CH2M HILL
3120 Highwoods Blvd
Suite 214
Raleigh, NC
27604
Tel 919.875.4311
Fax 919.875.8491

December 10, 2014

Lyn Hardison
Environmental Review Coordinator
NCDENR
1639 Mail Service Center
Raleigh, NC 27699-1601

Subject: Final 2015 Secondary and Cumulative Impacts Master Management Plan (SCIMMP) for the Town of Cary

Dear Ms. Hardison:

Per our discussion on November 13, 2014, no comments were received from the State Environmental Review Clearinghouse and Appendix A has been updated to include related correspondence. The final version is dated December 2014.

Per your request, I have enclosed 1 hard copy and 1 digital copy of the final 2015 Secondary and Cumulative Impacts (SCI) Master Management Plan for the Town of Cary. As required by the Memorandum of Agreement (MOA), electronic versions of the document will also be available to the public on the Town's website:

Town of Cary: http://www.townofcary.org/

This completes the SCI Master Management Plan Update process for the Town. At this time the Town has met all of the conditions of the MOA until the biennial report is due on September 30, 2017. Thank you for all your effort and support on developing this Plan. If you have any questions, please contact me at (919-607-4347)

Sincerely,

CH2M HILL

Kathryn Benson, PE
Project Manager

c: Leila Goodwin, PE, Town of Cary
Sydney Miller, Town of Cary

Secondary and Cumulative Impacts Master Management Plan

Cary, North Carolina

Leila Goodwin, PE
Water Resources Manager
316 N. Academy St
Cary, NC 27513
(919) 462-3846

Prepared by:

CH2MHILL
3120 Highwoods Boulevard
Suite 214
Raleigh, NC 27604

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Acronyms and Abbreviations

ACCP	Alston Regional Activity Center Concept Plan
AQI	Air Quality Index
ATT	American Tobacco Trail
BGPA	Bald and Golden Eagle Protection Act
BMP	best management practice
CAMPO	Capital Area Metropolitan Planning Organization
CCP	Carpenter Community Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CGIA	North Carolina Center for Geographic Information and Analysis
CIP	Capital Improvement Plan
CLG	Certified Local Government
CO	Certificate of Occupancy
CORE	Center of the Region Enterprise
CTP	Comprehensive Transportation Plan
CWA	Clean Water Act
CWMTF	Clean Water Management Trust Fund
DDT	dichlorodiphenyltrichloroethane
DO	dissolved oxygen
EA	environmental assessment
EEP	Ecosystem Enhancement Program
EIS	environmental impact statement
EMC	Environmental Management Commission
EPT	ephemeroptera, plecoptera, and trichoptera
ESA	Endangered Species Act of 1973
ETJ	extraterritorial jurisdiction
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FSC	Federal species of concern
GAP	Gap Analysis Project
GIS	geographic information system
IBT	interbasin transfer

JLWR	Jordan Lake Water Reclamation and Reuse
LDO	Land Development Ordinance
LI	limited impact
LID	Low Impact Development
LMP	Land Management Plan
LRUSA	Long Range Urban Service Area
MG	million gallons
MGD	million gallons per day
MOA	Memorandum of Agreement
MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer System
MTP	Metropolitan Transportation Plan
NAAQS	National Ambient Air Quality Standards
NCAC	North Carolina Administrative Code
NCDAQ	North Carolina Division of Air Quality
NCDCR	North Carolina Department of Cultural Resources
NCDWR?	North Carolina Division of Water Resources
NCDLR	North Carolina Division of Land Resources
NCDENR	North Carolina Department of Environment and Natural Resources
NCDOT	North Carolina Department of Transportation
NCWRC	North Carolina Wildlife Resources Commission
NCNHP	North Carolina Natural Heritage Program
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NHEO	Natural Heritage Element Occurrence
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places
NSW	Nutrient Sensitive Waters
NWI	National Wetlands Inventory
OSHRP	Open Space and Historic Resources Plan
OSP	Open Space Plan
PI	potential impact
PRCR	Parks, Recreation, and Cultural Resources

