Town of Beaufort, NC
701 Front St. - P.O. Box 390 - Beaufort, N.C. 28516
252-728-2141 - 252-728-3982 fax - www.beaufortnc.org

Town of Beaufort Parks & Recreation Advisory Board
6:30 PM Thursday, March 02, 2023 - Train Depot, 614 Broad Street, Beaufort, NC 28516
Monthly Meeting

Call to Order

Agenda Approval

Minutes Approval

1. February 2023 Minutes

Public Comment

Staff Report & Discussion with the Town Manager

Items for Discussion and Consideration

1. Discussion on creating a park survey to assess the direction of parks in 2023.

Presentations

1. Peter Crumley's Presentation on Connectivity & Sidewalks

Board Comments

Adjourn

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Town of Beaufort Parks & Recreation Advisory Board
6:30 PM Thursday, February 02, 2023 - Train Depot, 614 Broad Street, Beaufort, NC 28516
Monthly Meeting

Call to Order

Meeting was called to order at 6:31 p.m.

Board Members Present: Doug Williams, Johnna Davis, Barbara Francis-Heckman, Peter Crumley, Sheresa Elliot , Brian O'Haver & Michael Rave

Staff Present: Planning Director Kyle Garner & Parks Coordinator Rachel Johnson

Agenda Approval: Agenda approved unanimously.

Minutes Approval: January 2023 Minutes Approved Unanimously

Public Comment

No members of the public were present to make a comment.

Staff Report - Updates from the Planning & Parks Departments

Updates from the Planning & Parks Departments

Planning Director Kyle Garner gave an update on a variety of topics and fielded questions from the board to include the following:

*Explained the process for collecting Recreation Fees and that the Town has been collecting them for the last 4 years.

* Explained the multi-use trails in BeauCoast will connect to Lennoxville Road.

* Discussed potential changes to the crosswalk at Lennoxville & Carteret.

* Freedom Park upgrades to be conducted by the Beau Coast Developer include paving of the gravel road, landscaping and the addition of a disc golf course and a dog park.

*NCDOT Updates on roundabout and a carbon reduction grant

*Discussed a potential multi-use path

*Discussed sidewalks on Live Oak are planned from the Old Elementary School to the Roundabout @ 101 on the westside and to take the sidewalk to Campen and eventually on to Professional Park Drive creating a 2-mile loop.

*Answered a question about property ownership at Sycamore - the site is a Town owned elevated tank site

* Answered questions about the Tony Frost parking lot extension and acquired right of ways

1. Park Signs

   Parks Coordinator Rachel Johnson updated the board that the new park signs have all been installed.

Presentations

1. Discussion on creating a park survey to assess the direction of parks in 2023.

   This discussion was tabled until the March meeting due to time.

Items for Discussion and Consideration

1. Discussion on Arbor Day, Art in the Park and More.

   Discussion on Arbor Day, Art in the Park and More.

   Sheresa Elliot led a discussion about planning an Arbor Day event as well as Art in the Park events, a potential Back to School Bash, a Block Party in October, encouraging basketball tournaments and pickup pickleball and tennis games.

   Peter Crumley made a motion for the board to recommend all of the mentioned activities and equipment requests. Motion was seconded by Johnna Davis.

   Staff will work to obtain a budget for the events, order items and to advertise for the events.

   Arbor Day will be 1-3 p.m. Saturday, April 29 and will feature a community tree planting, there will be 100 seedlings to give away, a tree will be planted in one of our Nation's forest, free pizza and drinks. The board requested that the BFD and BPD set-up tables along with Litter Free By the Sea, Plastic Free by the Sea, the Lion's Club and other organizations that would like to join the event.

2. Flyer that includes the proposed 2023 Art in the Park dates

   Flyer that includes the proposed 2023 Art in the Park dates

   3-5 p.m. May 10

   1-3 p.m. June 14

   1-3 p.m. June 28

   1-3 p.m. July 12

   1-3 p.m. July 26

   1-3 p.m. August 9

   3-5 p.m. Sept. 20

   3-5 p.m. Oct. 18

   3-5 p.m. Nov. 8

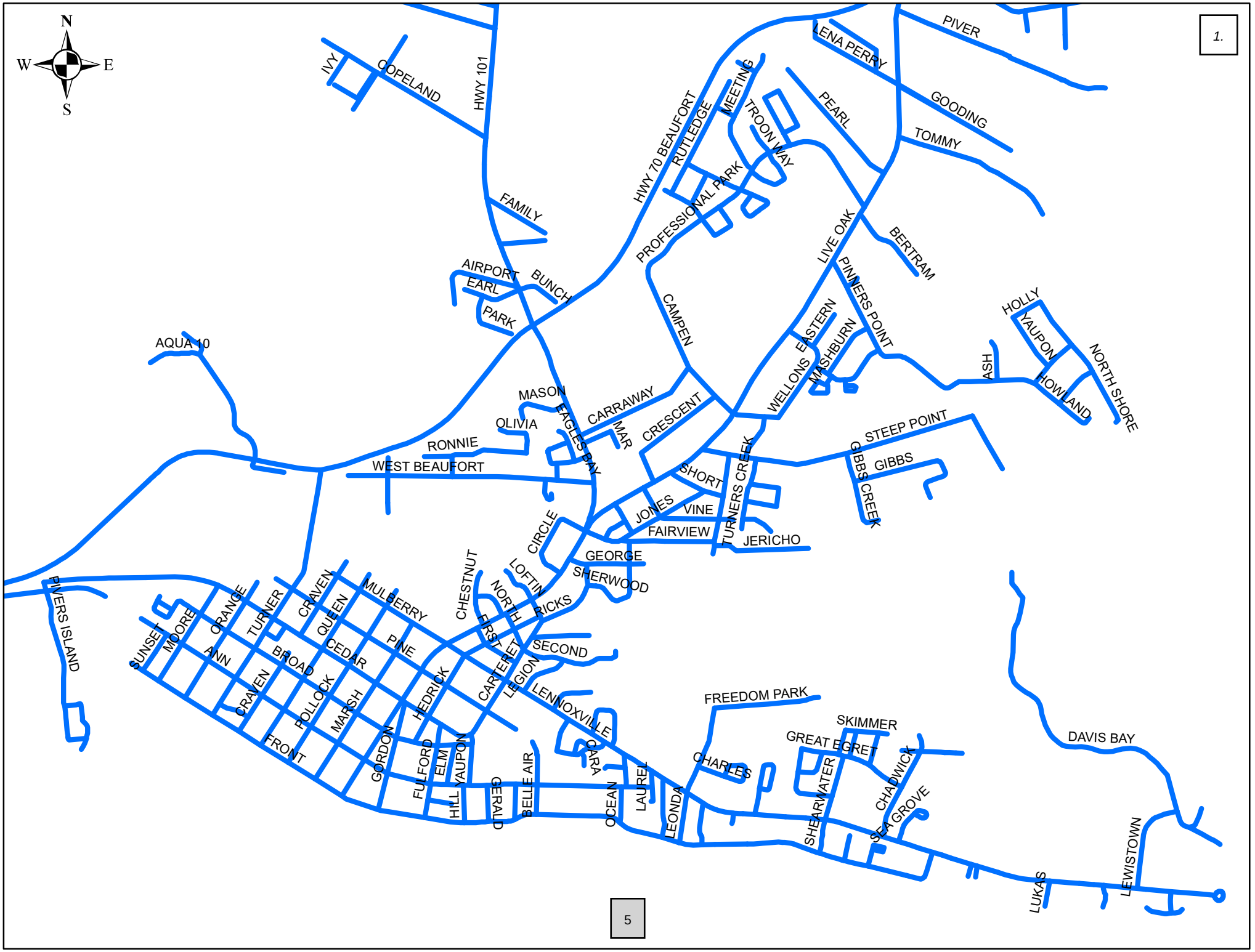
   3-5 p.m. Dec. 13

Board Comments

The board asked staff member Johnson to bring budget details to the next meeting to assist in the creation o the 2023 parks budget needs. Johnson explained that park maintenance etc. falls under the Public Works budget and that Parks has not historically had a specific budget line item.

