hampton Inn	3
	Murex across 58	0
	Pine Knoll BLvd. across 58	2
	Pine Knoll Blvd.	3
	Juniper	0
	Mimosa & Dogwood	0
	Crossing 58 @ sittom	1
	Curve in Oakleaf past golf course	0
	None	4

Pedestrian Master Plan
Survey Input June 2009

		TOTALS
8. Top priorities for pedestrian facilities		
	Hwy 58 entire length	25
	Bridge over 58 @ Mimosa	1
	Entrance-muni buiding/ library	3
	Hwy 58 safe shoulder -sidewalk	1
	Signal on demand crosswalk	0
	Hwy 58 with marked crosswalks	4
	Intersection Arborvitae @ 58	1
	Intersection Pine Knoll Blvd @ 58	1
	Aquarium to Trinity	1
	AB to Aquarium	1
	Crosswalks @ beach accessess	3
	58-Eastern Town limits to Pine Knoll Blvd.	0
	58 - Mimosa to Hawthorne	1
	58: Holly to Oakleaf	1
	58 :Arborvitae to Pine Knoll Blvd.	1
	58:Arborvitae - Mimosa	2
	Pine Knoll Blvd.	7
	Footing on roadways	1
	Bike & walking path	1
	Mimosa @ 58	6
	Juniper @ 58	0
	Oakleaf @ 58	5
	Ocean Terrace Condos crossing 58	1
	Genesis crossing 58	1
	Dogwood & 58	2
	Cedar @ 58	1
	Mimosa from 58 to Oakleaf	3
	Sidewalk on Oakleaf	1
	Sidewalk from Hampton Inn to Library	1
	Safety	1
	Recreation	1
	Save gas	1
	None wanted	3

Survey Results -September 2009 - Shoreline Circulation			
Pedestrian Master Plan - Town of Pine Knoll Shores			
Question	Item	Total	
1. Residential Status	Full time	77	
	part time	26	
	visitor	1	
	other	2	
2. Homeowners Association	Beacons Reach	10	
	PKA	61	
	PIKSCO	22	
	other	13	
		Ocean Terrace	3
		Genesis	2
		Ocean Bay Villas	1
		PKT-III	1
		Ocean Glen	1
		Shutters on the Sound	3
3. Age	0-5	12	
	6-16	22	
	17-25	20	
	26-70	145	
	70+	62	
4. Locations that you walk	Beach Access	85	
		Ocean Glen	1
		Bay Dr.	1
		Clam Digger	2
		Royal Pavillion	1
		Oakleaf Dr.	1
		Murex & Coral	1
		Beacon's Reach	4
		Memorial Park	1
		McGinnis Pt.	1
		PKA Sittum	1
		Iron Steamer	3
		Hammer Park	7
		Mimosa	4
		Knollwood	1
		Ocean Grove	2
		Ocean Park	23
		Genesis	1
		Mimosa	1
		Dogwood Circle	12
		Library	21
		Neighborhood	97
		Golf Course	1
	Atlantic Beach	6	
	Country Club	2	
	Town Hall	4	
	Aquarium	4	
	Beach	5	
	Beacon's Reach	1	

Survey Results -September 2009 - Shoreline Circulation		
Pedestrian Master Plan - Town of Pine Knoll Shores		
Question	Item	Total
	Memorial Park	1
	Clam Digger	2
	McNeil Park	1
	Brock Basin	2
	Rt. 58	3
	Private Soundside Park	1
	along Oakleaf	1
	Parks	1
5. Reasons to Walk	Fitness	85
	Enjoy Scenery	77
	Social outlet	44
	Other	34
	walk w/ children	2
	medical	2
	get to beach	8
	Check violations	1
	dwi deterrent	1
	walk dog	17
	transportation	7
	save gas	3
	Don't walk	3
6. Walking destinations	Highway 58	23
	Atlantic Beach	19
	Library	17
	Beacon's Reach to Library	1
	Town Hall	6
	Aquarium	10
	Ocean Park	6
	Brock basin	2
	Ramsey Park	2
	Beach Accesses	5
	Memorial Park	1
	58: Arborvitae-Mimosa	1
	58: Mimosa - Library	2
	Hampton Inn/Oakleaf to library	1
	None	1
	Mimosa both sides to Beachwood	1
	Along Oakleaf	1
	Oakleaf	1
	Dogwood	1
	Hammer Park	1
	Clam Digger	1
	Clam Digger Access	1
	bike paths 58	1
	bike: Oakleaf -Arborviate	1
	Iron Steamer	1
	Mc Neil Park	1
	58 - Arborvitae to aquarium	1

Survey Results -September 2009 - Shoreline Circulation		
Pedestrian Master Plan - Town of Pine Knoll Shores		
Question	Item	Total
7. Unsafe locations	Highway 58	13
	Mimosa @ 58	43
	Arborvitae @ 58	2
	Oakleaf @ 58	25
	NC 58 - Mimosa to Pine Knoll Blvd.	1
	Juniper to Knollwood	1
	Juniper @ 58	6
	Yaupon @ 58	1
	Knollwood @ 58	2
	All public & private beach access	1
	58 crossing: Cedar -Pinewood	2
	58- Mimosa to Dogwood	1
	Cedar St	1
	Clamdigger across 58	2
	All 58 crossings	2
	Mimosa bridge	1
	Crossing @ Oakleaf & Hampton Inn	3
	Pine Knoll BLvd. across 58	7
	Pine Knoll Blvd.	1
	Curve in Oakleaf past golf course	1
	Stoplight @ Genesis	1
	Willow @ 58	1
	Ocean Terrace	1
	58- north side Mimosa - Arborvitae	1
8. Top priorities for pedestrian facilities	Hwy 58 entire length	22
	Bridge over 58 @ Mimosa	2
	58: Oakleaf to Pine Knoll Blvd	2
	Entrance-muni buiding/ library	2
	Intersection Arborvitae @ 58	2
	Intersection Pine Knoll Blvd @ 58	1
	McNeil Park	1
	AB to Aquarium	3
	Crosswalks @ beach accessess	7
	58 - Mimosa to Hawthorne	1
	58:Arborvitae - Mimosa	3
	58: Atlantic Beach to Clam Digger	1
	Pine Knoll Blvd.	8
	Mimosa @ 58	8
	Juniper @ 58	2
	Oakleaf @ 58	8
	crosswalk @ Beacon's Reach	1
	Mimosa from 58 to Oakleaf	2
	Oakleaf	7
	Sidewalk from Hampton Inn to Library	1
	58-Mimosa to Pine Knoll Blvd	1
	Aquarium	3
	Library	3
	Oakleaf bikepaths	1
58 bikepaths	2	

Survey Results -September 2009 - Shoreline Circulation		
Pedestrian Master Plan - Town of Pine Knoll Shores		
Question	Item	Total
	sidewalks	3
	bikeracks	1
	Light on 58 near Aquarium	1
	Knollwood @58	2
	Sidewalk Oakleaf - Atlantic Beach walkway	1
	Parks	2
	bicycling, walking, jogging	2
	bike path all over	1
	sidewalk on Mimosa bridge	1
	Town Hall	1
	Arborvitae	1
	Roosevelt	1

Visual Preference Study



All 7 participants in this exercise rated this image 41 as +3 in the ancillary facilities poster and 6 rated it (image #7) as +3 on the general design poster.



This image # 40 received 4: +3 ratings



Image 4 received 4: +3 ratings



Image 8 received 3: +3 ratings



Image 11 tied for least popular with 3: -3 ratings



Image 2 also received 3: -3 ratings

Appendix B: Prioritization Matrix

Pedestrian Master Plan – Town of Pine Knoll Shores									
Project Recommendations by Priority									
Facility Location	Safety	Existing Demand	Future Demand	Public Support	Link/Connectivity	Pedestrian Destination	Cost Effective	Priority	
Cross Walks									
NC 58 @ West side of Oakleaf at beach access including sidewalk from parking space on Oakleaf and sidewalk on NC 58 between Oakleaf & Hampton Inn Driveway	***	***	***	***	***	beach access parking on north side of NC 58	**	top	
NC 58 @ East side of Juniper including a landing pad on the south side	**	*	**		*	2 -beach access	*	medium	
NC 58 @ East side of Mimosa including a landing pad on north end and sidewalk across right of way on south side of NC 58	***	***	***	****	**	Bridge replacement sidewalk could be extended to crosswalk	**	top	
NC 58 @ West side of Pine Knoll Blvd. including a landing pad on each end	*	**	***	**	**	Library, Aquarium, Town Hall, dense residential area on south side of NC 58, proposed beach access	* Existing traffic signal	top	
NC 58 @ Beach access at Clam Digger including a pad on north side and walkway – boardwalk connection on the north side.	**	**	**		**	beach access parking on north side of NC 58, east part of Beacon's Reach link by sidewalk & private street	**	high	

Facility Location	Safety	Existing Demand	Future Demand	Public Support	Link/Connectivity	Pedestrian Destination	Cost Effective	Priority
Cross Walks NC 58 @ West side of Coral Drive	**	*	*		* existing sidewalk on much of Coral Drive, private streets, parking, & walkways connect on south side of Hwy. 58 in residential area	* beach access private now, possible public in future	*	medium
NC 58 @ Western most beach access including a walkway-boardwalk from western edge of parking lot across NC 58 ditch to edge of pavement	**	*	*		* beach access parking on north side of NC 58,	* beach access, dense residential to the west nearby	*	high

Note on crosswalks –With the exception of crosswalks at Juniper and Mimosa, these proposed crosswalks are located with at least an ½ mile separation. NCDOT generally requires a sidewalk at both ends of a crosswalk. The crosswalk project includes a short section of sidewalk on both sides of the highway. In cases where the parking for the beach access is on the north side of Hwy. 58, a sidewalk connects the parking area to the crosswalk and the crosswalk to the beach access walkway.