PUD	planned unit development
PV	photovoltaic
RCRA	Resource Conservation and Recovery Act
RDU	Raleigh-Durham Airport
RTA	Regional Transportation Alliance
RTP	Research Triangle Park
SAESH	Significant Aquatic Endangered Species Habitat
SCI	secondary and cumulative impacts
SCIMMP	Secondary and Cumulative Impacts Master Management Plan
SDWA	Safe Drinking Water Act
SEPA	State (North Carolina) Environmental Policy Act
SNHA	Significant Natural Heritage Area
SR	state route
TDM	transportation demand management
TJCOG	Triangle J Council of Governments
TMDL	total maximum daily load
Town	Town of Cary
TSS	total suspended solids
USA	urban service area
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VMT	vehicle miles traveled
WQBEL	water quality-based effluent limit
WQRP	Water Quality Recovery Program
WRF	water reclamation facility
WSW	water supply watershed
WTP	water treatment plant
WWTP	wastewater treatment plant
WWRWRF	Western Wake Regional Water Reclamation Facility

Executive Summary

The North Carolina (State) Environmental Policy Act (SEPA) requires the preparation of an environmental document (environmental assessment [EA] or environmental impact statement [EIS]) for projects that involve public funding and that exceed certain minimum criteria. These environmental documents must outline the direct, indirect (or secondary), and cumulative impacts to natural, cultural, and historical resources.

Typically, EAs or EISs are developed for a given infrastructure project. Each individual EA or EIS includes summaries of the direct, secondary, and cumulative impacts. Inefficiencies from developing documents in this manner include the following:

- **Project Area –** Frequently the project area for a given infrastructure project includes a small portion of a given municipality. Thus, a holistic view of the growth-related impacts throughout the jurisdiction may not be included in the document.
- **Documentation Inefficiencies –** Often the secondary and cumulative impacts (SCI) of various infrastructure projects are similar. As a result, multiple environmental documents contain SCI sections that are largely redundant.
- **Review Inefficiencies –** Regulatory agencies review similar information on SCI and the local programs in place to mitigate them for various infrastructure projects for a given municipality. Those agencies and local government officials therefore often have to devote considerable time to similar comments and negotiations on a number of projects.
- **Governing Board and Capital Planning –** Typically, utility or public works departments develop environmental documents to support permitting decisions, and the permitting agency may include conditions in the permit to address project impacts. Conditions related to SCI sometimes require ordinance changes or Town-wide policy changes. The Town department typically does not have authority to implement such requirements, which require Town Council action. Reviewing secondary and cumulative impacts in one holistic document, the SCIMMP, helps streamline this process.

These inefficiencies result in frustration for both the regulatory agencies and the regulated community. Thus, the Town of Cary (Town) developed an SCI Master Management Plan (SCIMMP) to address the SCI for all planned infrastructure. Evaluation of the SCI from all infrastructure plans in one document provides a holistic review of the Town's growth projections and infrastructure being designed to support that growth. When EAs or EISs are developed for individual

SCI Master Management Plan Process

- *EAs or EISs for individual infrastructure projects will be developed to address direct impacts.*
- *Secondary and cumulative indirect impacts will not be addressed in each individual EA or EIS; these documents will reference the SCIMMP.*
- *The MOA with NCDENR addresses how the SCIMMP document should be used, its period of standing, and circumstances under which it must be updated more frequently.*

projects to examine the direct impacts of the projects, these documents will reference the SCIMMP for SCI, avoiding redundancy.

The Town entered into a Memorandum of Agreement (MOA) with the Department of Environment and Natural Resources (NCDENR) in 2005 that outlines how the SCIMMP will be used, the time period during which it can be cited in individual EAs and EISs, and under what circumstances it must be updated more frequently. An amendment to the MOA clarified the reporting dates, specifying the submittal timeframe for biennial reports. According to the MOA, the period of standing for the SCIMMP is 10 years. For this reason, this updated SCIMMP is being developed to take effect in 2015.