Adjourn

The meeting adjourned at 7:53 p.m. with a motion made by Barbara Francis-Heckman and seconded by Johnna Davis. Motion carried unanimously.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SHEARWATER
CHADWICK
SEAGROVE
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CRAVEN
QUEEN
TURNER
ORANGE
MOORE
SUNSET
ANN
BROAD
POLLOCK
MARSH
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PIVERS ISLAND
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March 2023 Parks & Recreation Advisory Committee Meeting

Facilitated by Peter Crumley

Topic: Connectivity & Walkability

- Connect Town via walking routes
    - Key sidewalk connections
- 25 prioritized locations for improvements to crosswalks
- 25 things to increase sidewalk design

Connect Town via walking routes - Key sidewalk connections

12 Identified locations

1. Live Oak Street from the water front to Tiller School
    a. Sidewalk is partially there
    b. Close the gaps especially at Live Oak and Mulberry & Pine Streets
2. Lennoxville Corridor to Town limits
    a. End at Chadwick Street
    b. North side of the Road
    c. NCDOT Road – perhaps funding available via NCDOT
    d. Extend to the Boys & Girls Club down Mulberry Street
    e. Eventually connect to Turner Street
3. Turner Street
    a. Existing sidewalks are bookends on either side of Turner
4. Gallant's Channel Connection
    a. Connect a walking path to the Gallant's Channel property
    b. Connect underneath the bridge so as not to cross 70
    c. Consider a multi-modal path usable by pedestrians, cyclists and golf carts
    d. Connects the museums via a walking path
5. Cedar Street to Carteret Avenue
    a. Sidewalks to connect all the way to the park
    b. Carteret Avenue connects to the Lennoxville Corridor
    c. Consider Yaupon to Ann Street connection in this area as well
6. Cedar Street to Yaupon Street to sidewalk on Carteret to Lennoxville
    a. Sidewalk also connects to the crosswalk on Lennoxville
7. Lennoxville to Carteret to Ricks connecting to Live Oak
    a. This connection also connects to Beau Coast and their trail system
8. 101/70 Roundabout
    a. Sidewalk from roundabout to 1st Citizens Bank
    b. Sidewalk from Mulberry to Circle Drive
    c. On-demand crossing
9. Live Oak Street
    a. Connect from 1st Citizens to Campen

   b. Campen to Professional Drive
   c. Connect the opposite side with sidewalks to Tiller School
10. Trestle Area/Nature Trail
11. Campen to Carraway to West Beaufort Road to Nature Trail to Turner Street
12. Ricks/Pine View to Ocean – BeauCoast
13. Waterfront sidewalk on Ann to Ocean to cross Lennoxville sidewalk crossing at Shearwater & Lennoxville to Curtis Perry Park

Proposed Motion:

The Beaufort Parks & Recreation Advisory Board recommends the Town of Beaufort review the suggested list of sidewalk connections and seek to implement the connections as funding is available.

Connectivity and Walkability - Overview

Communities become strong when the citizens across the whole of the community feel a sense of belonging, where their voice is heard, where their message matters and where interactions with neighbors are facilitated through the removal of physical obstructions. To achieve these basic foundational attributes, to build towards a stronger future for Beaufort, dictates the development of a system of accessible/safe walking routes that provide connectivity across all neighborhood boundaries. To achieve the goal of establishing a fully accessible/safe connected mobile environment, without incorporation of a vehicle transportation component, requires consideration of new approaches and incorporation of many factors into the design and construction processes. Historically, design and construction techniques have been governed by a set of mandated minimal standards, which when applied as the singular source of guidance, will fall far short of creating an accessible/safe walking environment. The walking public must make mobility decisions, based on acceptable risk assessment analyses, this necessity dictates application of enhanced applied standards to move past perceptional governed knowledge to build an actual accessible/safe all-inclusive walking environment.

While the ultimate goal for any community must remain as a commitment to provide total sidewalk coverage,that provides accessible/safe passage across all road/sidewalk interfaces, across the whole of the community, the reality is that this often requires financial commitments beyond current available resources. To address financial limitations that will prevent the transformation of Beaufort into a connected/walkable community in the nearterm, a network system of accessible walking routes is proposed. This walking route system is based on linking the whole of Beaufort, Without the immediate necessity to install sidewalks along all Beaufort roadsides. The operational premise is to initially provide connected routes that can be reached from within a few blocks of any Beaufort location, to then allow for connectivity to all other locations within Beaufort via completing the journey on associated secondary sidewalks or less traveled street Right-of-Ways lacking sidewalks. Application of this tiered plan will provide a level of basic connectivity across the whole of Beaufort, thus bridging the timeline till sufficient financial resources become available to install sidewalks supported by accessible associated crosswalks throughout the whole of Beaufort. Selection of proposed individual walking routes is based completely on connectivity needs, without attaching financial costs to the decision making process, allowing for the planning of a complete system which can be developed over time as funding is made available. Contained within the proposed system are both routes which can be

completed in the near future as they only require the installation of new sidewalk to fill in existing imcomplete gaps, and those requiring some time to develop as they are currently void of any existing sidewalk or are associated to NC State owned roads.

So as the first step, the individual routes comprising the whole system are presented, the next step will be to assign a prioritized ranking to individual routes, And then advise Town Leadership to adopt and proceed forward with the plan as presented.

Proposed Beaufort Walking Route System

To achieve connectivity and transform Beaufort into a walkable community for all, requires the establishment of an all-inclusive walking route system. The routes identified, when collectively combined, will create a system linking all neighborhoods across the whole of Beaufort.
Initial Identified Routes are as follows:

1. Live Oak Street from the water front to Tiller School
a. Previously identified walking corridor as large segments of Sidewalk currently exists
b. Closure of gaps, especially at Live Oak and Mulberry & Pine Streets is required
C. Install Pedestrian Assisted Lighting at Cedar Street intersection
D. Install Pedestrian Assisted Lighting at Lenoxville Road intersection

2. Lennoxville Road Corridor to Town limits
a. A. Eastern End terminates at Chadwick Street
b. b. To be located on the North side of Lenoxville Road
c. Lenoxville is a NCDOT Road – perhaps funding might be obtained via an NCDOT grant

3. Mulberry Road Corridor
A. Initially extend to the Boys & Girls Club along the North side of Mulberry Street
B. Connect to Turner Street via a partnership with the Beaufort Housing Authority or via a developed trail connection over Town Creek to West Beaufort Road.

4. Turner Street
a. A. Sidewalks Exist along the complete route on both sides of Turner Street
b. B. At the Ceder Street intersection upgrade existing lighting to obtain full accessible status - Incorporate full array of audible prompts
c. C Install four way stop signage at Ann Street
d. D. Retain four way stoppage at Broad Street
E. Incorporate additional traffic calming measures at BHA and Middle Lane crosswalks

5. Gallant's Channel Connection
a. Establish a walking route to the Gallant's Channel Museumproperty

b. Route sections will connect underneath the Hwy 70 bridge to remove crossing of Hwy 70
c. Consider a multi-modal path usable by pedestrians, cyclists and golf carts
d. This route would Connect the museums two properties
E. Seek a partnership with State and Museum system as this route once completed would provide connectivity between both Museum properties

6. Cedar Street to Carteret Avenue
a. A. Complete sidewalks to connect to the LRJ Park

7. Cedar Street to Yaupon Street to sidewalk on Carteret to Lennoxville
A. Complete sidewalk along Eastern side of Carteret Avenue to establish seamless connection from Ceder Street to the Lennoxville Road Corridor along Carteret Avenue
B. Consider installing sidewalk on the West side of Yaupon Road to establish a connector to the future Ann Street Route
C. Existing Sidewalk connects to LRJ Park accross Carteret Avenuethe via raised crosswalk

8. Lennoxville to Carteret to Ricks connecting to Live Oak
a. Complete sidewalk on western side of Ricks Avenue terminating at Town Creek to connect Ricks to Live Oak along the south side of George Street to complete route corridor

b. 9. Ricks to Pineview to Beaufort East Road/Trails System
c. A. Install raised speed table with crosswalk to connect Ricks sidewalk to new
d. Pineview sidewalk linkage, persue a partnership with Beaufort East to fund this item

10. Front Street Corridor
A. Extend existing waterfront sidewalk from Live Oak to Eastern end of Front Street at public Boat Ramp just East of Curtis Perry Park
B. B. Connect new Front Street sidewalk to boardwalk leading to Curtis Perry Overlook

11. Ann Street Corridor
A. A. Extend sidewalk along Ann Street from eastern termination point, near Gordon Street, to Ocean Boulevard
B.
C. 12. Ocean Boulevard Corridor