Facility Location	Safety	Existing Demand	Future Demand	Public Support	Link/Connectivity	Pedestrian Destination	Cost Effective	Priority
5 foot concrete sidewalk								
North side of NC 58: east Town limits to west side of Oakleaf Drive	**	*	*	*	*** Beach access in Atlantic Beach, sidewalks in Atlantic Beach	** Beach access nearby, Atlantic Beach		High
North side of NC 58 – west side of Oakleaf Drive to Hampton Inn driveway	**	*** Hampton Inn	**	**	** public beach access, Hampton Inn	** Public beach access, Hampton Inn	**	Top Part of crosswalk project
North side of NC 58 – Hampton Inn driveway to east side of Mimosa	**	**	*	*	** Part of a loop around PKS neighborhood	* Public beach access, Exercise loop		High
North side of NC 58 - Mimosa to crosswalk on west side of Pine Knoll Boulevard	**	**	**	**	*** Links PKS neighborhood to Town Hall, Aquarium, Library, proposed beach access	Links PKS neighborhood to Town Hall, Aquarium, Library, proposed beach access, part of exercise loop		Top
South side of NC 58 – west side of Pine Knoll Boulevard to planned public beach access at lot 311	**		**		** Provides a link between parking and planned beach access	** Planned public beach access	** Short link provides safety	High

Facility Location	Safety	Existing Demand	Future Demand	Public Support	Link/Connectivity	Pedestrian Destination	Cost Effective	Priority
Sidewalk- 5 foot wide concrete walk								
South side of NC 58 – public beach access at lot 311 to beach access at Clam Digger	*			*	* Part of overall plan for pedestrian facilities on NC.58	* Clam Digger, public beach access, links eastern part of Pine Knoll Shores to Beacon's Reach area		Low/
South side of NC 58 –public beach access on west side of Clam Digger to west side of Coral Drive	*				* Provides a pedestrian loop for Beacon's Ridge, connects to walkways in Beacon's Reach	* Clam Digger, Beacon's Reach neighborhood	Duplication of private walkway system through parking lots and sidewalks in Beacon's Reach on south side of NC. 58	Low/
South side of NC 58 – west side of Coral Drive to planned public beach access at lot 587	*				* Link in the overall connectivity along NC. 58		Duplication of private walkway system through parking lots & sidewalks on south side of NC. 58	Low/
South side of NC 58 – Planned public beach access at lot 587 to proposed parking on east end of Trinity Center	*		**		* Link between public beach access parking and beach access	* Planned public beach access		Low/
Sidewalk project: south side of NC 58 from east end of Trinity center to Indian Beach	*				* Link in the overall connectivity along NC. 58			Low/

Facility Location	Safety	Existing Demand	Future Demand	Public Support	Link/Connectivity	Pedestrian Destination	Cost Effective	Priority
Sidewalks – 5 foot wide concrete walk Sidewalk project: north side of NC 58 from Indian Beach to proposed crosswalk at westernmost public beach access	**	**			* Connects a dense neighborhood to public beach access, connects north side of NC 58 from Indian Beach to planned crosswalk to main sidewalk	* Connects a dense neighborhood to public beach access		Medium
Southwest side of Oakleaf from NC 58 to Country Club	* School bus stops, fitness activity, poor visibility, curvy section	* People walk in neighborhood			* Part of loop through PKS	* Country Club		Medium
East side of Mimosa – Beechwood to NC58	** Near important intersection – grade change	*	*		* Connects to proposed crosswalk	** Popular private beach access pedestrian destination, proposed facility on NC 58	Short section connects to crosswalk at high priority intersection	High
West side of Pine Knoll Boulevard – NC 58 to Roosevelt Road	** Lot of traffic	*	**		* Connects to proposed facility on NC 58	* Part of network that will connect Town Hall area, Aquarium, Library	*** Minimal site prep. required	Medium

Facility Location	Safety	Existing Demand	Future Demand	Public Support	Link/Connectivity	Pedestrian Destination	Cost Effective	Priority
Sidewalks – 5 foot wide concrete walk West side of Pine Knoll-Roosevelt to Town Hall	**	*	**		*	Part of network that will connect Town Hall, Veterans Park, Aquarium, Library	*** Minimal site prep. required	Medium
North side of Roosevelt Road to Aquarium property	** Lot of traffic	**	**	*	*	** Aquarium is a huge destination		Medium
North side of NC 58 – west side of Pine Knoll Boulevard to Library	** Congested parking area	*	**		** Links library to pedestrian network	* Library		Low

Appendix C: Steering Committee Meeting Recaps

Recap and Notes

Pedestrian Master Plan Steering Committee Meeting

10:00 a.m. April 17, 2009

Members present: Brian Kramer, Robert Danehy, Jay Barnes, Elaine Tempel, Kathy Werle, Ken Jones, Maureen Kilgallen

Plan Service: Susan Suggs, Helen Chaney, Linda Brickhouse

Staff present: Ernie Rudolph, Chief Joey Culpepper

Members absent: Norma McClellon, Larry Kacmarcik, Charlie McBriarty, Bonnie Ferneau, Steve Hamilton, Reed Smith

Members introduced themselves.

Susan Suggs, consultant planner and landscape architect with Coastal Planning & Design PLLC

Brian Kramer, Town Manager

Helen Chaney, Planner with NCDOT: Helen is with the Bike Ped Division of NCDOT. The Division has 3 planners, 2 engineers and a graphic designer. NCDOT is providing 80% of the funding for this project. She will be meeting with the task force and provide assistance in the development of the Pedestrian Master Plan. Any crosswalks on State roads must be approved by the Division and District Engineers. Crosswalks are expensive. It costs about \$1,000 per loop detector that is installed in each travel lane on approaches to crosswalks. Helen explained that there is 6 million dollars available State wide for pedestrian projects.

Ken Jones, Planning Board member

Linda Brickhouse, Town Staff and GIS

Chief Joey Culpepper, Chief of Police

Ernie Rudolph, Public Services Director: Ernie will help the committee avoid conflicts with public utilities

Elaine Temple, Carteret County Mayor's Committee for Person with Disabilities

Kathy Werle, Community Appearance Commission

Jay Barnes, NC Aquarium and parent with children living at home

Maureen Kilgallen, Recreation Advisory Committee

Some of the issues that were discussed during introductions included a concern for pedestrian safety on Hwy 58 due to high speed and no place to walk, a need for connection between neighborhoods, a desire for attractive walking facilities and keeping trees as feasible.

After introductions, Consultant Susan Suggs thanked the members for serving on the steering committee. Their involvement is critical to plan development. The committee will use a consensus method for making decisions. Susan will provide agendas and background materials to committee members by email as well as recaps of the meetings. She requested that members communicate with her via email (cpdsuggs@embarqmail.com) and cc Linda Brickhouse any communications.

The committee will meet on Fridays at 10:00 at Town Hall on approximately every 3rd week. If Town Hall is not available the committee will meet at the Public Safety Facility. Susan will prepare a schedule for review at the next meeting.

Susan explained that the overall objective of the Pedestrian Master Plan is to provide a comprehensive view of pedestrian needs of all residents and visitors to Pine Knoll Shores and to identify strategies that will meet these needs and to take advantage of opportunities to implement these strategies. The benefits of pedestrian facilities include, reduced dependency on vehicles for transportation, health benefits, safety, environmental benefits of reduced pavement and emissions, enhanced tourism experience, lifestyle benefits. This project will determine priorities and funding sources. It will enhance the eligibility for grants from NCDOT and Parks and Recreation Trust Fund. The Plan will prepare the Town to take advantage of opportunities for implementation.

Susan reviewed the overall work plan for the Pedestrian Master Plan. There will be opportunities for public input including public meetings and a non-statistical survey. The plan will include facility recommendations possibly including on road and off road facilities and ancillary facilities as well as program and policy recommendations. It will include cost estimates and an implementation strategy. The goal is to complete the Plan in 1 year.

Susan led a discussion about Pine Knoll Shores. The Town has unique attributes including lush native vegetation, a large conservation area, the beach for walking, and very few businesses. Highway 58 is the arterial roadway through the Town connecting the neighborhoods. The beach is an important destination for residents and visitors.

Demographic data from the 2000 census was reviewed. Bob explained that Pine Knoll Shores is more than a retirement community. There are residents of all ages including families with children. Residents are active and self reliant. The older residents and young retirees have a lot of company – family including grandchildren and friends from other communities. The population surges in the summer, particularly on weekends. 61% of dwelling units are for seasonal or occasional use. Jay confirmed this with Aquarium attendance. These semi-retired and retired residents have are active in the community and volunteer and many engage in fitness and recreation activities. Walking was the top priority on a recent Parks and Recreation survey.

