UNRBA PFC Meeting
May 6, 2025
9:30 AM to Noon

Butner Town Hall with Remote Option

(see agenda for remote access instructions)

Agenda

- Opening comments, agenda review/revisions
- Status and timeline for Falls rules readoption
- Four falls lake preliminary draft rule sections
- Next steps and how to share feedback
- Closing comments

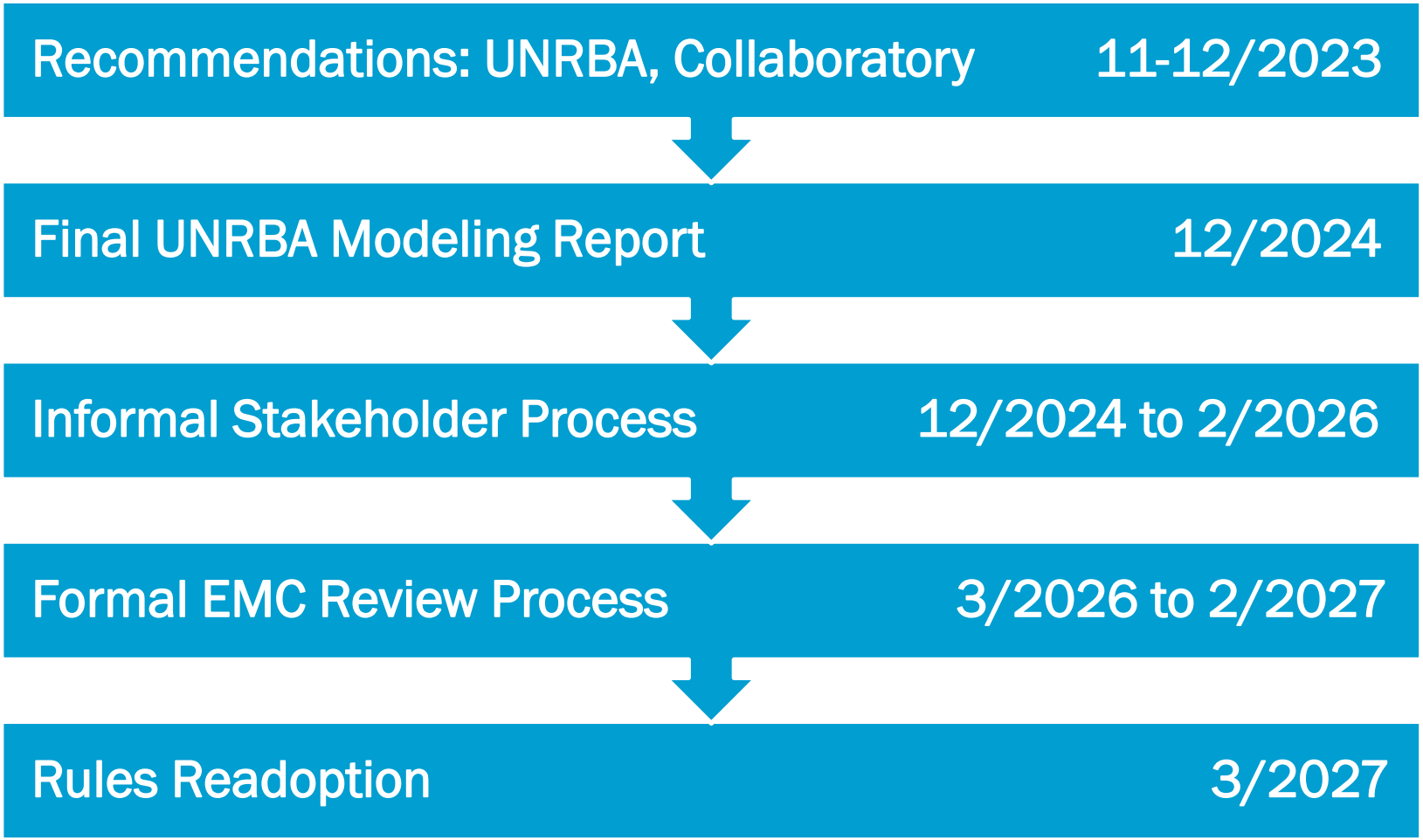
Our goal for today is to provide a high-level overview of the workgroup discussions and preliminary draft rules. Because there are four rule sections to review today, we will not have time for detailed discussion.