A. Install new sidewalk along Ocean Boulevard to connect Front Street to Lenoxville Road
B. On the North side of Lenoxville Road at Ocean is the site for Beaufort East planned trail head, this trail when constructed will connect Lenoxville to Pineview
C. To connect across Lenoxville at Ocean to new Trailhead will require the installation of an accessible on-demand pedestrian assisted lighted crossing

13. Freedom Park to Front Street Corridor
A. Complete Sidewalk along Leonda to Lenoxville Road
B. B. Install new sidewalk along Eastern side of Leonda from Lenoxville to Front Street
C. Install Accessible on-demand assisted lighted crosswalk at Leonda/Lenoxville intersection

14. Hwy 101/70 Roundabout
a. Install sidewalk from roundabout to 1st Citizens Bank
b. Install sidewalk from Mulberry to Circle Drive
C. Install offset located On-demand accessible assisted lighted crossings on all roundabout feeder legs

15. North Live Oak Connector
a. Install sidewalk to Connect from 1st Citizens to Campen Road
b. Install sidewalk to bridge gap locations from Campen Road to Professional Drive

16. Campen to Carraway to West Beaufort Road to Nature Trail to Turner Street
A. Connect Carraway Road in front of schools across Hwy 101 to West Beaufort Road with the installation of an accessible on-demand pedestrian assisted lighted crossing, as a component of the roundabout project, to link via new sidewalk to West Beaufort Road
B. Install sidewalk along West Beaufort Road to connect Hwy 101 to proposed Nature trailhead and Turner Street

17. Trestle Area/Nature Trail

The above identified routes are proposed to complete a walking system across the whole of Beaufort, this effort is designed to allow formulation of a prioritized list that the Town of Beaufort can adopt as a plan to work towards completing over time. Prioritization of this list, is suggested to be based upon what might be accomplished in the short term with limited available funds, which routes pose the

most danger to the walking public, which routes are more important to mitigate based on likelyhood of most usage, which routes are most likely to receive grant funding, and to insure all areas within Beaufort are weighted equally.

Barrier Roads

Barrier Roads are defined as Roads too dangerous to cross without the aid of Accessible Pedestrian controlled Assisted Lighting or without the insulation of four-way mandated stoppage at intersections. "Barrier Roads" are roads where a number of factors come together to create an unsafe walking environment which denies communities from establishing connectivity. Attributes contributing to classification of a road as a "Barrier Road" are: heavy traffic loading, high rates of acceleration, high rates of speed, multi-lanes, or lack of traffic separation to allow a pedestrian to cross at a walking pace. While any of these factors might alone block safe pedestrian passage, but when combined represents an extremely dangerous walking environment that necessitates mitigation actions. So "Barrier Roads" remain the most challenging aspect that any planner attempting to create walkable communities which provide universal connectivity must address.. "Barrier Roads", by definition, block safe passage of Pedestrians and require those willing to attempt to cross to compromise standard "Risk Assesssment Analysis" to complete a crossing, a risk that should never be placed upon the walking public to consider. At "Barrier Roads" site selection of "Designated Crosswalks" is critical to protect the walking public, while limiting potential liability to the community. Mitigation of "Barrier Roads" dictates application of "Enhanced Rules" to establish crosswalks that not only connect across "Barrier Roads" but allow safe passage to all, including the disabled, as connectivity can only exists when actual accessibility is made available to all!

Beaufort identified "Barrier Roads" are:

* Live Oak Street - North of Ceder Street
* Ceder Street
* Lenoxville Road
* Turner Street
* Hwy 101

To transform Beaufort into a connected community will be challenging due to the separation of neighborhoods created by the identified "Barrier Roads", listed above,but connectivity across the whole of Beaufort can be achieved if proper aggressive enhanced mitigation is applied!

Beaufort NC Crosswalk Mitigation Prioritized Top 20 Identified Locations list:

1. Mitigate Crosswalk across Lenoxville Rd., at Carteret Ave.
2. Mitigate Crosswalks across LiveOak St. and Lennoxville Rd. / Mulberry St. Intersection.
3. Install Crosswalk accross Lennoxville Rd. at Leonda Ave.
4. Mitigate crosswalk across Live Oak St., West of Professional Drive.
5. Mitigate Intersection and Crosswalks at LiveOak St. and Piner Point Rd. / Food Lion.
6. Mitigate Intersection and Crosswalk at Campen Rd. and LiveOak St.
7. Mitigate Turner Street and Ann Street Intersection.
8. Mitigate 400 Front Street mid-lock crosswalk near Craven Street servicing Town Clock park.
9. Mitigate Crosswalk at Gordon Street Across Live Oak Street.
10. Mitigate crosswalk Across Front Street at Live-Oak Streett.
11. Mitigate Crosswalks at Turner Street and Ceder Street Intersection.
12. Mitigate Crosswalks at Live-Oak Street and Ceder Street Intersection.
13. Mitigate crosswalk accross Carteret Avenue near Fulford Street.
14. Mitigate Crosswalk at Middle Lane Across Turner Street.
15. Install crosswalk at Carteret Drive across Live Oak Street.
16. Install Crosswalk Near West Beaufort Road Across Hwy-101.
17. Install Crosswalk At George Street Across Live-Oak Street.
18. Install Crosswalk At Pineview Beaufort East Connector Road Across Ricks Avenue.
19. Install Crosswalk At Ocean Boulevard Across Lennoxville Road.
20. Install Crosswalk Across Lenoxville Road At Shurewater Avenue

This list, while comprehensive, can not be considered as a complete list of crosswalks requiring mitigation, either based on current walking requirements or those in the future, but does represent the most important identified sites requiring mitigation to support connectivity across the whole of Beaufort. Additional sites will be noted over time, as development continues to create new stress points, and the population of Beaufort grows to levels not envisioned in the recent past. To lean forward, to support the connectivity as proposed within the Beaufort Walking Route System, there are a number of supported crosswalk locations included within this prioritized list.

Blind Perspective Philosophy:

The Blind Perspective Philosophy is a product of, and the Governing Mandate for, the Beaufort Blind Project. Provision of actual accessibility for the Blind can only be achieved through strict adherence to the prescribe governing principals of the Blind Perspective Philosophy. Historicly, all applied accessible mitigation actions have been governed by a Sighted Perspective Philosophical approach, resulting in accessibility being granted, totally to the Sighted, partially to the Low-Vision with degradation defined by placement on a negative visual sliding scale, and all too often, totally denied to the Blind.

Accessibility as currently applied to the individual dissabled cohorts of Vision, Hearing, and Motor Deficient is weighted towards the Motor Deficient, as this disabled cohort is more relatable too by the Sighted decision makers, as relating to the Deaf, and to a much greater degree, the Blind becomes considerably more difficult as the visual feedback component is lacking to the Sighted; thus the ability to gain insightful knowledge to drive mitigation actions is compromised. To develop mitigation strategies to address accessability as a universal approach requires the inclusion of access to all individual disabled cohorts, but with additional empheses directed towards the cohort most challenged to make safe mobility risk assessment decisions. Considering the Blind live in a visual world with approximately two-thirds of sensory imput being lost, a case can be made that the Blind is the most challenged disabled cohort when making safe risk assessment decisions; thus the Blind Perspective Philosophy has been derived!

The “Blind Perspective Philosophy” is simply stated as - When any infrastructure is designed and constructed, any product is developed and produced, or any service is provided and delivered, then accessibility for the Blind is included from the start, as by insuring accessibility to the Blind will also provide accessibility to all visual acuities by default; Totally Blind to Fully Sighted.

Only through A completed transition from the historic applied incorrect “Sighted Perspective Philosophy”, governed by Perceived knowledge, to adherence to the newly defined “Blind Perspective Philosophy”, governed by actual learned knowledge directly from the Blind, will full accessibility for the Blind become possible!