The Town has a very low poverty rate. About 16.9 % of residents have a disability.

The demographics of Pine Knoll Shores may change over time as current residents age and due to a lagging economy. More households may include working residents.

The Police Chief recalled that the Town has 19 bus stops and in 2008 there were 120 public school students from the Town. Additional children go to private schools. Many parents drive their children to and from school. Helen explained that bus stops are not eligible for Safe Routes to Schools program funding.

The committee reviewed and edited a map showing pedestrian destinations. Destinations on the map included the beach, public beach access points, private beach access points, park and water access in private developments, Town Hall, library, and the Aquarium. The new Town Veterans Park will also be an important destination. There are nature trails associated with the Aquarium. A bridge across the canal connecting Mimosa to Pine Knoll Boulevard in Ramsey Park is desirable but impractical. Masted boats use this canal.

The apparent priorities are for walkways along Highway 58 and Pine Knoll Boulevard to the Aquarium via Roosevelt.

The committee talked about how people walk in the Town. Important locations where crosswalks are most needed on Hwy 58 are at Oakleaf Drive, Mimosa Road. Other locations on Hwy 58 needing crosswalks include Holly Road, Juniper Road and Cedar Road. Walkers like to walk in loops and use the beach as part of a loop. Walkways are especially needed on the section on Hwy 58 between Mimosa and Pine Knoll Boulevard to connect neighborhoods divided by the canals. Beacons Reach is separated from the east part of Town by the Roosevelt conservation area. Beacons Reach neighborhood is independent with community owned beach access and some walkways connecting the sound side to the beach. The major crossing for these residents is not marked.

The Trinity Center is a very active retreat. It has overnight facilities and day camps for children in the summer. There is a tunnel under Hwy 58 connecting the water beach side to the sound side.

At the east end of Town in Atlantic Beach there is a manufactured home park. Across Hwy 58 from the manufactured home park, property is in Pine Knoll Shores. In the past residents were permitted to cross the property of a lodging facility to the beach. The property is now vacant but developable property. The owner has not granted a public access easement across the property for area residents.

A new bridge is planned to cross the canal on Mimosa Drive. There will be a pedestrian sidewalk on the west side.

No hard surface paths are permitted in the conservation area. Jody Merritt, Parks Superintendent at Fort Macon has jurisdiction over the Roosevelt Reserve.

The concept of a beach front boardwalk in the Iron Steamer vicinity was discussed and rejected due to costs and permitting difficulty.

The Clam Digger Inn and restaurant is also a popular destination. Locals patronize the restaurant. It hosts many conferences as well as providing lodging for general tourists. Often families accompany those attending conferences. Pedestrian facilities linking the Clam Digger to the Aquarium area and the Country would be used.

The Aquarium is very popular. Many people are members and often attend programs at the Aquarium. After it reopened in 2006, attendance jumped by approximately 2000 per day. On many days attendance is 12,000. They have a staff of 90 and 150 volunteers.

The focus of the plan should be community oriented – healthy vibrant communities with active residents and visitors: and a community where pedestrian accessibility and safety are priorities.

Jay explained that getting to the beach is a high priority. He lives very close to the beach but drives his family there because crossing Hwy 58 and walking in its ditch is too difficult and dangerous.

The next meeting will be May 15 at 10:00 at Town Hall. Topics will include review of additional background information, planning public input meeting, review of meeting schedule and formulation of a vision for the Pedestrian Master Plan.

Kathy Werle will prepare an article on this project for the Shoreline.

Meeting ended about 12:10 p.m.

Recap and Notes
Pedestrian Master Plan Steering Committee Meeting
10:00 a.m. May 15, 2009

Members present: Brian Kramer, Robert Danehy, Jay Barnes, Elaine Tempel, Kathy Werle, Ken Jones, Maureen Kilgallen, Charlie McBriarty, Bonnie Ferneau, Steve Hamilton, Norma McClellon, Larry Kacmarcik

Plan Service: Susan Suggs, Linda Brickhouse

Staff present: Chief Joey Culpepper

Members absent: Reed Smith

This was the first meeting for five members of the Steering Committee. These members introduced themselves.

Larry Kacmarcik – PIKSCO
Norma McClellon – PKA Homeowners' Association
Charlie McBriarty – Beacon's Reach Homeowners' Association
Bonnie Ferneau - former education, active with fitness groups
Steve Hamilton - Division 2 Traffic Engineer with NC Department of Transportation

There were no changes to the recap from the April 17th meeting.

The Steering Committee reviewed the meeting schedule. The public open house will be held on June 23rd.

Meeting on July 10th will focus on review of public input.

Brian offered a field trip to Manteo to look at walkways that Jay Barnes had recommended. The van will leave Town Hall at 6:00 am. On July 17th. Larry, Kathy, Brian, Bob and Susan plan on taking part in the field trip.

Meeting on July 31st will include a field visit to Hwy 58 to look at how walkways might be sited and construction options. Steve Hamilton of NCDOT will attend this meeting.

A draft of the Pedestrian Master Plan will be reviewed at the August 21st meeting.

The Committee recommended several changes to the draft vision resulting in the following draft. *Residents of Pine Knoll Shores and visitors alike enjoy an active healthy lifestyle based largely on walking in an attractive setting boasting sandy beaches and lush vegetation. Walking is desired on safe walkways that connect neighborhoods and provide pedestrian facilities to beach access points, the Aquarium, Public Library, Town Hall and Veterans' Park. A sidewalk along NC 58 with crosswalks provides a safe place to walk or push a stroller and connects with walkways in Atlantic Beach and Salter Path. Walkways are built to Americans with Disabilities Act standards so that everyone can easily use them and are designed to be cost effective. Pedestrians can take a break on benches conveniently located along walkways. Pedestrian facilities contribute to the vitality and ambiance of Pine Knoll Shores.*

Susan discussed the open house and publicity for the open house. Kathy will submit a notice to the *Shoreline*. Susan circulated a flier advertising the meeting that committee members will post and distribute. Brian recommended that the photo be replaced with an image depicting traffic and pedestrians on NC 58 illustrating the need for safe pedestrian facilities. Committee members will take digital images on Memorial Day weekend and email them to Susan. Susan will select an image and use others at the public open house. She will email the flier to Town Hall the week of May 18th for distribution. Members will post the flier in key locations including the Library, Aquarium, clubhouses, etc. and distribute them to friends.

Steve Hamilton talked about the proposed widening of NC 58 to 4 -24 foot lanes, 2 -4 foot bike lanes, 20 foot median requiring at least 80 feet leaving little room for walkways. This widening is not funded or scheduled for funding. All municipalities on Bogue Banks oppose the widening of NC 58 to 4 lanes.

Steve also explained that the sidewalk must be located on the back side of the ditch. Maureen stressed that the walkway along NC 58 is needed now in its entirety. Brian and Susan explained that funding for the entire length of NC 58 is not available and that it most likely will be executed in phases.

Steve urged the committee to think of this project in a wholistic manner connecting neighborhoods with pedestrian facilities off NC 58. He suggested tunnels for pedestrians rather than on grade crossing.

The committee reviewed the draft nonstatistical survey. The committee discussed that a nonstatistical survey may have limited value. Jay stressed that information gathered on the survey should be limited to information that the steering committee would find useful.

The introduction was reduced in length. The benefit of increased opportunity for grants and funding will be added. To question one, the applicable homeowners association will be added.

Age brackets will be reduced.

Household membership will include frequent visitors.

The next question concerns current destinations.

The 2nd part of this question will be a separate question on why the respondent walks.

A question that prioritizes pedestrian destinations that the respondent wants walkways to will replace the one simply listing destinations where walkways are desired.

The question regarding unsafe crossing will ask the respondent to list the top 3 unsafe crossing locations.

The question regarding facilities that are good examples will be deleted. Susan will use a visual preference technique at the public open house to learn gather this input.

Susan reviewed with the committee information regarding the CAMA Core Land Use Plan and policies that relate to the Pedestrian Master Plan. Most notably are the policies regarding transportation including opposition to a 3rd bridge and to the proposed widening of Hwy 58 to 4 lanes and support for walkway infrastructure and crosswalks at beach access locations.

Susan briefly described the support for walkways indicated by the 2007 Recreation Survey. After the beach walking, jogging and running is the second highest recreation interest. The number one future recreation facility is a bike/pedestrian path along NC 58.

The Town has a Tree Protection Ordinance that applies to Town property and easements but not to NC 58 since it is a State right of way. This ordinance requires approval from the Tree Board which is the Community Appearance Commission prior to removal of vegetation from these properties. The maintenance of native vegetation is an important value in Pine Knoll Shores.

Susan presented information on Subdivision regulations. The Town does not require sidewalks in new subdivisions. Many municipalities do require sidewalks on one or both sides of new streets.

Susan explained that the Zoning Ordinance regulates land use and is an important mechanism to implement the CAMA Core Land Use Plan. The Zoning Ordinance also creates the Community Appearance Commission. Kathy briefly explained the role of the Community Appearance Commission in reviewing request for permits to remove vegetation greater than 3 ½ inches at 3

½ feet. Kathy explained that the Appearance Commission is updating its standards for review including the list of plants of special concern.