At the end of the meeting, we provide instructions on how to provide feedback. We will also poll the group on the need for additional meetings and interested participants for further discussion.

Opening Comments, Agenda Review/Revisions

Status and Timeline for Falls Rules Readoption

Rules Readoption Schedule



UNRBA: Upper Neuse River Basin Association
EMC: Environmental Management Commission

Rule Development Process

Draft-Draft-Draft

Four Workgroups

- 12/24 to 4/25
  - 18 workgroup meetings
  - 2 workshops
- Discussed concepts and challenges
- Developed initial drafts

Draft-Draft

PFC, Board, and Expanded Stakeholders

- 5/2025 to 2/2026
- Review initial drafts
- Compile input
- Collect fiscal data
- Refine drafts for recommendation (UNRBA Board approval; DWR may have their own recommendations)

Draft → Final → Rules

Formal Process

- 3/2026 to 2/2027
- Present to WQC
- Present to EMC
- Public comment period
- Public hearings
- Rules to RRC with fiscal analysis

EMC: Environmental Management Commission
WQC: EMC Water Quality Committee
RRC: Rules Review Commission

Links to Reference Documents

- UNRBA Consensus Principles II to guide development of the revised Falls Lake Rules
  - Based on scientific conclusions resulting from a 10-year evaluation of Falls Lake and its watershed by the UNRBA, NC Collaboratory, and other organizations
  - Companion document: "Concepts and Principles for the UNRBA Recommendations for a Revised Falls Lake Nutrient Management Strategy"
    - History of Falls Reservoir and Falls Rules
    - Summary of key findings from modeling and monitoring
    - Recommendations for revised nutrient management strategy
- Additional information available online in the UNRBA Resource Library: https://unrba.org/resource-library.
- Falls Lake water quality evaluation conducted by Dr. Marty Lebo to support development of Falls specific assessment methodology
- UNRBA Lake Modeling Report (summarizes historic water quality monitoring data and use support information)
- Final Program Document: Stage I Existing Development Interim Alternative Implementation Approach (IAIA)

Preliminary Draft
Purpose and Scope Rule

High-Level Discussion Notes

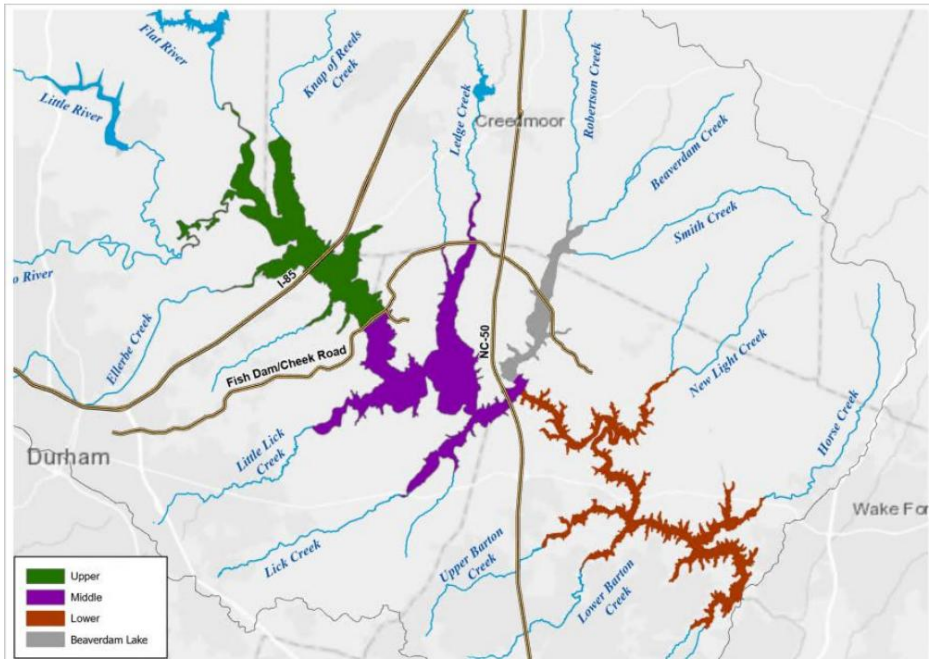
- Focus on watershed health and improvements in water quality
  - Coordinated by the Falls Lake Watershed Association
  - Including an investment-based compliance approach
- Continue implementation as a 4B compliance program (alternative to a Total Maximum Daily Load)
- Continue aspects of 2011 rules until rules are readopted and programs are approved by the Commission
- Establish a scientifically valid, stable assessment methodology evaluating three lake segments; working with Dr. Marty Lebo and Dr. Nathan Hall who are on Purpose and Scope workgroup
- Expand evaluation of water quality and trophic status beyond chlorophyll-a
- Ensure adequate monitoring in the reservoir and largest tributaries to assess trends and support adaptive management
- Address nutrient management for other water supply impoundments in the watershed