40 Enhanced Rules Governing Accessible Crosswalk Design:

Version 5.0, Release Date 02/25/2023

1. Crosswalk design and construction shall adhere to the "Blind Perspective Philosophy".
2. Crosswalk design and construction shall adhere to the "Deaf Perspective Philosophy".
3. Crosswalk design and construction shall adhere to the "Motor Perspective Philosophy".
4. Crosswalk insulation shall adhere to the principles of Consistency and Predictability.
5. All Crosswalks shall adhere to Straight-line Design Principle.
6. Full travel of all crosswalks shall include standard crosswalk painted surface markings.
7. Full travel of all crosswalk sideline boundaries shall be marked as a raised Tactile surface.
8. Installed Tactile Plates shall provide "Directional Orientation/Mobility Aid" to the Blind.
9. All Crosswalks shall have Tactile plates installed at both opposing crosswalk ends .
10. Tactile Plates shall always be mounted 90 degrees perpendicular to crosswalk sidelines.
11. Sidewalk Tactile plate transition interface to road surface shall be level in height.
12. Sidewalks spanning commercial driveways shall adhere to all stated crosswalk rules.
13. TacTile markers shall identify Crosswalks adjacent to intersecting straight line sidewalks.
14. Surface mounted domes shall be installed at solid corner pads to guide blind pedestrians.
15. Surface mounted domes shall be installed to guide pedestrians to crosswalk offset locations.
16. Intersection Criss-cross Crosswalk Pattern Installation shall be prohibited.
17. Insulation of "Tactile Plates" on apex of a rounded 90 degree corner shall be prohibited.
18. Traffic calming measures shall be incorporated as a design component of all crosswalks.
19. Bump outs shall be installed to reduce length of crosswalk travel.
20. Lighted assisted Crosswalks shall be installed at all designated "Barrier Road" locations.6
21. Installation of mid-block crosswalks shall be considered only as a last resort option.
22. “Raised Speed Tables” shall be included as a component at all mid-block crosswalks.
23. Roundabout Crosswalks shall be installed at offset locations on all feeder road legs.
24. pedestrian controlled roadside lighting shall be installed at all offset roundabout crosswalks.
25. All Pedestrian Control boxes shall include ability to provide audible pedestrian prompts.
26. Lighted stick figure info boxes shall be installed at all PED controlled crosswalks.
27. Reaction Time Delay shall be a component of all Lighted Assisted Crosswalks.
28. Audible start horn shall be installed at all lighted assisted crosswalks.
29. Audible "Count Down Timers" shall be installed at all lighted assisted crosswalks.
30. Pedestrian control boxes shall be linkable to smart phone application.
31. Smart PED boxes shall be installed in lieu of audible chirpers at Assisted Lighted Crosswalks
32. Raised curb to crosswalk level transition will be ramped with no incorporation of steps.
33. All curb ramped level transitions will not exceed a 5 degree angle of height drop.
34. Mid-block approaches to all crosswalks shall include a painted vehicle white stop bar.
35. Stop signage at intersections shall be posted adjacent to stop bar markings.
36. Stopped vehicles shall be prohibited from blocking crosswalk pedestrian travel.
37. Open line of sight shall be maintained at all intersections.
38. “Right Turn on Red” law at lighted intersections must incorporate mitigation for the Blind.
39. White Cane Law shall be enforced at all crosswalks.
40. Blind walkers shall no longer be required to prove usage to be granted accessibility.

Blind Author: Peter Crumley

Enhanced Crosswalk Design - Standard Method Protocol - Rules and Justifications from a Blind Perspective:

Version 5.0, Released Date 02/25/2023

Table of Contents:

I. Justification for action:

Completing a road crossing represents one of the most challenging tasks that a disabled person must complete to remain independently mobil. Risk assessment by any disable person must occur prior to performing a road crossing, as their ability to react in real time to approaching vehicles, has been compromised in varying degrees, determined by the type and severity of personal disability. Since crosswalks have been designated as locations of expected safe passage across vehicle interfaces, and considering there exists a deadly mismatch between vehicles and pedestrians, inclusion of enhanced standard design criteria must be applied to supplement current insufficient operational design criteria, as defined by ADA mandates and applied by DOT officials, if safe crossings are to be achieved as expected. Continued acceptance of current directives as sufficient will only result in future pedestrian personal injuries and fatalities.

II. The Blind are the Most Challenged and the Least Accommodated: While Individuals residing within the Visual, Hearing and Motor disabled cohorts face their own unique specific challenges, but from a perceptional viewpoint that is based on a biased Blind Perspective analysis, and as any Blind individual will state without hesitation, making mobility decisions to proceed into a crosswalk challenges the Blind at a greater level, due to their extreme limitation of sensory input, than those who are Hearing or Motor disabled. We all live in a visual world, where the sense of sight accounts for approximately two thirds of sensory input for fully sighted individuals, thus the Blind face a complex expanded list of crosswalk safety challenges. Often there exist overlapping Blind mitigation requirements by those withthe Hearing or Motor disabilities, which must be accounted for to achieve safe passage across designated crosswalks. These overlapping mitigation requirements include non-visual, physical and audible obstructions, but there remains a far greater level of applied actions, that must occur to provide "Reasonable Accommodation" to the Blind. To achieve actual mitigation for all pedestrians, greater attention to detail must occur, along with an actual understanding of the specific challenges associated to the individual disabled cohorts, during the crosswalk design process, and be applied when updating established crosswalks, or when construction of new crosswalks occur; otherwise risks will not be properly mitigated sufficiently to provide safe passage. This applied greater attention to detail is absolutely critical to the Blind, due to their loss of visual sensory input, otherwise the Blind walker will continue to be forced to make the decision to proceed or wait at a crosswalk based only on a dangerous best guess analyses to assess associated risk.

III. Enhanced Rules - Bullet Format:

1. Crosswalk design and construction shall adhere to the "Blind Perspective Philosophy".
2. Crosswalk design and construction shall adhere to the "Deaf Perspective Philosophy".
3. Crosswalk design and construction shall adhere to the "Motor Perspective Philosophy".
4. Crosswalk insulation shall adhere to the principles of Consistency and Predictability.

5. All Crosswalks shall adhere to Straight-line Design Principle.
6. Full travel of all crosswalks shall include standard crosswalk painted surface markings.
7. Full travel of all crosswalk sideline boundaries shall be marked as a raised Tactile surface.
8. Installed Tactile Plates shall provide "Directional Orientation/Mobility Aid" to the Blind.
9. All Crosswalks shall have Tactile plates installed at both opposing crosswalk ends .
10. Tactile Plates shall always be mounted 90 degrees perpendicular to crosswalk sidelines.
11. Sidewalk Tactile plate transition interface to road surface shall be level in height.
12. Sidewalks spanning commercial driveways shall adhere to all stated crosswalk rules.
13. TacTile markers shall identify Crosswalks adjacent to intersecting straight line sidewalks.
14. Surface mounted domes shall be installed at solid corner pads to guide blind pedestrians.
15. Surface mounted domes shall be installed to guide pedestrians to crosswalk offset locations.
16. Intersection Criss-cross Crosswalk Pattern Installation shall be prohibited.
17. Insulation of "Tactile Plates" on apex of a rounded 90 degree corner shall be prohibited.
18. Traffic calming measures shall be incorporated as a design component of all crosswalks.
19. Bump outs shall be installed to reduce length of crosswalk travel.
20. Lighted assisted Crosswalks shall be installed at all designated "Barrier Road" locations.
21. Installation of mid-block crosswalks shall be considered only as a last resort option.
22. “Raised Speed Tables” shall be included as a component at all mid-block crosswalks.
23. Roundabout Crosswalks shall be installed at offset locations on all feeder road legs.
24. pedestrian controlled roadside lighting shall be installed at all offset roundabout crosswalks.
25. All Pedestrian Control boxes shall include ability to provide audible pedestrian prompts.
26. Lighted stick figure info boxes shall be installed at all PED controlled crosswalks.
27. Reaction Time Delay shall be a component of all Lighted Assisted Crosswalks.
28. Audible start horn shall be installed at all lighted assisted crosswalks.
29. Audible "Count Down Timers" shall be installed at all lighted assisted crosswalks.
30. Pedestrian control boxes shall be linkable to smart phone application.
31. Smart PED boxes shall be installed in lieu of audible chirpers at Assisted Lighted Crosswalks
32. Raised curb to crosswalk level transition will be ramped with no incorporation of steps.
33. All curb ramped level transitions will not exceed a 5 degree angle of height drop.
34. Mid-block approaches to all crosswalks shall include a painted vehicle white stop bar.
35. Stop signage at intersections shall be posted adjacent to stop bar markings.
36. Stopped vehicles shall be prohibited from blocking crosswalk pedestrian travel.
37. Open line of sight shall be maintained at all intersections.
38. “Right Turn on Red” law at lighted intersections must incorporate mitigation for the Blind.
39. White Cane Law shall be enforced at all crosswalks.
40. Blind walkers shall no longer be required to prove usage to be granted accessibility.