Kathy suggested using donations for funding of pedestrian improvements.

Steve Hamilton responded to questions from the committee explaining cross section of the highway in its current and built out condition. Currently it contains power lines, 2: 24 foot lanes and 2: 4 foot bike lanes with an 8 foot shoulder and typical 8 foot ditch section.

He felt that the 45 MPH speed limit was reasonable given that there are not a lot of driveways directly onto NC 58 and that the roadway is straight. He did not seem optimistic about the future installation of additional traffic lights. The location must comply with 8 criteria outlined by Federal Highway Administration. A traffic signal costs about \$100,000.

Steve and Police Chief Culpepper concurred that State law requires a motorist to stop if a pedestrian is in a marked crosswalk. The Town has no marked crosswalk so motorists do not have to stop for pedestrian in the Town. NCDOT requires a sidewalk to a crosswalk. According to Steve, generally 150 pedestrian crossing per hour and 200 per hour for peak hour are required before a crosswalk is justified.

There was discussion about cars parking on the shoulder of NC 58 near Memorial Park creating a safety concern.

Meeting ended about 12:10 p.m. with several members remaining and a discussion of NCDOT criteria continued.

At the close of the meeting Steve sketched a cross section of NC 58 in its typical current situation and one of the proposed final build out with 4 lanes and a median.

Recap and Notes
Pedestrian Master Plan Steering Committee Meeting
10:00 a.m. July 10, 2009

Members present: Brian Kramer, Robert Danehy, Kathy Werle, Ken Jones, Maureen Kilgallen, Charlie McBriarty, Bonnie Ferneau, Larry Kacmarcik

Plan Service: Susan Suggs, Linda Brickhouse, Helen Chaney

Staff present: Chief Joey Culpepper, Ernie Rudolph

Members absent: Reed Smith, Elaine Tempel, Steve Hamilton, Norma McClellon, Jay Barnes

There were several changes to the recap from the May 15th meeting. Connecting to sidewalks in Salter Path was deleted from the Vision. In paragraph 4 on page 2, Maureen stressed that the walkway on NC 58 begin with a connection to the walkway in Atlantic Beach. In paragraph 6 page 3, the correct name is the Community Appearance Commission.

Consultant Susan Suggs reviewed input from the public open house on June 23rd. The committee reviewed the verbal comments. They looked at the results of the dot exercise. The highest concentration of dots was along highway 58 between Mimosa and Pine Knoll Blvd. There was only 1 dot on Pine Knoll Blvd., that being at Roosevelt and Pine Knoll. Susan explained that only seven attendees completed the visual preference exercise. She will use the images in the discussions with the committee regarding the specific design details of the walkways, how they are sited and the aesthetics of walkways.

There was discussion about the input. Chief Culpepper explained that there are a few places on NC 58 where there is standing water after a large rain. Also, the grass along Beacon's Reach has grown to the extent that it slows the drainage of stormwater backing it into the highway. Concerning funding and the cost of improvements, Helen Chaney explained that there is 12 K in the enhancements funds for Bike and Pedestrian projects. This has funded 12 projects. She also said that the Town of Eden has submitted an application for stimulus funds. They do not have a pedestrian master plan and she does not know how the application will be processed. The Bike-Ped Division has not established a methodology to review these applications for stimulus funds. She did not know the amount of stimulus funds available for bike-ped projects. The committee agreed that they needed to complete the Pedestrian Master Plan prior to applying for funds.

Susan explained that the plan will include a section on funding sources.

Bob Danehy stressed that there is a need for planning regulations to require sidewalks. Other towns require sidewalk installation on the streets when a property is developed or subdivided. There will be redevelopment of properties in Pine Knoll Shores and the plan should include recommendations to incorporate requirements for sidewalks into the zoning and subdivision regulations. There may also be requirements for development fees to provide walkways and recreation improvements.

Brian felt the top issue with the community is cost followed closely by safety and location. Maureen felt that the facilities should be good quality. Ken Jones stressed that safety is a driving reason for the plan.

There was discussion about the costs of sidewalks. Helen said that it is difficult to estimate construction costs given local factors, the design of the facility, the extent of site preparation required and international factors such as the cost of concrete.

Brian Kramer said that both Atlantic Beach and Emerald Isle agreed to send someone to talk about their experiences with sidewalks to the next meeting. Brian and Susan will be compiling a list of questions to give to them to prepare for the meeting. Costs, liability, maintenance, and public perception will be included in the questions. Susan and Brian will work on the questions en route to Manteo.

Ernie Rudolph will obtain cost estimates from local contractor (s) for ¼ mile of 5 foot wide concrete sidewalk and an estimate for boardwalk.

Bob wants to know what municipalities in the County have a pedestrian plan.

The survey was not in the Shoreline because the Town Board approved it after the submittal deadline. After discussion and the advice of Helen Chaney to gather additional input, the committee agreed to run the survey in the Shoreline. Susan will email it to Kathy with a submit deadline of July 17th.

Susan reviewed the survey input with the committee.

The input stressed NC 58 in its entirety and Mimosa at NC 58 as a high priority. Oakleaf and the Hampton Inn area are another high priority.

The new bridge on Mimosa will have a sidewalk. This could be extended to NC 58 and a crosswalk installed across NC 58.

Susan reviewed this worksheet outlining items to consider in rating the location of proposed facilities. The items she listed are safety, demand: both existing and projected, public support, connectivity, and facility serves a pedestrian destination (library, Atlantic Beach, public beach access, private beach access, country club, neighborhood park, Town Hall, Aquarium, Clam Digger). Brian's recommendation to add cost effectiveness was endorsed. Items to consider in determining the type or design of the facility include aesthetic compatibility, use of facility, accessibility, maintenance, cost effectiveness, public safety and funding potential.

The next meetings are the field trip on July 24th, meeting on July 31st and meeting on August 21st. On July 31st, the representatives from Atlantic Beach and Emerald Isle will respond to questions, Ernie will explain costs and the group will look at both sides of Mimosa at NC 58 and both sides of Oakleaf at NC 58 with NCDOT Engineer Steve Hamilton.

Meeting ended at approximately 12:00. Brian showed Helen and Susan areas on NC 58 east of Pine Knoll Boulevard and Oakleaf after the conclusion of the meeting.

Recap and Notes
Pedestrian Master Plan Steering Committee Meeting
10:00 a.m. July 31, 2009

Members present: Brian Kramer, Robert Danehy, Kathy Werle, Ken Jones, Maureen Kilgallen, Bonnie Ferneau, Steve Hamilton, Jay Barnes

Plan Service: Susan Suggs, Linda Brickhouse,

Staff present: Chief Joey Culpepper, Ernie Rudolph

Members absent: Reed Smith, Elaine Tempel, Norma McClellon, Larry Kacmarcik, Charlie McBriarty

Guests: Betty Ann Caldwell: NCDOT, Ted Lindblad: Pine Knoll Shores Board of Commissioners, Jessica Fiester: Atlantic Beach, Marc Shulze: Atlantic Beach Public Works, Alesia Sanderson, Emerald Isle Parks & Recreation, Larry Corsello

The meeting began with introductions.

The recap from the July 10th meeting was approved with no corrections.

Ernie Rudolph reported on cost figures that he obtained for walkway facilities. A five foot wide 3000 p.s.i. concrete sidewalk with minimum prep is \$20 per linear foot. The contractor that he talked with did not recommend asphalt. It is difficult to patch and there is not equipment to construct 5 foot wide asphalt walkway. The cost for a five foot wide boardwalk with a handrail is between \$90 per linear foot and \$102 per linear foot. The costs for a five foot boardwalk without a handrail is between \$76 per linear foot and \$90 per linear foot.

Susan Suggs provided a cost from a project in Chatham County of \$46.27 per linear foot for a five foot concrete sidewalk. Costs vary greatly based on site work, cost of concrete at the time and the distance from the concrete plant.

Susan briefly described the trip to Manteo that Brian, Susan, Kathy and Bob participated in. They met with Allen Russell of NCDOT and Kermit Skinner, Manager of Manteo who explained that the walkway has its own district with its own board and budget that constructed and now maintains the walkway. The walkway begins where old Highway 70 entered Roanoke Island continuing through Manteo and intersecting with the current Highway 70 to the bridge to Nags Head. The walkway was built very quickly and located on site with special efforts to save trees. It is asphalt. The committee looked at photos of the walkway that depicted landscaping of crepe myrtles, shrubs and live oaks, and amenity stations each with a bench, water fountain, trash receptacle and bike rack.

They compared the aesthetics of this walkway to one in Nags Head. The Nags Head walkway is concrete. There is no landscaping and maintenance is poor.

Brian added that asphalt requires more maintenance than concrete. This walkway that was built in the mid 80ties needs to be resurfaced. We learned that sidewalks can be located on top of utilities. Kathy and Bob also added to the discussion. Trees roots heave entire sections of concrete walks creating uneven surfaces that are unsafe. With an asphalt walkway the trees roots raise a small area above the individual roots. Concrete is easier to patch than asphalt. The Dare County Tourism Bureau funds the construction of walkway and multi-use facilities. These facilities are viewed as an amenity for tourists by Dare County. Duck created a tax district to fund pedestrian facilities. Bob explained that Carteret County uses its tourism dollars for advertising.