Details Follow

Water Quality Assessment Units and Stations

- Three lake units
  (*based on Dr. Marty Lebo's evaluation*)
- All stations within a unit combined
  (*not station-by-station assessment, based on High Rock Lake Scientific Advisory Council (SAC)*)
- At least nine samples per unit per 5-yr assessment period
  (*based on current assessment methodology*)
- Only using stations with depth at least 6 feet at normal pool (*based on High Rock Lake SAC*)
- Using data collected with the photic zone (*two times the Secchi depth)*

NOTE: currently ~30 stations sampled monthly, or 1,800 samples per parameter per 5-yr assessment period



Minimum Monitoring to Support Implementation

- At least six stations in Falls Reservoir
  - Two stations per lake unit with one at the downstream end
  - Monthly sampling
- Mouths of Flat River, Eno River, Little River, Ellerbe Creek and Knap of Reeds Creek (largest tributaries to Falls Lake)
- DWR shall accept data from other organizations operating under a Monitoring Quality Assurance Project Plan or data provided by NPDES permit holders
- Work with local jurisdictions and the Falls Lake Watershed Association to determine when increased monitoring is warranted (changing conditions, etc.)
- Division shall develop and Commission shall approve methodology to address outliers (within six months of readoption)

Evaluations and Reporting

- Trends in nutrient loading and flow-weighted nutrient loading
- Chlorophyll-a, dissolved oxygen, pH
  - Annual data distributions over the historic record
  - Evaluation of stability (*Dr. Lebo developing metric*)
  - Comparison to water quality standards – see next slide
- Use support information (bench marked here)
  - DEQ: biovolume and algal group data collected at one station from each lake unit
  - City of Raleigh Water Utilities: quality and changes to the quality and treatability of Falls as a raw water supply
  - NC Wildlife Resources Commission: reservoir fishery and other wildlife impacts
  - Other information on aquatic life and recreation: US Army Corps of Engineers, NC State Parks, local government parks and recreational departments, and representatives of sport-fishing clubs

Comparison to Water Quality Standards

- **Not attaining:** greater than ten percent of samples with greater than or equal to ninety percent confidence exceed the water quality standard
  (*based on current methodology without the 4-sample trigger because Falls is extensively monitored and should not be penalized for that)*
- **Subsequently determined attaining:** less than ten percent exceedance of the water quality standard and greater than forty percent statistical confidence that there is less than ten percent exceedance of the standard
  (*based on current methodology without the 3-sample trigger for remaining "not meeting the standard"; also removes option if greater than 10% exceedance but less than 90% confidence)*

NOTE: this proposal consistently results in both lake units upstream of Highway not meeting the chlorophyll-a standard

Outstanding Discussion Items

- Will DWR be able to commit to monitoring a minimum of six reservoir stations and five tributary stations monthly?
  - UNRBA members feel they should not be burdened with extensive monitoring programs
- Additional discussion with DWR is needed on the proposed Falls assessment methodology
- DWR is refining the list of reporting elements