IV. Enhanced Rules - Bullets with Associated Defining Information:

Rule 1 - Crosswalk design and construction shall adhere to the "Blind Perspective Philosophy" - The "Blind Perspective" philosophy considers accessibility by the Blind first for: all infrastructural design and construction, all product design and production, and all services interactions and deliverables to insure full accessibility for the full spectrum of visual acuities; starting with total blindness progressing to fully sighted. Historically all crosswalk design and construction has adhered to the Sighted Perspective Philosophy that has yielded crosswalks only fully accessible to the sighted, while yielding only partial accessibility determined by severity of vision loss to the Low-Vision and often has resulted in total denial of accessibility to the Blind. Adopting the Blind Perspective Philosophy to guide the NC DOT and local municipalities in their future crosswalk design and construction shall provide accessibility to the Blind first, that by default will then provide full accessibility to all visual acuities.

Rule 2 - Crosswalk design and construction shall adhere to the "Deaf Perspective Philosophy" - The Deaf community must be engaged to aid in the development of a Deaf Perspective Philosophy to be applied to crosswalk design and construction. This effort will supply companion data to compliment Blind Perspective information contained within this document. Obviously the accessibility needs of the Deaf at crosswalks go beyond just providing visual stick figure box information to secure safe passage.

Rule 3 - Crosswalk design and construction shall adhere to the "Motor Perspective Philosophy" - The Motor disabled community must be engaged to aid in the development of a Motor Disabled Perspective Philosophy to be applied to crosswalk design and construction. This effort will

supply companion data to compliment Blind Perspective information contained within this document. Obviously the accessibility needs of the Motor disabled at crosswalks go beyond just providing ramps with a maximum of 5 degrees of dropheight.

Note: Application overlap between the Blind, Deaf and Motor disabled communities often exist; examples are: ramps for wheelchair bound individuals and for the Blind who are often unstable and prone to falls when forced to use stairs or required traffic stoppage by the Deaf due to being unable to identify all approaching vehicles by sight only is now no different for the Blind who must rely on sound only to accurately identify the presence of all approaching vehicles, as this audible identification task has become increasingly more difficult for the Blind due to the current transition from combustion to silent electric vehicles.

Rule 4 - Crosswalk insulation shall adhere to the principles of consistency and predictability - Adhering to enhanced rules, as provided within this document, for crosswalk design and construction will provide a network of sidewalks supported by crosswalks of standardized like design, resulting in consistent construction application, thus creating a walking environment where crosswalk usage is predictable upon approach. Installation of crosswalks adhering to consistent/predictable design principals are critical for the Blind walker to maintain orientation for determination of proper physical starting position/alignment to perform a safe crossing and to minimize the mental work load required to memorize all the unique properties of a system comprised of individual non-standardized crosswalks.

Rule 5 - All Crosswalks shall adhere to Straight-line Design Principle - The construction of all crosswalks in a straightline configuration is absolutely necessary for a blind walker to transgress a crosswalk safely, this straight line design provides the predictability required for a blind individual to make a crossing without the requirement of determining directional changes to minimize amount of time spent exposed to danger from distracted drivers. There exists protocols to design crosswalks that consist of 45 degree turns while progressing to the opposing crosswalk ramp to accommodate wheelchair users where the ramp space does not allow for straight line design; this application to address the needs of one disability over another shall never be a consideration as proper design and location of crosswalks will always provide a straight line configuration for use by all disabled individuals.

Rule 6 - Full travel of all crosswalks shall include standard crosswalk painted surface markings - All designated crosswalks, commercial driveways and oversized driveways (defined as driveways greater than 20 feet in width) shall include standardized painted crosswalk markings. This requirement will help mitigate additional challenges created through forced transgression of travel accross these long unprotected distances, while alerting drivers to the fact they are transgressing a defined crosswalk space where all crosswalk laws apply thus mandating the transfer of right of way to the walking public at these marked locations. Additionally these painted markings define locations where vehicles are prohibited from parking in a manner that blocks any portion of these designated marked crosswalks.

Rule 7 - Full travel of all crosswalk sideline boundaries spanning roads, commercial driveways and oversized driveways (defined as greater than twenty feet in width) shall be marked as a raised Tactile surface - To prevent a Blind walker from drifting right or left outside of a crosswalk sideline boundary, requires the inclusion of a raised TacTile surface defining the sideline crosswalk boundaries. This requirement is necessitated as often blind walkers are challenged to maintain straightline travel when transgressing a crosswalk, resulting in stepping outside of the crosswalk sideline boundaries as a slight error in direction over a sufficient distance will result in arriving at the opposing curb at an offset from the targeted sidewalk ramp/tactile plate location, or worse the misangled blind walker will wander sufficiently outside of the crosswalk sideline boundary, placing the blind walker facing approaching traffic in the adjacent parallel intersecting road. Crosswalk Tactile marked sideline boundaries will provide a raised surface that is detectable with a White Cane or by a trained blind walker capable of determining changes of surface height and texture under foot, thus prompting directional corrective actions.

Rule 8 - Installed Tactile Plates shall provide "Directional Orientation/Mobility Aid" to the Blind - Correct orientation and location of tactile plates are critical to achieve safe crossing by the blind walker. TacTile plates must be aligned in a manner that allows the blind walker to use the tactile plate leading edge as an directional alignment tool for facilitation of straight line travel across the full crosswalk length. The use of Tactile plates are specifically intended to identify sidewalk

interfaces to provide orientation/mobility prompts to the Blind walker. When Tactile plates are incorrectly located, then the Blind walker will be prompted to orientate and proceed in an improper direction, placing them unnecessarily in "Harms Way", that may result in a vehicle strike with fatal consequences.

Rule 9 - All Crosswalks shall have Tactile plates installed at both opposing crosswalk ends - Tactile plates shall be installed at both opposing ends of all crosswalk to provide straight line orientation, along with start and end point prompting, for blind walkers when approaching all crosswalks from both opposing directions.

Rule 10 - Tactile Plates shall always be mounted 90 degrees perpendicular to crosswalk sidelines - Installation of tacTile plates at a 90 degree perpendicular angle to the crosswalk parallel sidelines will form a elongated rectangular box when proper straight line crosswalk construction is adhered to thus providing a proper leading edge orientation alignment tool for the blind walker; this configuration will allow proper directional orientation alignment to direct the blind walker towards the opposing crosswalk defined tactile plate endpoint.

Rule 11 - Sidewalk Tactile plate interface to road surface shall be level in height - Installation of Tactile plates at sidewalk/road interfaces must be installed at the same height to prevent all walkers from tripping over a raised road edge, causing a fall in front of approaching traffic. To properly mitigate Tactile plate hight requires a slight ramping of the approaching sidewalk surface prior to the Tactile plate location to allow for installation of the Tactile plate at a level flat angle adjacent to road surface. To maintain proper installed Tactile plate height will require additional action post road surfacing repavement projects.

Rule 12 - Sidewalks spanning commercial driveways shall adhere to all stated crosswalk rules - Commercial driveways create an unrecognized challenge to the Blind walker that are similar to recognized challenges that must be negotiated at designated street crosswalks. comparisons are drawn between standard street crossings and commercial driveway crossings, as both pose risk of the loss of straightline travel and misorientation, thus positioning the Blind walker in "Harms Way". Additionally, the greater crossing distance of commercial driveways along with the fact that commercial driveways service associated businesses where greater traffic transgression occurs across the full travel length of the crosswalk dictates like mitigation actions be applied to mirror those implemented at crosswalks spanning road surfaces. In comparison to standard residential driveways. The installation of tactile plates to mark the sidewalk/commercial driveway crossing interfaces are necessary for the blind walker to be alerted to apply extra caution at these locations, as a greater likelihood of passing vehicles exist and to alert the Blind walker to expect a longer length of travel to complete the crossing, thus requiring a higher level of focus by the Blind walker to maintain straight line orientation. To complete the mitigation package, sidewalks spaning commercial driveway entrances/exits must be marked with standard painted striping and raised tactile sideline boundaries.