The walkway in Manteo curves through the trees. In some locations it is nearer than 5 feet to the street. In these cases there is a curb. Betty explained that in our division the walkway must be behind the ditch. She said that there is an 8 foot shoulder between the street and the ditch. Steve explained that the bike lane is part of the shoulder. Alesia asked if there was a guardrail, could the walkway be on the shoulder. Betty said that was possible.

A discussion of Highway 58 in Pine Knoll Shores followed. Steve said that the Thoroughfare Plan calls for a divided multi lane facility on Highway 58. Bob said that an alternative 3 lane section is being discussed. Brian added that the County and its municipalities do not support the divided section for Highway 58.

Betty said that there is some funding at the Division level of NCDOT for small pedestrian projects. However NCDOT does not fund right of way acquisition. They will fund projects to be located on a perpetual easement. The applicant is responsible for all environmental permits for walkways and multi-purpose facilities.

Marc Shultz of Atlantic Beach and Alesia Sanderson of Emerald Isle responded to questions about their Town's experiences in building walkways.

1. Does the Town have a Pedestrian Plan?

Neither Town has a formal Pedestrian Plan. Both have policies in their CAMA Land Use Plans. Emerald Isle has plans for a walkway along Highway 58 all the way to Indian Beach. They have a \$500K Grant to fund a multi-use facility from Skimmer to the street leading to the new Aquarium pier. Emerald Isle has a 200 foot wide right of way from the bridge to Town hall. East of Town Hall the right of way is 100 feet like the ROW in Pine Knoll Shores. Neither Town requires private development to construct public sidewalks. Both expect that the Town will add this requirement in some situations in the future.

Jay asked about the public response to sidewalks. Marc said that the public response in Atlantic Beach has been very positive. Alesia said that the walkways and multi-use facilities have been the best received project during her 24 years at Emerald Isle. In response to a question about liability Alesia responded where walkways are separated from the highway with trees, there are lamps every quarter mile. If you put in the proper markings there is no additional liability. She pointed out a photo of the sign they use describing the rules for users of facilities. Emerald Isle also conducts two bicycle education programs each year. They also distribute postcards with safety tips.

Bob asked how much it costs to maintain sidewalks. The budgets for sidewalk maintenance are integrated with other tasks and both Alesia and Marc were unable to break these costs out. In Emerald Isle, the Town blows the walkways weekly using a tractor and blower. This equipment is used for other tasks.

2. How did the Town determine the time line for phasing in improvements?

Emerald Isle applies for grants when they become available.

Atlantic Beach uses the annual budget process and grants. They have constructed 4.2 miles of walkways in 8 years.

3. What grants has the Town obtained for construction of facilities? What was the match?

Betty explained that the funding that the Division has for sidewalks requires a match based on population. Most other grants are an 80/20 with the Town paying for 20%. Steve explained that the State funds now require a master plan for eligibility.

Emerald Isle obtained Enhancements grants for a 1.2 mile and .8 mile section. They also hold a Triathlon each year. This is a joint venture with the Emerald Isle Business Association and they split the profits 50:50.

4. In your experience what are linear foot costs for various types of walkways?

Emerald Isle recently constructed .2 miles for \$30,000 for a 5 foot sidewalk with no site work. The latest costs for Atlantic Beach was \$52..28 per linear feet for a 1 mile project that includes some bulkheads and boardwalks. Marc advised including unit pricing in the contract. There is much field adjustment in these projects. This reduces costly change orders.

5. How do you estimate construction costs for grant applications? Do you hire an engineer to estimate costs? Does the Town have an in-house engineer or design person to estimate costs?

NCDOT will tag trees that should be saved. The survey includes utilities such as power poles. It is usually best to work around utility poles. They cost about \$14,000 each to relocate. In the past, Emerald Isle has very little site work for the multi-use trails. Emerald Isle does its own striping and signage to save funds. Alesia estimates about \$35 per linear foot for asphalt (10 foot width) and \$25 per linear foot for a five foot wide concrete sidewalk with little site preparation. They rely on past projects and add 5-10 percent. They hire the engineer after signing the grant contract. Enhancements projects require an engineer. Commitment of local resources to a project increase grant eligibility.

6. What are maintenance requirements for pedestrian facilities? Do you sweep them, edge, pick up trash, etc.? Who does the maintenance?

Atlantic Beach uses inmate labor for many tasks including walkway maintenance, litter pickup, etc. Emerald Isle blows them weekly.

7. Do you have a pedestrian task force?

Emerald Isle has a Bike and Pedestrian Committee. They set project priorities and are working on a comprehensive bicycle and pedestrian plan.

8. What has the public response been to pedestrian facilities?

Both have positive experiences. Jay added that pedestrian facilities enhance property values. Alesia warned that there may be resistance to the removal of vegetation. She said that there is positive economic benefit. Emerald Isle now has 9 bike rental businesses and a full time bike shop. Now most visitors bring bikes to Emerald Isle. This was not the case 10 years ago.

9. How has the Town financed pedestrian facilities? Tax increase, borrow, CIP, grants, other? Emerald Isle uses grants , Triathlon , private contributions. They have a program where individuals may sponsor a bench. Coast Guard Road is not a State road, thus not eligible for grants through NCDOT. The Town holds a Taste of the Town fund raiser in the spring and other fund raisers.

10. Does Emerald Isle plan for additional walks to the east? If so, what locations? – previously answered.

11. When does the Town require the developer to construct sidewalks along the street? Both Towns do not have these requirements.

The committee looked at the cross section of Highway 58. Susan added utility poles and combined the bike lane and shoulder thus making the idealized cross section with 22 feet remaining for landscaping and walkways. She explained that actual right of way conditions may have a broader ditch, no ditch or major grade changes. Steve and Betty both recommended that walkways be located near the right of way line away from the travel lane for safety reasons. The Town will be replacing water lines soon.

A discussion of bicyclists using the sidewalks ensued. Betty explained that bicycles are vehicles and are dangerous to pedestrians. In Atlantic Beach casual bicyclists use the sidewalks where it is safer for them. It does not appear to be a problem. Serious bicyclist will not use a sidewalk or a multi-use facility. Jay said that a 10 foot wide multi-use facility is ideal for Pine Knoll Shores. Brian referred to the recreation survey and its recommendation of a facility for bicycles and pedestrians along NC 58. The committee seemed in agreement that a multi-use facility along NC 58 should be in the plan.

Morehead City acquired a 10 foot easement for the multi-use facility on Bridgers Street.

A project needs to be on the Transportation Improvements Plan for grant funding eligibility.

Bob initiated a discussion of establishing a crosswalk at the traffic signal. Steve Hamilton decides on traffic signals. They cost about \$8000. There needs to be a safe pedestrian connection from beach access parking to the beach access. Steve said that there must be a sidewalk or multi-use facility connecting to the cross walk on each end.

Brian said that there are now 6 public beach accesses and that there will be a total of 11 beach accesses within a year.

Betty said that the Town may request through her office grants for walkway facilities that connect a beach access to public beach access parking. A resolution by the Town Board of Commissioners in support of the application should be included in the grant request.

Several committee members had to leave at 12:30 but some remained until 1:00 with an open discussion. The committee did not visit to the highway corridor.

The next meeting is scheduled for August 21. Susan will provide a draft map of projects including some not on Highway 58 for discussion. There should also be additional input from the survey that will be included in the August issue of the Shoreline.

Recap and Notes
Pedestrian Master Plan Steering Committee Meeting
10:00 a.m. August 21, 2009

Members present: Brian Kramer, Ken Jones, Maureen Kilgallen, Bonnie Ferneau, Steve Hamilton, Norma McClellon, Larry Kacmarcik, Charlie McBriarty

Plan Service: Susan Suggs, Linda Brickhouse,

Staff present: Ernie Rudolph

Members absent: Reed Smith, Elaine Tempel, Robert Danehy, Kathy Werle, Jay Barnes

Guests: Betty Ann Caldwell: NCDOT, Larry Corsello

The recap from the July 31st meeting was approved with discussion about paragraph 3 on page 2. Betty Ann Caldwell clarified that it is possible to use a guard rail as a protective barrier such that the walkway could be located between the travel lane and the ditch but there would be a minimum separation requirement and there are maintenance concerns. There would still need to be a minimum of 8 feet from the travel lane to the ditch.

The minutes were approved with this clarification.

Susan led a discussion of the additional input from the surveys that were included in the August Shoreline. An additional 81 surveys were completed. 40 were included in the tabulations presented. Most of the input is consistent with the input from those submitted in June. Ocean Park remains the most popular beach access for pedestrians. Highway 58, Atlantic Beach and the Library remain the top pedestrian destinations. The top unsafe locations for crossing are consistent with the June input: Mimosa @ 58, Oakleaf @ 58 and Highway 58. The top 3 priorities for public pedestrian facilities are consistent with the June input: Entire length of Highway 58, Pine Knoll Boulevard and Mimosa @ 58.

Susan will tabulate the additional surveys and email the findings to the committee.