Preliminary Draft Existing Managed Lands Rule

High-Level Discussion Notes

- Combine requirements into one rule for
  - Existing development (local governments)
  - Agriculture
  - State/federal entities
- Focus on watershed health
- Provide three compliance options for local governments and non-DOT state/federal entities (based on Jordan Lake draft)
- Exclude DOT from these Rules (refers to permit)
- Remove load reduction requirements for agriculture
- DWR does not plan to update the model program or require updates to inventories developed after the 2011 rules passed

Details Follow

Three Compliance Options
Local Governments and non-DOT State/Federal Entities

- Individual, conventional load reductions
  - Total nitrogen 20%, total phosphorus 40%
  - Relative to 2006 loading levels
- Group, investment-based
  - Specifies minimum investment of $1.5 million per year
  - References program document for specifics (see current IAIA program document which will be updated)
  - Does not limit investment amounts by activity
  - Allows carry forward including from the current program (IAIA, Interim Alternative Implementation Approach)
- Individual, investment-based
  - Similar framework as group, investment-based
  - Sets minimum investment levels based on previous years expenditures
  - Provides flexibility for entities who may not be able to or want to join the group

Implementation of Group Compliance Option

- Coordinated by the Falls Lake Watershed Association as allowed by statute (UNRBA is doing business as)
- Update the UNRBA Bylaws and the IAIA Program document
- Retain minimum investment levels by jurisdictions ($1.5 million per year collectively)
- Retain and expand list of eligible projects and activities
- Continue annual reporting
  - Track if activities occur upstream of other water supply impoundments
  - Track projects and investments separately from other rules requiring investment
- Expand partnerships to include voluntary participation by agriculture and state/federal entities

Exclude DOT from Rule Applicability

- DOT has a statewide permit and programs that covers many aspects of the current Falls Rules for existing development
  - Fertilizer management
  - Buffer protection
  - Retrofit projects (average 14 across the state per year)
  - Identification and elimination of illicit discharges
  - Allows participation in projects outside of right of way
- DOT has installed over 100 retrofit projects in the Falls watershed since the rules were adopted
- Finding locations for six additional projects every year is increasingly more difficult
- Between Falls, Jordan, and potentially High Rock Lake, nearly all projects across the state will have to be concentrated in these three watersheds

Implementation for Agriculture

- Nutrient loading and production acreages have declined significantly
- Best management practices are widely applied in this basin
- Production is likely to continue to decline in this watershed
- DWR suggests no additional requirements be placed on agriculture in Falls watershed
- Rules would be revised to remove ag reduction requirements
  - Maintain some level of tracking and reporting in the event future rule revisions require reductions from agriculture
- Investments from local governments and state/federal entities
  - Ability to provide funding to farmers to implement projects
  - Agriculture tracks changes in nutrients (not for compliance)
  - Funding entity tracks investment credits (for compliance)

Outstanding Discussion Items

- DWR and DOT are still discussing exclusion of DOT from specific nutrient management rules and relying on regulation through existing programs and permits
- Representatives of agriculture and DWR are discussing how to refine the ag section of the rule in terms of reporting requirements, administration, etc.
- Additional outreach is needed to non-DOT state/federal entities
  - DWR working on obtaining acreages of non-DOT state/federal entities
- DWR working to streamline reporting requirements for the individual, conventional load reduction approach
- Implementation timeline for achieving required load reductions under individual, conventional load reduction approach (currently drafted at 25 years)

Preliminary Draft
New Development Rule

High-Level Discussion Notes

- Revise language for consistency with state law and other stormwater rules (e.g., Neuse)
- Exclude DOT from these Rules (refers to permit)
  - Similar reasons as existing management lands
  - Discussions with DWR ongoing
- Local governments cover new D for other state/federal entities
- DWR suggested the following to streamline rules and address implementation issues observed with 2011 rule
  - Keep nitrogen loading target, remove phosphorus target
  - Remove various percentages addressing allowable offset credits
  - Include section on “development excluded”
  - Remove equivalent program option
- Proposes nutrient credits soil improvement
- DWR does not plan to update the model program or require updates to inventories developed after the 2011 rules passed