Rule 13 - TacTile markers shall identify Crosswalks adjacent to intersecting straight line sidewalks - When crosswalks are installed away from standard street intersecting crosswalk locations, such as a midblock crosswalk, then a crosswalk will be created that is perpendicular in direction to continuation of the adjacent straight line sidewalk; thus requiring a tactile marking of the straight line sidewalk at the location of the intersecting perpendicular crosswalk to alert the blind walker of the presence of available intersecting crosswalk. This configuration of marking the straightline sidewalk with a tactile plate will also be required at “T” intersections as the crosswalk will start as a extension of the strait line sidewalk and terminate as a perpendicular crosswalk at the opposing end, creating the "T" configuration. The necessity to mark the straight line sidewalk where perpendicular sidewalks intersect is that the Blind will continue to walk straight, continuing past the perpendicularly installed sidewalk, as without provision of Tactile feedback the ability to identify the existance of intersecting "T" configured sidewalks at these unpredictable locations will not be possible.

Rule 14 - Surface mounted domes shall be installed at solid corner pads to guide blind pedestrians - At intersections that lack tactile surface clues, such as solid sloped concrete cornor pads or where BumpOuts are present, to aid the blind walker in determining tactile crosswalk plate location, or as a means to guide around permanently located obstructions, surface mounted tactile markings shall be installed to lead the blind walker to crosswalk tactile plates, or in a manner to avoid unexpected obstructions.

Rule 15 - Surface mounted domes shall be installed to guide pedestrians to crosswalk offset locations - Since an expectation exists that extensions of straight line sidewalk travel will exist passed the recessed intersecting point of perpendicular sidewalks, leading to the crosswalk location straight ahead, without any required directional change, creates a loss of orientation at locations where the crosswalk is forced to be located offset away from the intersection. The installation of a crosswalk at an Offset location, will be dictated to occur, due to the presence of non-movable infrastructural obstructions, at these locations the installation of tactile surface mounted domes to properly guide the blind walker to the offset crosswalk tactile plate location shall be provided.

Rule 16 - Intersection Criss-cross Crosswalk Pattern Installation shall be prohibited - Crisscross pattern configured crosswalk installation shall be totally prohibited as this design requires the walker, totally Blind to fully Sighted, to walk across the center of an intersection preventing any ability to request or expect traffic stoppage, that is possible when the crosswalk only spans a single leg of the intersection. There exists no logical risk assessment that would approve of exposing a walker to traffic flow from all four directions of an intersection at the same time, which is exactly the result when crisscross pattern crosswalks are installed.

Rule 17 - Insulation of "Tactile Plates" on apex of a rounded 90 degree corner shall be prohibited - Often a single tactile plate, at an intersecting road location where the curb corner has been rounded off and a solid sloping concrete pad exists, will be installed at the 90 degree apex of the intersection. This very dangerous tactile plate placement continues to occur as traffic engineers view this type of tactile plate configuration as a tool to alert drivers of having trespassed upon the designated pedestrian curb surface, thus resulting in severe vehicle vibration to prompt a correction from the offending driver. When the installation of a single tactile plate is improperly located at the apex of a 90 degree corner, as directed by this dangerous mistaken vehicle only philosophical approach,a mitigation of this action whenever applied must occur, to prevent the blind walker from performing a very dangerous unexpected crisscross crossing pattern, across the center of the intersection, outside of the designated crosswalk path. By properly installing two tactile plates, aligned to the two perpendicularly opposing crosswalks at a sloped concrete corner pad location, in lieu of improperly installing a single tactile plate at the apex of the rounded off 90 degree intersection will provide both a proper alignment/orientation tool for the Blind walker and continue to act as an improved alerting prompt to drivers when curb hopping occurs, if DOT is concerned about alerting drivers that they have moved onto the sidewalk then after locating the two Tactile plates correctly on the straight sides at a solid curb sloped cornor, surface mounted domes could be installed at the apex of the curved 90 degree cornor to serve as warning prompts to drivers without compromising intended Tactile plate design orientation functionality for the Blind. All involved in street scape infrastructural design must understand that tactile plates are orientational tools for the Blind and forever discard the insane belief that placement of tactile plates are to aid drivers in lieu of actual usage to properly orientate blind walkers to complete crossings in a straight line that does not direct the blind, or any other walker, to make diagonal crossings across the center of intersecting roads at an intersection.

Rule 18 - Traffic calming measures shall be incorporated as a design component of all crosswalks - To provide safe passage at all crosswalks requires controlled approach by the driving public that is unfortunately not universally achievable without aggressive incorporation of traffic calming measures; thus making the inclusion of traffic calming devices the most critical safety components of any crosswalk design. The types of traffic calming measures to be deployed is dependent on scalable factors, including traffic speed and acceleration rates upon approach to crosswalks, determinations for applied level of traffic calming measures will be governed by road conditions on an individual bases. Traffic calming measures application may be as simple as posted signage but to insure safe crosswalk passage of pedestrians will require inclusion of more aggressive actions, with the insulation of rumble strips, speed bumps, bump out narrowing and/or raised speed table technology. These identified measures are just some of the available tools that must be considered to manage vehicle approach speed and acceleration rates, especially at midBlock crosswalk locations. Deployment of traffic calming measures provide 24/7 benefits, as drivers are forced to slow down upon approach to avoid potential damage to their vehicle thus creating a passive constant level of enforcement when police are not present.

Rule 19 - Bump outs shall be installed to reduce length of crosswalk travel - - Bump outs provide traffic calming resulting in greater safety to pedestrians and shall be installed at crosswalks that span roads incorporating roadside parking to prevent encroachment from parked cars, provide greater visibility of pedestrians by approaching drivers, and reduce length of crosswalk travel. Installing bump outs will yield multiple safety improvements, as shorter lengths of crosswalk travel equates into reduce risk of left/right drift outside of crosswalk sideline boundaries by the blind walker. An additional obtainable result through is a narrowing of road width which will force traffic to slow down at these locations making extended bumpouts a useful traffic calming tool at mid-block crosswalk locations and function as part of the total mitigation package.

Rule 20 - Lighted assisted Crosswalks shall be installed at all designated "Barrier Road" locations - A "Barrier Road" is defined as any road too dangerous to cross without the aid of pedestrian controlled assisted lighting, to request stoppage of traffic flow, regardless of visual acuity. Elevated traffic loading, speed and acceleration rates are the factors, collectively or individually, which govern the classification process for labeling a road as a “Barrier Road”. These defining factors require a greater degree of traffic calming management at designated Barrier Road Crosswalks than is possible to achieved through incorporation of passive traffic calming measures only; thus requiring the insulation of additional active traffic calming measures to achieve safe passage. Designated crosswalks spanning identified “Barrier Roads" shall incorporate pedestrian controlled assisted lighting as a design component, either in the form of pedestrian controlled center mounted overhead assisted lighting or roadside pole mounted assisted lighting at all mid-block crosswalks and at current intersections lacking center overhead assisted lighting. To achieve an acceptable level of risk at all “Barrier Road” crosswalks, the insulation of full feature accessible Pedestrian Controlled assisted lighting is absolutely required to establish a safe crossing environment. While labelling a road as a Barrier Road may appear to be a complicated subjective task, in reality any road that has loading rates that do not allow for long pauses of traffic flow that prevents crossing at normal walking speed, any road where speed differentials are not managed through assignment of speed transition zones to lower acceleration rates, at crosswalks spanning more than two traffic lanes or roads incorporating Round Abouts; note these are suggested guidelines as this will remain an evolving definition.

Rule 21 - Installation of mid-block crosswalks shall be considered only as a last resort - Insulation of midblock crosswalks always have additional risks attached as drivers are not normally expecting to be requested to yield right of way at crosswalks not directly located immediately adjacent to established intersections. Attention of driver focus governing reaction to changing conditions often incorporates a level of reinforced expectations, thus supporting this rule of designating the insulation of mid-block crosswalks as a last resort option! All mid-block crosswalk locations require insulation of associated aggressive traffic calming measures to achieve some level of perceived safe passage, otherwise a majority of drivers will approach any unprotected midblock crosswalk location at an uncontrollable accelerating rate of speed, thus greatly increasing the likelyhood of a vehicle strike. To minimize risk, allowance of midblock crosswalks shall only occur at locations where the insulation is dictated by high volumes of pedestrian foot -traffic that will cross away from intersection associated crosswalks due to improper planned infrastructure alignment. Considering the additional risks, only stresses the necessity of a commitment to provide a full mitigation package at all designated mid-blockcrosswalk locations, otherwise an open liability issue will exist.