The study area for the SCIMMP consists of the Town's Planning Area. The Planning Area boundaries are based on a combination of the urban service area, extraterritorial jurisdiction (ETJ), and the Town's land use planning boundary, as well as boundary and urban service area agreements with the Town of Morrisville and Wake and Chatham Counties. The Planning Area covers approximately 82 square miles and is located in the Neuse and Cape Fear River basins.

Infrastructure – Part of the Town's mission is to provide responsible leadership for controlled infrastructure development. The Town promotes orderly growth through development and implementation of the Town's Land Development Ordinance (LDO), zoning, and the Standard Specifications and Details Manual. The Town also has developed a comprehensive transportation plan and master plans for providing water, reclaimed water, and sewer services to its residents in a manner that will protect the natural environment.

The Town, as of 2006, owns and operates the water and wastewater infrastructure within the Town of Morrisville. Treatment infrastructure includes a water treatment plant (WTP) co-owned with the Town of Apex and three wastewater treatment facilities including the newly operational Western Wake Regional Water Reclamation Facility (WWRWRF), which is owned and operated in partnership with the Town of Apex.

The Town integrates its infrastructure plans with its other planning processes, and understands that infrastructure planning strategies must be formulated and implemented in a manner to pursue the goals of service provision and environmental protection. By integrating its growth management strategies, land use planning strategies, and infrastructure plans, the Town preserves important ecological areas in the form of open space; ensures that its residents have adequate recreational resources; and meets water, wastewater, and transportation demands.

Existing Conditions – Within the Planning Area, existing environmental conditions were assessed to facilitate the identification of potential SCI to the natural environment as growth occurs. Of particular concern is the potential for impact to federally listed threatened or endangered species. The bald eagle (*Haliaeetus leucocephalus*) is present within the Planning Area near Jordan Lake and Lake Crabtree, and is protected by the Bald and Golden Eagle Protection Act (BGPA). A survey of freshwater mussel species in the Middle Creek and Swift Creek watersheds did not yield any individuals, live or relic, of the federally endangered dwarf wedgemussel (*Alasmidonta heterodon*) in the Planning Area. Michaux's sumac (*Rhus michaux*) is not present in the Planning Area.

Secondary and Cumulative Impacts – Table ES-1 summarizes potential SCI to the Planning Area, the likelihood of impacts, and the mitigation measures in place to address them. These mitigation measures will offset environmental impacts associated with growth that are likely to occur with or without planned infrastructure projects. The Town is taking progressive steps to protect its environmental heritage by developing many programs to pursue the goals of service provision and environmental protection.

Main SCI concerns include the loss of open space (including forests and agricultural lands) and the potential for impacts to water resources, aquatic habitats, and associated aquatic species, including freshwater mussels.

Mitigation – Many measures are currently in place to limit SCI as growth occurs in the Town. Planning processes will guide development in appropriate areas. The LDO protects open space, water supply watersheds, stream buffers, floodplains, and wetlands; and requires stormwater controls to limit water resources impacts. These efforts protect the Town's natural resources and quality of life for its residents. A summary of these mitigation efforts and their applicability to each of the natural and cultural resources analyzed under SEPA guidelines is presented in Table ES-1.

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TABLE ES-1
Potential Impacts to be Addressed by Permitting and Mitigation Programs

Environmental Resource	Potential for SCI	Types of SCIs	Mitigation Programs
Topography and Floodplains	LI	Some floodplain loss from commercial development, although floodway protected	Open Space Preservation and land use plans often preserve additional corridors along required riparian buffers
		Isolation of floodplain from stream by channel entrenchment; loss of nutrient exchange capabilities	LDO
			Floodplain Protection – No residential development or fill in floodplain; commercial development in floodplain must obtain special use permit which limits development in floodplain
			Erosion and Sediment Control Program
			Stormwater Programs and Impervious Surface Limitations
			Sanitary Sewer Installation – deters installation of sewer lines in riparian buffers
Soils	PI	Soil erosion and compaction from new development	Parks, Recreation, and Cultural Resources Master Plan and Open Space Plan
			Open Space Preservation
			Land use plans and LDO -- direct density to designated activity and employment centers to limit areas of disturbance
			Riparian Buffers and Floodplain Protection
			Water Supply Watershed Protection Regulations – runoff controls and impervious surface restrictions reduce erosion potential
			Erosion and Sediment Control Program
			Stormwater Programs and Impervious Surface Limitations
Land Use	PI	Conversion of agricultural and forested land uses to mainly residential land uses	Open space preservation
			Land use planning recommends greater densities in designated walkable mixed-use activity centers
			LDO
			Parks, Recreation, and Cultural Resources Master Plan and Open Space Plan
			Riparian Buffers and Floodplain Protection – restricts development in riparian buffer zones and prohibits nearly all floodplain encroachment
			Water Supply Watershed Protection Regulations – development density regulations
			Stormwater Programs and Impervious Surface Limitations – land management plans for certain watersheds