Details Follow

Remove Phosphorus (P) Loading Target

- Address issues with lack of available P credits
  - Lack of P credits because current target of 0.33 pounds per acre per year (lb/ac/yr) is too low (lower than some types of forests simulated in watershed model)
  - Workgroup discussed increasing or removing P target
  - DWR suggested removal to align with other stormwater rules
- Continue to manage P without numeric target
  - Require use of stormwater control measures that treat both N (nitrogen) and P (nearly all of them)
  - MS4 requirement for 85% removal of total suspended solids (TSS) will also treat P (most P is sediment bound)
  - P is easier to treat than N
  - Require continuance of minimum design criteria to minimize P export (e.g., specifications on media)
  - Monitor lake water quality and request the Commission initiate rule making as needed if conditions deteriorate

Retain Nitrogen (N) Loading Target

- Current rules:
  - 2.2 lb-N/ac/yr
  - Reduces overall nitrogen loading if agriculture is developed
  - Similar loading rate if forested areas are developed based on UNRBA watershed model
- Updated modeling indicates this could be increased by about 0.5 lb/ac/yr and still provide some reductions
- UNRBA Consensus Principles II calls for maintaining the current framework of the new rules as much as possible
- Keeping 2.2 lb/ac/yr is achievable based on past implementation and has not resulted in lack of N credits
- Raising the N loading target may spark concerns within environmental community, especially with removal of P target
- Workgroup recommends leaving at 2.2 lb/ac/yr

Exclude DOT from Rule Applicability

- DOT has a statewide permit and programs that covers many aspects of the current Falls Rules for new development
  - Fertilizer management
  - Buffer protection
  - Best management practices (BMP) “tool box” document to address nutrient loading from road and non-road development
  - Identify goals and address to maximum extent practicable
- Rather than manage different requirements in different nutrient sensitive watersheds, DOT would prefer to manage all under a single permit and program
- DOT and DWR are discussing

Streamline Requirements for Credit Offsets

- Current rules varied from 30% to 50% required onsite credits
  - Development type
  - Location with respect to downtown areas
- DWR suggested streamlining requirements
  - “Proposed new development activity with twelve percent or greater built upon area shall utilize a minimum of one primary stormwater control measure on site before using offsite offset credits to achieve the nitrogen loading target” [note primary SCMs require 85% removal of TSS and so will also treat P]
  - DWR is discussing how to apply to re-development projects that already have some amount of impervious area (need to be consistent with state law)

Exclude Certain Development from Rules

- Regulated by DOT NPDES Permit Number NCS000250
- Under Falls disturbance thresholds
  - One-half acre for single family and duplex residential property and recreational facilities
  - 12,000 square feet for commercial, industrial, institutional, multifamily residential, multifamily commercial, or local government or non-DOT state or federal land uses (except for redevelopment with >24% imperviousness)
- Individual single-family or duplex residential lot that is not part of a larger common plan of development or sale with less than 5% BUA
- Redevelopment that does not result in a net increase in built upon area (BUA) and retains previous levels of stormwater treatment
- Related to agricultural activities

Provide Nutrient Credits for Soil Improvement

- Added the following: “nutrient credits for soil improvement on new development shall be credited as described in the 2021 Catalog of Nutrient Reduction Practices For North Carolina developed by the NC Division of Water Resources.”
- Currently, the catalog only provides credits for existing development
- UNRBA and others have been requesting credit for new development since 2017
- Currently, NCDEMLR seems to be opposed to any secondary practices, but recent input from DWR has been encouraging
- One option may be to only provide the nutrient credit through DWR (as requested) but not have DEMLR approve for hydrologic treatment
- Discussions with DWR continue
- References
  - Crediting document
  - Supplemental information (regulatory and implementation)

Outstanding Discussion Items

- Exclusion of DOT from specific nutrient management rules and relying on regulation through existing programs and permits
- Reporting requirements (see 2023 case)
- Approval of soil improvement nutrient credits for new development
- How to apply the 12% BUA threshold for requiring onsite credits to redevelopment projects with a net increase in BUA
- Option for developers to invest in watershed health projects
  - Logistics
  - Guardrails
- Better rule reference for excluded activities related to agricultural operations