Rule 22 -“Raised Speed Tables” shall be included as a component at all mid-block crosswalks - Due to the fact that all midblock located crosswalks create significantly greater risk to pedestrians, requires inclusion of aggressive traffic calming measures in the form of raised speed tables. Speed tables incorporate a center raised flat surface to locate marked crosswalk, with a slanted angle of height transition upon approach and exit, which can be angled to provide a very uncomfortable bounce when a vehicle crosses at a speed that is above determined safe approaching/crossing speed.

Rule 23 - Roundabout Crosswalks shall be installed at offset locations on all feeder road legs - At all RoundAbout locations special emphasis must be placed on safety for the walking public in consideration of crosswalk design, this additional attention to safety must not be overlooked by transportation engineers as unlike lighted or stop signed controlled intersections, RoundAbout traffic flow is never requested to stop but only requested to yield to approaching traffic within the RoundAbout; thus forcing the walking public to delay stepping into the adjacent crosswalks

of individual roundabout feeder road legs till all traffic has exited the RoundAbout and approaching traffic to entrance of desired pedestrian crossing is absent. Traffic upon entering a RoundAbout will carry a sustained elevated rate of speed when not forced to yield to on coming traffic within the RoundAbout and at points of exit will begin acceleration prior to exiting the RoundAbout; with focus primarily upon negotiating the exit, in lieu of properly being fixated upon the potential presence of walkers desiring to cross at crosswalk locations immediately adjacent to entrance/exit feeder road legs of the RoundAbout. Considering that the pedestrian has no control over vehicle traffic at RoundAbout locations requires traffic engineers to thake a new approach for improvement of pedestrian safety at these locations by locating crosswalks servicing all individual feeder road legs of the RoundAbout at a sufficient distance away from the entrance/exit points of the RoundAbout to allow drivers to focus on the presence of pedestrians first and the RoundAbout second, this is an inverse to current policy with focus on the RoundAbout first; thus removing the ability for a driver to react to the presence of pedestrians in the designated crosswalk to avoid a deadly strike. . Once the crosswalks servicing RoundAbouts have been properly located sufficiently away from the entrance/exit points on individual feeder road legs of the RoundAbout then additional safety measures for the pedestrian becomes possible in the form of pedestrian controlled on demand requested roadside assisted pole mounted lighting to request traffic stoppage; thus allowing pedestrians to cross in a safer manner that is just not possible when crosswalks are located immediately adjacent to the entrance/exit points of a RoundAbout.

Rule 24 - pedestrian controlled roadside lighting shall be installed at all offset roundabout crosswalks - proper crosswalk design will locate crosswalks spanning feeder roads of roundabouts at a standard determined safe distance from roundabout entrance/exit points. Roundabouts, are normally located at sites of high density traffic servicing multi road connectivity, which are components of Barrier Roads; thus to facilitate safe passage requires the inclusion of on-demand Pedestrian controlled assisted roadside pole mounted lighting, for request of traffic stoppage.

Rule 25 - All Pedestrian Control boxes shall include ability to provide audible pedestrian prompts - At all lighted assisted crossings, fully accessible pedestrian control boxes shall be installed to allow request of light cycling to facilitate safe crossing with interface connection to both audible and visual prompting aids. Note there exists a wide variation in capabilities between available pedestrian control box models, only models with a full array of audible provided orientation and location information capabilities shall be considered to service the full needs of the whole public, providing independent access to the Blind and Low-Vision walker. A quality pedestrian control box, requiring physical interaction, will incorporate cardinal direction, street name, street orientation information, and audible start/countdown horns; all current PED boxes lacking this functionality shall be scheduled for replacement and continued insulation of substandard PED boxes shall be prohibited.

Rule 26 - Lighted stick figure info boxes shall be installed at all PED box controlled crosswalks - Classical visual information pole mounted boxes will be installed at all lighted assisted crossings to provide visual prompting to the Deaf and for those with useable sight. These shall include stick figure Go/wait and visible count down timer information.

Rule 27 - Reaction Time Delay shall be an incorporated component at all lighted assisted crossings - Reaction time delay is necessary for incorporation as a component at all lighted assisted crossingds to delay prompting of start cycle for pedestrians to help prevent vehicle strikes by drivers attempting to beat the change of light cycle from caution to required stoppage.

Rule 28 - Audible start horn shall be installed at all lighted assisted crosswalks - Incorporating an audible start signal is absolutely required by the blind walker to determine when to start their crossing at assisted lighted crosswalks, otherwise the decision to cross or wait equates into a calculated risk assessment.

Rule 29 - Audible count down timers shall be installed at all assisted lighted crosswalks - The inclusion of an audible count down timer is absolutely required for the Blind to achieve safe passage across assisted lighted crosswalks. The presence of an audible count down prompt allows the Blind walker to gauge the amount of time remaining to complete their crossing prior to change of light cycle. Audible countdown timer prompts shall be capable of being heard

across the full length of crosswalk travel and shall be included at all assisted lighted crosswalks without exception.

Rule 30 - Pedestrian control boxes shall be linkable to smart phone application - As new technologies and applications are developed and adopted by DOT, the current designs of PED boxes, requiring direct physical interaction as the only option, are destined to become old school technology once smart phone connectivity capable PED boxes become available. Next generation pedestrian control boxes will provide the option to control light/crosswalk cycling, provide audible information and prompts; thus facilitating the crossing process, via smart phone application through cellular or bluetooth connectivity. Once smart phone control is provided then audible information will be hearable above the traffic noise, for those blind walkers using open ear jaw bone conductive or frame headsets, as the ability to hear audible prompts as the blind walker moves away in distance from the standard PED box configuration will finally be easily achievable. Replacement of classical ped boxes requiring physical interaction with those capable of smart phone connectivity will negate the blind walker from first being forced to determine the presence of a PED box, then physically locate the PED box, then manually press the activation button and then attempt to follow audible prompting that is loss to traffic noise; making the walking experience by the Blind safer and less challenging.

Rule 31 - Smart PED boxes shall be installed in lieu of chirpers at Assisted Lighted Crosswalks - Audible chirpers have historically been used as an audible locator for the Blind to determine the location of available ped box at lighted assisted crossings, this constant chirp is considered by a majority, including many within the blind community, as an audible nuisance resulting in public push back requests to uninstall. Obviously the intended purpose of installed chirpers is to provide orientation to the Blind walker for guidance to PED box locations; unfortunately the result is the creation of a much undesired source of constant noise. An interesting fact is that many Blind walkers find the presence of constant sounding locating chirpers to be disorientating when located at all four corners of an intersection, and the level of disorientation is magnified when the sound from chirpers located at adjacent intersections overlap. Mitigation of this source of noise pollution may be accomplished through the transitioning away from employment of constant sounding chirpers to deployment of smart PED boxes, capable of assisting the Blind through less intrusive alternate methods. Insulation of motion activated PED box chirpers, capable of sensing the presence of an approaching pedestrian, that silences upon activation would provide a more targeted approach, reduce noise and accomplish the intended goal of aiding the Blind. Once PED boxes become controllable via smart phone connectivity, providing hands free PED box activation, then the required installation of audible chirpers will be negated. So an opportunity now exists to rethink how chirpers are to be deployed or if they are even necessary in the future. So options in the form of consistent positioning of PED boxes, replacing constant sounding chirpers with chirpers activated through motion detection, activated via smart phone connectivity, guidance assistance via surface mounted tactile domes are alternatives for consideration. Bottomline, there are more acceptable alternatives available then the use of constant sounding chirpers as the only means to guide the Blind to PED box locations.

Rule 32 - Raised curb to crosswalk level transition will be ramped with no incorporation of steps - When height transitions are required from sidewalk surface to crosswalk surface the inclusion of a ramped surface to bridge the height differential shall be required to achieve accessibility for both the Blind and wheelchaired bound motor deficient user. Height differentials must be mitigated through ramped transitions that by definition removes the use of steps as a component for inclusion in crosswalk construction; thus crosswalk designs incorporating steps, as the only option for height differential mitigation to provide connectivity access shall be prohibited. When only steps are included to transgress height differentials, then wheelchair bound motor deficient individuals will be denied access and the Blind will be forced to carefully negotiate associated steps with aid of their White Cane that requires a focused accuracy to avoid falls that limits accessibility by creating an unnecessary challenge to the safety of the blind walker. There are mitigation strategies often available to the designer which are not utilized, such as incorporating ramp slope into a traffic calming bump out, or by narrowing of a wide sidewalk to allow parallel ramp construction, or if a parking lane is available then necessary ramp construction space can be reclaimed to construct a ramp parrallel to existing sidewalk.