To the question about the need for engineering before construction, detailed engineering will be needed prior to the issuance of contracts for construction.

There will be a new beach access at lot 121.

Maureen brought up the concern of the practical feasibility of constructing a 10 foot wide multi-purpose facility on NC 58. She was concerned about public support due to the expense and the impact on existing vegetation. She explained that the recreation survey included a multi-use bike and pedestrian facility but the recreation committee did not understand that a multi-use facility is a minimum of 10 feet wide and did not consider the aesthetic impact. After discussion, those in attendance agreed that a 5 foot sidewalk, although not ideal, was more practical from a public acceptance viewpoint. Betty Ann explained that bikes are considered vehicles and those with rims greater than 16 inches – child’s bikes cannot operate on sidewalks. The current widening of the paved shoulder on NC 58 does not meet the minimum 4 foot width for a bike lane. Steve said that the pedestrian plan should include the bike lane as a recommended facility if a five foot sidewalk is recommended. Susan explained that the plan is a pedestrian plan. She recommended that the plan include in the text the rationale for recommending the 5 foot sidewalk with language in support of the 4 foot bike lanes on NC 58 but not in the list of recommended facilities.

Brian stressed that it is critical that the plan address what type of facility, the location of the facility and the cost of the facility.

Susan reviewed the worksheet on priorities of pedestrian facilities beginning with crosswalks. She explained that the recommended crosswalks are generally at least ½ mile apart. Crosswalk projects will include a segment of sidewalk on each end to meet NCDOT requirements.

In the draft presented the following crosswalks were rated as a high priority.

NC 58 @ Oakleaf
NC 58 @ Mimosa
NC 58 @ Pine Knoll Boulevard
NC 58 @ Clam Digger
NC 58 @ western most beach access

The committee added NC 58 @ Juniper.

The worksheet as amended during the meeting is at the end of this recap.

Steve recommended using the tunnel at the Trinity Center in lieu of the western most access. Susan explained that this is a private facility connecting 2 portions of their campus.

Steve explained that tunnels are very feasible and should be used. They can be prefab structures that are installed in 2 sections. He thought that drainage at the Trinity Tunnel was by some type of pump that the Trinity Center paid for operation and maintenance.

Steve recommended that priorities not be included in the plan. Susan responded that setting general priorities is a requirement of the plan that is funded by a NCDOT grant.

Larry Corsello asked Steve if the access reason is substantial to have a crosswalk approved by NCDOT or if additional traffic counts and study would be required. Steve explained that there is no NCDOT policy or uniform criteria to justify a crosswalk. He further explained that a

sidewalk connection is needed on both sides. He responded that NCDOT may or may not have to conduct further study to determine if a crosswalk can be permitted.

Susan recommended that the plan include crosswalk recommendations stating that inclusion in the plan will strengthen the opportunity to obtain needed crosswalks in the future. Maureen noted that there are 2 new crosswalks in Atlantic Beach.

The committee then reviewed priorities for walkways. The walkway along NC 58 was changed from a multi-purpose facility to a five foot sidewalk based on Maureen's comments earlier in the meeting. The attachment contains the facilities with ratings as determined by the committee. The following changes were made to the draft presented.

The committee discussed which side of the highway the facility should be located on. Susan explained that a location on the north side linked the neighborhoods that are disconnected by the canals such that a connection to Pine Knoll Boulevard could be proved without having to cross Highway 58. Brian explained that connecting the beach access areas on the south side of NC 58 would increase grant opportunities from CAMA beach access funds. Steve said that the plan should not include what side of the highway the facility is located on. Susan said that in plans she has worked on it was important to state what side of the roadway a facility is located on. After making a phone call for clarification, Betty said that the Division will determine what side of NC 55 the sidewalk should be located on. Susan will mail her a copy of the map.

NC 58 from the public beach access to Mimosa was upgraded from medium high to high.

An additional segment was identified from a public beach access at Forest Dunes to the east end of the Trinity Center where parking will be located.

A discussion of the facilities not located along NC 58 followed.

Based on input from Steve Hamilton at the July 31st meeting that the plan as then presented was not comprehensive, a loop from NC 58 along the entire length to Mimosa and along Mimosa back to NC 58 was added to meet this concern. Betty offered that the plan without the Oakleaf Mimosa loop was comprehensive. Committee members said that there was no public support for the loop in its entirety and that it would not be constructed. Susan offered that the plan without the loop is comprehensive in that it provides a comprehensive pedestrian plan for Bogue Banks beginning at Coast Guard Road and terminating at Fort Macon. Committee members noted that the Indian Beach portion was not planned. The Pine Knoll Shores section also is part of an adopted plan at this time but with their future inclusion a comprehensive plan for Bogue Banks can be realized. Susan will talk with Helen Chaney with NCDOT Bike – Ped Division about the comprehensive plan issue. This plan is funded by a grant through the Bike-Ped Division and must comply with their criteria.

Brian agreed that there was no support for the entirety of the Oakleaf Mimosa Loop. He added that he did receive calls as to the hazard of the curvy section of Oakleaf between Highway 58 and the Country Club. He added that the grades at the Mimosa bridge made this section hazardous. The section from the Country Club to Beechwood north of the Mimosa bridge was

deleted from the draft last of projects. The Oakleaf project was rated as low. The Mimosa project was rated as high. This project provides a sidewalk to the crosswalk at Mimosa and NC 58 and supports that project.

The projects along Pine Knoll Boulevard and Roosevelt were upgraded to a high rating. These projects will require minimum site preparation and are high traffic areas and have high pedestrian use.

The project on Coral Drive was deleted because Coral Drive is private.

Brian explained that there is a connection between the public beach access locations, sidewalks and public safety. The plan should link these criteria to build public support and funding opportunities. Likewise the Plan must explain the type of facilities, location of facilities and projected costs of facilities.

The next meeting is scheduled for September 11.

The meeting ended by 12:00.

Recap and Notes

Pedestrian Master Plan Steering Committee Meeting

10:00 a.m. September 11, 2009

Members present: Brian Kramer, Robert Danehy, Kathy Werle, Ken Jones, Maureen Kilgallen, Steve Hamilton, Jay Barnes, Elaine Tempel, Larry Kacmarcik

Plan Service: Susan Suggs, Linda Brickhouse, Helen Chaney

Staff present: Chief Joey Culpepper, Ernie Rudolph

Members absent: Reed Smith, Norma McClellon, Bonnie Ferneau, Charlie McBriarty

Guests: Betty Ann Caldwell: NCDOT, Ted Lindblad: Pine Knoll Shores Board of Commissioners, Bob Mosher, NCDOT Bike Ped Division, Larry Corsello

The meeting began with introductions.

The recap from the August 21st meeting was approved with the following correction. Paragraph 6 page 1 should read access at 121 Dogwood.

Concerning paragraph 1 page 1 of the recap, Betty Ann Caldwell clarified that the distance between the sidewalk and the edge of travel lane can be reviewed on a case by case basis. If there is no curb and gutter, in Division 2, there should be a ditch between the travel lane and the sidewalk.

She said that the Oakleaf loop is not a requirement of the Division office of NCDOT and that the plan is comprehensive. The walkway along NC 58 can be located on either side of the highway. It is up to the Town to decide which side they prefer. Pedestrian crossing will be limited. On a 5 foot sidewalk bicycles other than children's bikes are not permitted.

Bob Mosher of NCDOT Bicycle Pedestrian Division clarified that NCDOT allows the local government to set policies governing the use of sidewalks even on NCDOT rights of ways. Kiddie bikes are often allowed by the local government. Sometimes a sidewalk is constructed greater than the five foot wide minimum to allow greater use by kiddie bikes. Sidewalks are the Town's responsibility even where they are on State roadway rights of way.

Betty explained that NCDOT does not permit parking on the State right of way. Bob said that designated improved parking was generally not permitted. Steve and Betty said that parking was not permitted and that vehicles parked on the right of way could be ticketed.

Brian explained that he understood that NCDOT will not permit the Town to build parking spaces on the right of way for beach access.

Chief Joey Culpepper researched this item and later in the meeting presented the law governing this issue. Parking is not allowed in a designated travel lane. Parking for up to 24 hours is allowed off the roadway. A municipality can designate an area where no parking is allowed on NCDOT right of way but the area must be signed.

Susan quickly reviewed the status of the plan for Bob Mosher identifying issues of disconnection of neighborhoods by conservation lands, canals forcing connection via NC58, Attraction of the beach for pedestrians, importance of vegetation to the community and destinations including Town Hall, Aquarium, public and private beach accesses and Atlantic Beach.

Susan reviewed the public input from 152 surveys. Highlights include that Ocean Park near Mimosa is the most walked to beach access. Walking in the neighborhood is very popular. Other popular destinations include the beach followed by Atlantic Beach. The crossing at Mimosa and 58, followed by Oakleaf at 58 and Highway 58 were noted as unsafe crossing. Respondents would like to see pedestrian facilities along the entire length of NC 58 with crosswalks at Mimosa, Oakleaf and beach access and improvements on Pine Knoll Boulevard.

Jay commented that people drive to Atlantic Beach to walk on their walkways. Brian noted that the Recreation Survey indicated that walking for recreation as the most important followed by walking the dog.

Bob said that the plan should include walking for exercise as well as for transportation.