TABLE ES-1
Potential Impacts to be Addressed by Permitting and Mitigation Programs

Environmental Resource	Potential for SCI	Types of SCIs	Mitigation Programs
Wetlands	LI	Loss through development; subsequent loss of habitat and habitat fragmentation, reduced flow attenuation and genetic diversity. Loss of wetland function through pollutant loading	Wetland Protection through CWA Section 404 and Section 401 Open space preservation LDO requires natural open space Parks, Recreation, and Cultural Resources Master Plan and Open Space Plan Riparian Buffers and Floodplain Protection Water Supply Watershed Protection Regulations Erosion and Sediment Control Stormwater Programs and Impervious Surface Limitations reduce pollutant loads and limit stormwater impacts to wetlands
Prime or Unique Agricultural Land	PI	Possibility of conversion to other uses	Open Space Preservation Land use planning and LDO direct density to designated employment and activity centers Parks, Recreation, and Cultural Resources Master Plan and Open Space Plan – protects working farms Wake County Voluntary Agricultural Districts Wake County Tax Incentive Programs Farmland Protection Policy Act
Public Lands and Scenic, Recreational Areas, and State Natural Areas	LI	Possibility of conversion of adjacent land uses	Open Space Preservation Land use plans LDO Parks, Recreation, and Cultural Resources Master Plan and Open Space Plan
Areas of Archaeological or Historical Value	LI	Possibility of conversion of adjacent land uses Structural damage due to acid rain and vibrations	Historic Preservation Master Plan Land use plans LDO and open space preservation Parks, Recreation, and Cultural Resources Master Plan and Open Space Plan

TABLE ES-1
Potential Impacts to be Addressed by Permitting and Mitigation Programs

Environmental Resource	Potential for SCI	Types of SCIs	Mitigation Programs
Air Quality	PI	Reduction in air quality due to increased vehicular traffic Reduction in air quality benefits of trees Negative impacts to human health (e.g., asthma); acid rain; reduced visibility	Wake County Sustainability Task Force Comprehensive Transportation Plan Transportation elements of bicycle lanes, greenways, and alternative methods such as light- rail and alternative fuel vehicles Transit C-Tran service – mass transit for Cary and surrounding areas Electric vehicle used by Town of Cary LDO connectivity requirement and open space preservation Land use plans – recommend denser development near employment and activity centers Parks, Recreation, and Cultural Resources Master Plan and Open Space Plan Riparian Buffers Protection Tree Protection Ordinance
Noise Levels	PI	Increase in overall noise level in Planning Area Negative impacts to human health	Comprehensive Transportation Plan Open Space Preservation Land use plans LDO connectivity requirement Parks, Recreation, and Cultural Resources Master Plan and Open Space Plan Riparian Buffers Protection – development buffers Tree Protection Ordinance

TABLE ES-1
Potential Impacts to be Addressed by Permitting and Mitigation Programs