Rule 33 - All curb ramped level transitions will not exceed a 5 degree angle of height drop - Transition of curb to crosswalk heights are scheduled to not exceed a five degree angle of height drop as this is the basic ADA standard to provide controllable drop angle for wheelchair bound

motor deficient individuals, while providing a comfortable and safe walking angle for the Blind specifically and for all other users generally.

Rule 34 - Midblock approaches to all crosswalks shall include a painted vehicle white stop bar - Painting white stop bars on the road surface prior to all crosswalk location will define the required stopping locations for vehicles prior to the crosswalk. Painted stop bars, located as prescribed, will provide an additional tool to prevent vehicle creep into crosswalk space, that all too often results in blockage of safe passage for pedestrians; or in the case of a White Cane blind walker, will deny legal right of open passage at designated crosswalks.

Rule 35 - Stop signage at intersections shall be posted adjacent to stop bar markings - Classic intersection crosswalk design often places the crosswalk prior to location of stop signage, at these locations the driving public will wait to stop until the front of their vehicle is lined up to the posted stop signage, when this action occurs the vehicle will be blocking the associated crosswalk; thus preventing unimpeded pedestrian crosswalk passage. Bylocating posted stop signage adjacent to painted road surface stop bar prior to crosswalk will prevent vehicle creep that is encouraged when stop signage is posted between intersection and associated crosswalk.

Rule 36 - Stopped vehicles shall be prohibited from blocking crosswalk pedestrian travel - Crosswalks, located across road surfaces or spanning driveway Exits/Entrances, must not be blocked by stopped vehicles either as a parked vehicle or as a vehicle awaiting to make a turn at an intersection or awaiting for traffic to clear ahead to proceed or awaiting for cycling of traffic lights prior to proceeding through the intersection. Crosswalks must not be blocked, as clear travel is required by all pedestrians, regardless of any physical disabled status. The Blind hold an expectation that when traffic flow has stopped, then the crosswalk travel will be clear of all vehicles, thus allowing the Blind walker to cross unimpeded. Facilitation for adherence to this rule is possible through the installation of stop bars and notification to educate drivers of proper usage.

Rule 37 - Open line of sight shall be maintained at all intersections - To maintain the ability for drivers to properly scan perpendicular intersecting roads for presence of approaching vehicles and associated crosswalks for the presence of pedestrians is a critical prescribed design safety component at all intersections. Adherence to this rule will provide increased response time and better decision making by both drivers and pedestrians; so at intersections a minimal distance of 30 feet from the adjacent intersecting road, shall remain open to provide unimpeded line of sight. While some parking spaces will be lost directly adjacent to intersections there can not exist policies that prioritizes maximizing the number of parking spaces over safe design.

Rule 38 - “Right Turn on Red” law at lighted intersections must incorporate mitigation for the ?Blind - At lighted controlled intersections, in many states, traffic is allowed to make a right turn on red as long as they stop first, yield to approaching traffic, and at least in theory yield to pedestrians; the reality unfortunately to the walking public is proper focus does not occur for proper determination of pedestrians being present in the crosswalk on the perpendicular crossing to the right to which these drivers are turning accross. The challenge obviously to blind walkers is magnified as there is no means to visually judge what drivers are preparing to do under these circumstances. At lighted crossings the right turn on red potential for a pedestrian strike is enhanced due to heavier traffic loads creating elevated levels of driver distraction. At pedestrian controlled assisted lighted intersections, when a pedestrian requests a cycling of lights to obtain traffic stoppage additional measures must be incorporated into the intersection design for mitigation of potential pedestrian strikes by incorporating the illumination of signage at driver level stating “No Turn on Red” when a pedestrian has requested a traffic stoppage to make a controlled crosswalk crossing. Obviously there might be other identifiable means to mitigate the “Right Turn on Red” dangers to the walking public that when incorporated could provide a greater level of safety to the Blind. There is an obvious simple solution to mitigate this dangerous illogical law in the form of implementing a policy that denies right on red at all lighted assisted intersections!

Rule 39 - White Cane Law shall be enforced at all crosswalks - The NC White Cane law is available to provide protection to the Blind walker when within a crosswalk. The law requires stoppage of traffic in both directions when a Blind walker extends a White Cane into the crosswalk or when a guidedog has extended their nose into the crosswalk, then traffic must remained stopped in both directions untill the blind walker has fully completed the crossing. The

White Cane Law is a safety tool for the Blind and both an educational and enforcement tool for the Police. Recent action by the NC Legislature will clearly clasify violation of the NC White Cane Law as a Class 2 misdemeanor, thus removing any misconception of the White Cane Law being classified as a Felony violation, as many previously have believed. The circulation of attached penalty misinformation has contributed towards the hesitation by Police officers to enforce the law; thus the NC White Cane law remains unknown to most drivers and to the Blind remains an unused safety tool. Strategy for implementation of the law will best occur through local police departments partnering with organizations supporting the Blind to establish an aggressive targeted educational program to educate the driving public of the requirements attached to the NC White Cane law and then enforce the law through citation upon repeat offenders.

Rule 40 - Blind walkers shall no longer be required to prove usage to be granted accessibility - Historically the Blind have been denied reasonable accommodation concerning access to audible prompting at assisted lighted crosswalks. This unintended result has occurred due to the requesting process required of the Blind to document usage prior to accessible audible prompting PED box installation. This process has categorized the Blind as a special action group, as the Sighted are not required to prove usage prior to installation of assisted lighting, nor are the Deaf required to justify the installation of stick figure information visual boxes! This process requiring the Blind to prove usage prior to being granted accessibility must be discarded. The solution is easily obtained through installation of fully accessible smart PED boxes capable of providing audible prompting as a baseline standard component at all assisted lighted crosswalk locations.

V. Analysis to Achieve a More Universal Design: Obviously, there are specific needs associated to each of the three major disabled cohorts, defined as Visual, Hearing and Motor. There also exists much cohort overlap in applied mitigation actions to achieve crosswalk accessibility for all individuals, regardless of personal disability. Engagement of knowledgable independently mobil individuals of these three major disabled cohorts, will allow for development of a more inclusive single universal set of enhanced Standard Method Crosswalk Protocols to best guide design and construction of future crosswalks.

VI. A New Philosophical Approach to ADA Standards: all DOT Officials, CityTown Managers, Professional Planners and Professional Engineers must forever move beyond viewing ADA requirements and design standards as an all inclusive defining ceiling and begin to understand that these mandates actually represent the floor from which to begin their design and construction processes. The goal must be to take current accessibility standards and guidelines for use as a starting point to build a new robust set of enhanced crosswalk accessibility standards through inclusion of rules prescribed within this document. Achievement of actual crosswalk accessibility for all disabled individuals is not possible until a philosophical shift that mandates a replacement of current applied insufficient design standards derived from perceived knowledge of accessibility mitigation with an enhanced set of design standards derived from actual obtained knowledge from the Blind, Deaf and Motor disabled communities occurs; otherwise continuation of denial of reasonable accommodation to disabled individuals will continue to result!

VII. Final Thoughts:

To provide a safer walking environment for all, with specific emphasis directed towards mitigating the unique challenges adherent to blind pedestrians, requires crosswalks be designed and constructed incorporating enhanced standards, as prescribed within Rules of this document. To achieve the much desired result of creating more accessible, walkable and connectedcommunities for all, will require a change in applied design governing philosophies for infrastructural construction. So adoption of Enhanced criteria to redefine Standard Methods for Crosswalk Design is essential to achieve an acceptable level of risk assessed determined safe crosswalk passage for all pedestrians. Applying this new philosophical approach will result in significant cost savings over time, as unnecessary future cost expenditures to mitigate avoidable design flaws will be prevented!

VIII. Document Governing Noteations:

The intention of the Blind Author is to maintain this document as a living document to be updated when applicable. Please provide comments to the Blind Author for consideration for inclusion in the next updated released version.

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