

**ORANGE WATER AND SEWER AUTHORITY***Quality Service Since 1977*

April 9, 2009

Mr. Roger Stancil  
Chapel Hill Town Manager  
405 Martin Luther King Jr. Blvd.  
Chapel Hill, NC 27514

**SUBJECT: POTENTIAL IMPACTS OF CAROLINA NORTH ON OWASA'S  
FUTURE OPERATIONS**

Dear Roger:

Per your request, this letter summarizes our current estimate of the impacts that the Carolina North development may have on future OWASA operations. Substantial aspects of Carolina North planning are still at the concept level; therefore, our analysis is preliminary and subject to change. We will remain engaged with University and Town representatives as plans are refined and formalized in order to ensure OWASA's ability to meet its commitments to the University and all other customers.

**Legal Requirements** – There is no question about our legal requirement to provide service to Carolina North, as OWASA's original Sale and Purchase Agreement with the University clearly outlines our overall responsibility to “furnish, for as long as the University shall desire, potable water in such quantity as may be required to meet its needs.”

**Developer Requirements** – Carolina North will be subject to the same cost-of-service policies, procedures, and fees that apply to any development project seeking OWASA services. Consistent with the principle that “growth pays for growth,” the University (or perhaps other third party developers) will pay for the extension or expansion of certain OWASA facilities needed to serve the project. For all new connections to the water and/or sewer system, the University will be required to pay all applicable availability fees at the rates in effect at the time of the connection, just as any other party is required to do.

**Anticipated Utility Needs** – The University envisions meeting the needs of Carolina North through the integrated use of all available water resources, including rainwater recovered from building rooftops, parking lots, and other impervious surfaces; on-site wastewater treatment to provide a source of reclaimed water, perhaps supplemented by domestic wastewater “mined” from a nearby OWASA sewer line and treated for non-potable use. These waters would be used conjunctively for irrigation, toilet flushing, cooling-tower makeup water, and other non-potable purposes at Carolina North. We expect that certain innovative or non-traditional water supply/wastewater facilities would ultimately be owned and operated by OWASA, but the details of such arrangements have not been developed.

**Water Demands** – OWASA incorporated the potential needs of Carolina North in its 2001 *Comprehensive Water and Sewer Master Plan*, which included a “placeholder” demand of 1.6 million gallons per day (mgd) of potable water when the site is fully developed. This estimate assumed that all water needs, including non-potable uses, would be met with treated drinking water; that is, the placeholder estimate assumed no demand reduction through the use of reclaimed or other alternative water sources described above.

Additionally, the 1.6 mgd estimate assumed that demand patterns at Carolina North would be similar and proportional to those on the main UNC campus. However, as required by Session Law 2008-203 and as encouraged by our conservation pricing structure, new buildings at Carolina North will certainly be much more water-efficient than older buildings on the main campus. (SL 2008-203 requires new State buildings to be at least 20% more efficient with indoor water use than the 2006 Plumbing Code requires, and at least 50% more efficient with potable water use for landscaping.)

Recent analyses indicate that water use by the University and UNC Hospitals during 2008 *was the same as it was in 1998, despite a 26 percent increase in total building space that has occurred during that period.* This represents a remarkable improvement in water efficiency. Applying the 2008 UNC/UNC Hospitals consumption rate of 0.123 gallons per day (gpd) per gross square foot (GSF) of total building space to the 8 million GSF anticipated for Carolina North yields an estimated average day water demand of 1.0 mgd, which is substantially less than our 1.6 mgd placeholder. *This estimate still includes no assumptions about further reductions that may be achieved with captured rainwater, reclaimed wastewater, and so forth.* The ultimate effects of Carolina North demands on OWASA’s water supply will be driven by a number of additional factors which have not yet been determined, but it appears that the impact will be substantially less than our placeholder estimate of 1.6 mgd.

**Wastewater** – It is unlikely that wastewater generated at Carolina North will have significant hydraulic effects on OWASA’s Mason Farm Wastewater Treatment Plant, especially if the innovative technologies envisioned for the site are implemented; however, additional analysis and evaluation will be needed as Carolina North’s utility plans are more fully developed. All sewer connections will be subject to OWASA’s sewer use ordinance and pre-treatment requirements.

**Reclaimed Water** – The recently completed OWASA/UNC reclaimed water (RCW) system will provide highly treated wastewater from the Mason Farm Wastewater Treatment Plant for major non-potable uses on the University’s main campus. Preliminary analyses have indicated that RCW at Carolina North may be best provided through a separate satellite RCW system. We are pleased that the concept plans for Carolina North incorporate a site for a potential RCW treatment facility. OWASA and the University will work together in determining the most appropriate solution for meeting Carolina North’s RCW needs.

**Future Actions** – OWASA will continue to work closely with the University in determining:

- Ultimate demand projections for Carolina North to ensure that OWASA's long term master planning addresses any capital investments that may be needed before additional capability is required;
- Potential impacts of innovative technologies at Carolina North on OWASA's Mason Farm Wastewater Treatment Plant; e.g., nutrient and other operational effects of "sewer mining" on the flow of wastewater solids returned to OWASA's sewer system; and
- Ownership and maintenance responsibilities for any satellite wastewater or other alternative/innovative treatment systems that may be employed at Carolina North.

**Summary** – Carolina North will present unique but manageable opportunities and challenges to OWASA, which we expect to manage largely through existing policies and procedures. Based on UNC's demonstrated improvements in water efficiency and its visionary plans for integrated water management, Carolina North's water supply needs are well within OWASA's long range planning projections. New arrangements may be needed for the operation and management of certain innovative/alternative water-related technologies, but we do not foresee any undesired water and/or sewer utility impacts of Carolina North on OWASA's existing or future customer base.

We look forward to our continued partnership with the University and other community stakeholders as we develop and implement the necessary plans for meeting the water, wastewater and reclaimed water needs of Carolina North in a sustainable manner.

If you or your staff have any questions or would like any additional information, please let me know.

Sincerely,



Ed Kerwin  
Executive Director

- c: Ms. Laura Blackmon, Orange County Manager  
Mr. Steve Stewart, Carrboro Town Manager  
Ms. Carolyn Elfland, Associate Vice-Chancellor for Campus Services, UNC-Chapel Hill  
Mr. Jack Evans, Executive Director, UNC Carolina North Project  
OWASA Board of Directors