Bob talked about the safety of walking in neighborhoods and that it could be improved with striping the edges of the street, signage and possibly traffic calming techniques. The safety of the curvy section of Oakleaf Drive was discussed. Joey said that people do not speed on this roadway. Steve said that the posted speed limit of 25 MPH seemed correct for the roadway conditions and that there were pedestrians walking on Oakleaf Drive. The consensus seemed to

be that a sidewalk from NC 58 to the Country Club was preferable to traffic calming devices and cost effective. Bob recommended placing signs alerting motorists of pedestrians on Oakleaf.

Brian hopes to apply for beach access grants to establish crosswalks to beach accesses with facilities between parking lots where remote from access points to the beach access.

Susan started to go over the matrix list of projects with priority. Maureen recommended starting at Atlantic Beach on NC 58 and working west and to reduce the speed limit on NC 58 to 35 MPH like Atlantic Beach.

Susan explained that all the crosswalks were listed together but in the walkway section there were projects that provided the sidewalk connections to beach access parking, beach accesses and the crosswalks thus providing a walkway to each end of the crosswalk. Helen said that Division 2 did not require a sidewalk on each end of a crosswalk. Betty Ann said that in this Division, a sidewalk is an absolute requirement on each end of a crosswalk.

Brian said that beach access for pedestrians is most important as is a sidewalk on NC 58 between Mimosa and Pine Knoll Boulevard.

There was discussion about minimum standards for facilities, particularly separation from the travel lane and whether or not a ditch was required between the travel lane and the walkway if there is no curb and gutter. Susan noted a location on Western Boulevard in Raleigh where there is no ditch between the walkway and the travel lane. Bob Mosher offered advice on this topic saying that each situation should be evaluated on its own and if there was need for a pedestrian facility and the ditch was located at the back edge of the right of way, that it may be practical to locate the walkway between the pavement and the ditch, especially if it made an unsafe situation less unsafe. He said that there are situations where the guidelines can not be met where pedestrian facilities are needed. Throughout the State, NCDOT Divisions interpret the standards with different outcomes. Division 2 requires sidewalk on each end of the crosswalk we were discussing.

Jay noted that there seemed to be advantages to locating the walkway on the north side of NC58 and urged the committee to evaluate the pros and cons of each side, and then determine the best location based on those findings.

Susan explained that at the August 21st meeting, they decided to recommend the location on the south side of NC 58 to link beach accesses and provide for funding of facilities with beach access grants. A discussion of the pros and cons of location of the sidewalk on the north and or south side of NC 58 followed.

Kathy noted that you can use Dogwood and other loop streets on the south side of NC 58 to keep from walking long distances on the Highway. Kathy also voiced her concerned about the impact of construction on existing vegetation. Susan explained that native vegetation could be quickly reestablished.

Summary of Comments

Location on the south	Location of the north
Increase funding opportunity associated with beach access	Connection to Proposed walk at Atlantic Beach on North side
Greater grading and boardwalk expense	Greater grading and boardwalk expense
More vegetation impact	Greater grading and boardwalk expense
Consistent with walkway location in Emerald Isle can be continued through Indian Beach to PKS	Less grading expense
	East of Mimosa most residents are on the north side of NC 58, need a walkway to provide connection to Town Hall, Library, Aquarium area from eastern neighborhoods
	Provide an exercise loop with walkway on north side
	Residents on south side have direct access to walk on the beach.

After much discussion, the group seemed to agree to recommend a walkway on the south side from Indian Beach to Pine Knoll Boulevard. A walkway adjacent to the Roosevelt preserve would not serve residents. Private walkways in Beacon’s Reach allow residents to get to beach access (although not cross NC 58) and move throughout the neighborhood. A crosswalk at the traffic signal at Pine Knoll would permit pedestrian to safely cross the highway and continue on a sidewalk on the north side of NC 58 to Atlantic Beach. This would best serve the neighborhoods on the north side of NC 58 east of Pine Knoll Blvd. There are more homes on the north side than the south side.

Susan reviewed the proposed facilities with ratings. All remained as presented with the exception of upgrading the sidewalk on the south side between the proposed beach access and its parking lot located to the west on Trinity Center property from low to high. This beach access and parking will be established soon.

Susan reviewed Programs to promote pedestrian activity. These included programs for children, parents/ caretakers, seniors, fitness, motorists, brochures, partnership with the Carteret Health Department and creation of a Pedestrian Task Force. It was noted that a brochure of handicapped facilities could also include walkways. The Aquarium has a 6 mile and 10 mile volks walk route that are popular with residents.

Susan said that she hoped to have a draft plan by Thanksgiving.

The next meeting will be Friday October 2nd at 10:00.

The meeting ended after 12:00.

Recap and Notes
Pedestrian Master Plan Steering Committee Meeting
10:00 a.m. October 2, 2009

Members present: Brian Kramer, Bonnie Ferneau, Charlie McBriarty, Kathy Werle, Ken Jones, Maureen Kilgallen, Elaine Tempel, Larry Kacmarcik

Plan Service: Susan Suggs, Linda Brickhouse

Staff present: Ernie Rudolph, Lt. Lee Rice

Members absent: Reed Smith, Norma McClellon, Robert Danehy, Steve Hamilton, Jay Barnes

Guests: Betty Ann Caldwell: NCDOT, Clark Edwards: PKS Commissioner

Susan reviewed several corrections to the recap from the September 11th meeting.

Clark Edwards expressed concern about the lack of connectivity between Oakleaf and Atlantic Beach. Committee members explained that Atlantic Beach plans a sidewalk on the north side of NC 58 that will connect to the proposed sidewalk in Pine Knoll Shores on the north side of NC 58.

Kathy offered the expectation that businesses (such as real estate firms) would sponsor a section of the walkway especially if it was located near the office or primary area where there is prospective sales activity.

Susan reviewed the cost estimates with the committee explaining that the linear foot cost were planned to include extensive site work, retaining walls and board walks. Committee members supported this approach. Betty Ann explained that Steve Hamilton could help with estimates for motion activated signage for crosswalks. After the meeting she contacted him. The cost range is between \$25K – to \$100K.

Brian felt that the estimates by priority would be useful. Susan explained that she anticipated no lighting or trash receptacles and that benches would be from donations. Committee members concurred.

Susan introduced the topic of standards saying that the details for typical standards are in an appendix and that these are NCDOT and Federal Highway standards that should be adhered to. She stated that this section of the plan will discuss vegetation because vegetation is so important in Pine Knoll Shores. She explained procedures for revegetation with Method C recommended for most revegetation. Kathy recommended that a section on vegetation protection be added. Brian recommended adding a revegetation category to the cost estimates.

Susan reviewed the maintenance that would be needed for the sidewalk facilities. Ernie noted that the boardwalks and retaining walls in Atlantic Beach were not constructed with marine grade treated wood and hardware and were needing maintenance even though they are only 3

years old. Betty will check with Steve concerning the assumption that NCDOT would maintain crosswalks on NC 58. She talked with him after the meeting. It depends on the situation whether or not NCDOT will maintain a crosswalk.

Susan introduced the section that describes how to achieve pedestrian friendly development and possible changes to the Towns' zoning and subdivision ordinance beginning with the development guide.

The recommended standards to promote a walkable community include interconnected street patterns, interconnected pedestrian facilities, sidewalks on all streets, pedestrian connections to destinations, clear view at intersections and driveways and traffic calming. Brian added that safe pedestrian opportunities on all streets is the focus of the grant for this pedestrian master plan. This section is for information and not as recommended regulations.

Susan then explained that Pine Knoll Shores currently has no requirements for sidewalks. She drafted regulations that are minimal but will provide the basics. If an application for a zoning compliance permit or building permit is filed and the sidewalk master plan includes a sidewalk on the adjoining right of way, the draft regulation requires that the sidewalk be constructed before a certificate of occupancy was issued for the development. Ken asked for a clarification if this would apply to redevelopment of a property. Susan will add language that makes it clear that the recommended ordinance amendment would apply to redevelopment. Brian clarified that these recommended ordinance amendments would not go into effect unless the Town Commissioners enacted them.

The second recommended amendment applies to new development and redevelopment. It requires sidewalks on the property that connect to the street and primary building entrance for development in multi-family, commercial, office, professional, municipal service and institutional zoning districts.

The recommended amendment to the subdivision ordinance would apply to new subdivision development only. A subdivision occurs whenever a new parcel is created or if parcels are combined to form a new parcel with less than 10 acres. The proposed requirement is for a sidewalk on one side of a public or private street if there are greater than 10 residential lots. If property is non single family, the recommendation is to require sidewalks on both sides of the street. The recommendation provides flexibility for the type of walkway facility. The minimum standard is either a 5 foot wide concrete walk or an 8 foot wide asphalt walk. Alternate materials can be used if the applicant can demonstrate that the alternate material is durable and safe. The committee liked the flexibility this provided. Any amendment to the zoning or subdivision regulations would require public hearing and action by the Board of Commissioners.

If a property were rezoned but not re-subdivided no sidewalk would be required due to the rezoning activity as proposed. Susan explained that the Town might want more rigorous regulations or less rigorous regulations. This section just provides a basic option that could be considered.