Environmental Resource	Potential for SCI	Types of SCIs	Mitigation Programs
Surface Water Resources	PI	Water quality degradation; increase in stormwater runoff	Coordination with agencies to identify restoration projects and funding to improve water quality in 303(d) listed streams
		Alteration of natural hydrograph (e.g., magnitude, timing, frequency, duration, rate of change); lower and more frequent low-flow conditions; alteration of channel morphology	Land use plans and open space preservation
			LDO
			Parks, Recreation, and Cultural Resources Master Plan and Open Space Plan
			Riparian Buffers and Floodplain Protection - no residential development or fill in floodplain
			Water Supply Watershed Protection Regulations – Watershed Protection Overlay District establishes additional stringent regulations
			Erosion and Sediment Control
			Stormwater Programs and Impervious Surface Limitations
			Sanitary Sewer Installation and Road Construction – stream crossings with directional borings and crossings with buried culverts or bridges
			Water Conservation and Water Reuse programs
Groundwater Resources	LI	Reduction in use for drinking water; potential to become contaminated	Open space preservation
		Groundwater inflow provides base flow in streams, which supports life during droughts	Land use planning and LDO direct density to designated employment and activity centers
			Riparian Buffers and Floodplain Protection – allow for natural infiltration
			Stormwater Programs and Impervious Surface Limitations including promotion of low impact development
			Sanitary Sewer Installation - failing septic systems taken offline as infrastructure developed
			Water Conservation and Water Reuse programs

TABLE ES-1

Potential Impacts to be Addressed by Permitting and Mitigation Programs

Environmental Resource	Potential for SCI	Types of SCIs	Mitigation Programs
Forest Resources	PI	Conversion to other uses	Open Space Preservation
		Reduction in air quality; increase in near-surface air temperature; habitat fragmentation	Land use planning and LDO - direct density to designated employment and activity centers
			Parks, Recreation, and Cultural Resources Master Plan and Open Space Plan - protect important habitat areas and examine connectivity
			Riparian Buffers and Floodplain Protection
			Water Supply Watershed Protection Regulations – development densities
Shellfish or Fish and their Habitats	PI	Possible aquatic habitat degradation	Wetland Protection through CWA Section 404 and Section 401
		Disruption of food chain; reduction in aquatic insect number and diversity through loss of riffle habitat; dispersal distance to suitable habitat; reduction in potential for long-term population sustainability	Endangered Species Act
			Open Space Preservation
			Land use planning and LDO – Conservation Residential District Overlays in southwest area
			Parks, Recreation, and Cultural Resources Master Plan and Open Space Plan - protect important habitat areas and examine connectivity
			Riparian Buffers and Floodplain Protection
			Water Supply Watershed Protection Regulations – Watershed Protection Overlay District establishes additional stringent regulations
			Erosion and Sediment Control – plan review and pre-construction process; plan required at 12,000 square feet. Stream Protection Plan.
			Stormwater Programs and Impervious Surface Limitations - impervious area limited to 12-36 percent, or stormwater controls required; NPDES Phase II requires runoff volume be controlled; outfall velocity requirements
			Sanitary Sewer Installation – stream crossings with directional borings

TABLE ES-1

Potential Impacts to be Addressed by Permitting and Mitigation Programs

Environmental Resource	Potential for SCI	Types of SCIs	Mitigation Programs
Wildlife and Natural Vegetation	PI	Reduction in available habitat	Endangered Species Act
		Habitat fragmentation; reduction in genetic diversity; reduction of pollution-intolerant species increased dispersal distance to suitable habitat; reduction in potential for long-term population sustainability	Open Space Preservation
			Land use planning and LDO - encourage tree and urban forest preservation; direct density to designated employment and activity centers
			Parks, Recreation, and Cultural Resources Master Plan and Open Space Plan - protect important habitat areas and examine connectivity
			Riparian Buffers and Floodplain Protection – Habitat protection and maintenance of habitat corridors
			Erosion and Sediment Control
			Stormwater Programs and Impervious Surface Limitations
			Tree Ordinance
Introduction of Toxic Substances	LI	Increase in likelihood of contamination	Land use planning and LDO – controls use and likely exposure
		Negative impacts to human health	Stormwater Programs and Impervious Surface Limitations – education programs
			Sanitary Sewer Installation – design standards to limit spills

PI = Potential Impact (major relevance in SEPA documents and permitting applications)
LI = Limited Impact (minor relevance in SEPA documents and permitting applications)