Preliminary Draft Wastewater Rule

High-Level Discussion Notes

- Facilities have achieved significant reductions in effluent nutrient concentrations since rules were passed
- Rules should focus on maintaining treatment performance achieved since the rules were adopted (five-stage nutrient removal)
  - Concentration-based limits in the rules
  - Loading caps in the permits
- Facilities are facing challenges with increased organic nitrogen loads
- Current permits: permitted flow with nutrient pound limits based on flows from 2008 to 2009
- Rules assumed a new technology would be developed to keep allocations at Stage I levels even at permitted flow
- Facilities cannot meet these allocations unless upgrade to reverse osmosis (RO) and membrane filtration
  - Significant increase in carbon footprint
  - No disposal pathway for concentrated waste stream
- Permits need to be corrected when rules are readopted
- Wastewater plants should contribute investment in watershed health

Details Follow

Concentration Limits for Best Available Technology (BAT)

- Concentration limits based on Tar-Pam Rule for new and expanded facilities
- Nutrient loading caps in updated permits
- Facilities required to optimize performance and track emerging technologies

Permitted Flow and Annual Average Concentration Limits				
Facility	NPDES No.	Permitted Flow (MGD)	Total Nitrogen (mg-N/L)	Total Phosphorus (mg-P/L)
North Durham	NC0023841	20.0	3.5	0.5
South Granville Water and Sewer Authority	NC0026824	5.5	3.5	0.5
Hillsborough	NC0026433	3.0	3.5	0.5

Minimum Investment Requirements

- Beginning 12 months following the date of rule readoption
- Combined annual investment level for the three largest facilities shall not be less than $500,000 per year
- Investments are in addition to the $1.5 million per year to address nutrient loading from existing managed lands
- The minimum investment for each facility shall be based on the proportion of permitted flow listed in Item (5)(a).
- Investment amounts and brief project descriptions shall be reported annually
- Investments shall be allowed for the types of projects and activities as allowed under the IAIA including land conservation, reductions in sewer exfiltration and sanitary sewer overflows, etc.
- Investments by the three dischargers shall be tracked and reported individually by facility

New and Expanding Dischargers

- Evaluate all practical alternatives (*based on current rule*)
- Evaluate water quality impacts in Falls and other water supply impoundments in the watershed (*added other impoundments to address comments from DWR and EPA)*
- Obtain allocation from another facility or purchase offset credits (*based on current rule*)
- None allowed in the portion of the watershed that drains downstream of Highway 50 unless allocation is obtained from another facility (*based on current rule*)

Group Compliance Option

- Facilities may form a group compliance association to meet nutrient limits collectively within their respective portion of the Falls watershed (draining upstream or downstream of Hwy. 50)
- Requires an NPDES permit that establishes the effective nutrient limits for the association and for its members (i.e., a bubble permit)
- An association's nitrogen and phosphorus mass limits shall be the sum of its members' individual allocations and nutrient offset credits
- An association and its members may reapportion the individual allocations and offset credits on an annual basis.
- An association that does not meet its permit limit for nitrogen or phosphorus for a calendar year shall make an offset payment
- If the association exceeds its group limit, the association and any members that exceed their individual limits in the NPDES group permit shall be deemed to be out of compliance

Outstanding Discussion Items

- Correcting the NPDES permits to reflect permitted capacity and BAT
- Options for offset payments
- Investments in watershed health

Next Steps and How to Share Feedback

Options for Sharing Feedback

- Directly in the Word files
  - Please edit in tracked changes
  - Add comments
  - Send via email to Alix Matos (amatos@brwncald.com) and Forrest Westall (Forrest.Westall@mcgillassociates.com)
- Provide comments via email to Alix and Forrest
- Participants interested in additional discussion?
  - Purpose and Scope
  - Existing Managed Lands
  - New Development
  - Wastewater
- Continue discussion during June 3rd PFC meeting (the PFC will have additional business)

Closing Comments

Next PFC Meeting Scheduled for June 3rd at Butner Town Hall, 9:30 AM to Noon