The discussion on possible funding sources followed. The document includes sources from Susan's references and experience and from Helen Chaney. Susan did not include the ones from Helen that were not remotely applicable to Pine Knoll Shores. Susan will add private sponsorship to the section on private sources. She will remove Tax Increment Financing as it is unlikely to apply to PKS and can be risky for the Town if tax revenues do not increase to cover the finance costs. She will remove excise tax and occupancy tax as these options are very unlikely to apply to PKS. The section on fees will stay in the document since they are a possible option and the plan is not recommending that they be utilized.

Brian and Betty discussed how to place a project on the Transportation Improvements Plan. The project must be listed between October 5th and October 30th. It requires a resolution by the Town Commissioners. Brian should work first with the RPO (Rob Will). If needed, they can work with Betty Ann, but it is best to work with the RPO. Betty stated that a project should be on the TIP to receive funding even as an enhancements project.

The next meeting is scheduled for October 30th at 10:00. The meeting ended about 11:45 a.m.

Recap and Notes
Pedestrian Master Plan Steering Committee Meeting
10:00 a.m. October 30, 2009

Members present: Brian Kramer, Bonnie Ferneau, Kathy Werle, Ken Jones, Elaine Tempel, Larry Kacmarcik

Plan Service: Susan Suggs, Linda Brickhouse

Staff present: Ernie Rudolph

Members absent: Reed Smith, Norma McClellon, Robert Danehy, Steve Hamilton, Jay Barnes, Maureen Kilgallen, Charlie McBriarty

Guests: Larry Corsello

Corrections to the Recap of the October 2, 2009 meeting.

p. 1 Lt. Lee Rice

last Paragraph 2nd line "be"

p.2 Ernie

Last Paragraph, 2nd sentence: A subdivision occurs whenever a new parcel is created or if parcels are combined to form a new parcel with an area less than 10 acres.

Susan then explained procedures for review and adoption of the plan. The overall content and process is determined by the NCDOT Pedestrian Grant that substantially funds this project. Helen Chaney, NCDOT project planner for the plan has completed a courtesy review of the plan. It includes formatting recommendations and no content recommendations. The Plan will be presented to the Town Board on November 10th. The second public open house will be held on November 17th. The committee agreed to hold a meeting on December 4th to review input from

the Town Board of Commissioners and the public open house. If there are substantial changes they will meet again in December. If changes are simple, they may recommend approval. Brian will post the recommended draft on the Town's web site for 2 weeks for additional review prior to sending it to Helen Chaney at NCDOT. She will review the recommended draft and send it to the NCDOT Board for their approval. Helen told Susan that NCDOT review could take up to three months but should only take about one month. After approval by NCDOT, the Town Board of Commissioners will hold a public hearing and take action on the Pedestrian Master Plan.

Brian clarified several items concerning the Pedestrian Master Plan. Adoption of the plan does not encumber spending on pedestrian facilities. The Town Board adopted a resolution to request the inclusion of the walkway and associated crosswalks from Atlantic Beach to Pine Knoll Boulevard on the Transportation Improvements Plan. To be eligible for grants from NCDOT, NCDOT requires that the town have a pedestrian plan and projects be on the Transportation Improvements Plan. Inclusion of a project on the TIP makes it eligible for grant funding. It will be the decision of the Town Board when to apply for grants. The Pedestrian Master Plan does not include engineering. Engineering is not an eligible expense of the plan.

At the Town Board meeting Brian will provide background information before Susan presents the content and recommendations of the draft Pedestrian Master Plan.

Susan reviewed the draft Pedestrian Master Plan with the Steering Committee. She explained that the committee has reviewed the content and formulated the recommendations contained in this draft during their meetings.

She reviewed the addition of landscaping expenses to the cost estimates.

The committee reviewed section 6 Issue Identifications. Kathy asked if the plan included a recommendation as to which side of the highway the walkway would be located. It does. They reviewed the explanation of how the committee determined which side of the highway the sidewalk should be located in Section 7.

The committee discussed whether or not trash receptacles should be included in the recommendations. The committee did not want to include general trash receptacles because of maintenance and recycling. The issue of dog waste drove the discussion. They decided not to include a recommendation to include trash receptacles or dog waste bag dispensers. If dog waste becomes a problem, it can be addressed at a later date.

Susan will add to the examples of rules for sidewalks: Pick up after your dog.

Larry recommended that the 0-5 year category include the Top Priority projects and the general 0-5 year projects.

Susan reviewed the language in Section 8 that indicates that the items in the Guide for Pedestrian Friendly Development are options that a developer may wish to follow and not a requirement.

Similarly, the Ordinance recommendations are options that the Town Board may wish to enact at some time in the future. They are not a requirement.

The next meeting will be December 4th.

The meeting ended at approximately 11:25.

Recap and Notes

Pedestrian Master Plan Steering Committee Meeting

10:00 a.m. December 4, 2009

Members present: Brian Kramer, Charlie McBriarty, Maureen Kilgallen, Bonnie Ferneau, Kathy Werle, Ken Jones, Larry Kacmarcik, Bob Danehy

Plan Service: Susan Suggs, Linda Brickhouse

Staff present: Ernie Rudolph, Joey Culpepper

Members absent: Reed Smith, Norma McClellon, Steve Hamilton, Jay Barnes, Elaine Tempel

Guests: Tom Garry, Bill Hotham, Clark Edwards, Don Buccollo, Betty Ann Caldwell

Mayor Lamson thanked the Steering Committee for their work on the Pedestrian Master Plan and also thanked the public in attendance for their involvement in the process.

There were no corrections to the recap of the October 30, 2009 meeting

Susan told the committee that she presented the highlights of the Pedestrian Master Plan to the Town Board on November 10th. Their response seemed favorable.

The second public input meeting was on November 17th. About 24 persons attended. Susan presented an overview of the plan with the recommendations. Attendees voiced concerns of costs and some questioned the need for pedestrian facilities. Other citizens voiced support for facilities. The main issue at the public meeting was the proposed walkway on Oakleaf Drive between NC 58 and the Country Club of the Crystal Coast. Attendees questioned the need for a walkway on Oakleaf Drive. They were concerned about speeding vehicles on the roadway.

Susan explained that she discussed this input with Bob Mosher and Helen Chaney of the Bike Ped Division of NCDOT. They said that the Pedestrian Master Plan could be considered comprehensive with the removal of this facility from the plan and recommended traffic calming measures to mitigate the safety issue. She explained that she had email from Tom Garry opposed to the project and that he would have an opportunity to explain his concerns.

Brian reported that this section of Oakleaf Drive is a safety concern. Speeding is common on Oakleaf Drive.

Susan explained that the inclusion of this roadway was in part due to concerns by Steve Hamilton of Division 2 about the Master Plan being comprehensive.

Bob requested that we hear from the public in attendance on this issue.

Mayor elect Ken Jones clarified that just because a project is in the Master Plan, it may or may not happen. There must be public support and funding for a project to be constructed. He also noted that during the bridge replacement on Mimosa Drive, there will be additional traffic on Oakleaf Drive. He felt that the speed limit should be lower.

Kathy recommended additional stop signs at Cedar Drive.

Chief Culpepper recommended a reduced speed limit near Magnolia Court and Brock Basin. He further explained that the Police Department cannot enforce the speed limit 24/7. He elaborated that having stop signs will not be effective because drivers will speed between the stop signs to make up for the delay of stopping.

Bob recommended traffic calming and removal of vegetation to open up views.

Brian explained that he receives complaints about the unsafe situation on Oakleaf. He felt that the sidewalk project should remain in the plan in the long term priority.

Larry said that some residents just don't want sidewalks.

Residents representing the Oakleaf neighborhood talked about speeding traffic in the curves. They wanted a 20 mile per hour speed limit and wanted it enforced.

Susan read the email from Elaine in support of the sidewalk and traffic calming.

The Steering Committee decided to move the sidewalk project on Oakleaf to the greater than 10 year priority and to include a statement that Town Administration and the Police Department will implement traffic calming measures on Oakleaf Drive.

Susan explained the following change based on input from Betty Ann. The section of Sidewalk between Pine Knoll Boulevard and the public beach access will be included as part of the crosswalk project rather than a separate project.

Kathy questioned the location of the sidewalk on NC 58 between Pine Knoll Boulevard and the Bogue banks Library property. Susan will add an explanation that additional walkway will be needed on the private property to link the sidewalk to the library site.

Brian thanked Betty Ann Caldwell for her input and expertise and asked her about funding opportunities. Her office has a small amount of funds for pedestrian projects. The Town must have the engineering complete and the environmental documents complete. There is a local percentage that the Town must pay. It can be other grant money as long as the grant is not from NC Department of Transportation.

The committee decided to move the crosswalk at Juniper up to the 0-5 year priority.

Other changes were to delete that the Town supports a 3 lane facility on NC 58 from the section describing the CAMA Land Use Plan.

Susan will make the discussed changes. Brian will post the Draft Pedestrian Master Plan on the website. The Plan will then be submitted to Helen Chaney for review and approval by NCDOT. The Town Board will then hold a public hearing and consider adoption of the Pedestrian Master Plan.

There is no planned future meeting of the Steering Committee.

The meeting ended at approximately 11:20.