Land Use Plan Amendment Justification for PINs 0758-01-27-3876 and 0758-01-37-5818, from Industrial to Low-Medium Density Residential

CRITERIA FOR PLAN AMENDMENTS (UDO 3.4.7)

Plan Consistency. The requested Low-Medium Density Residential in the Suburban Tier is consistent with Policy 2.2.2a and Table 2-1. It appears that Durham has adequate water, sewer, transportation and other public facilities to accommodate low-medium residential development on PINs 0758-01-27-3876 and 0758-01-37-5818.

Compatibility. There are low or medium density residential areas in fairly close proximity to the two parcels that are the subject of the Plan Amendment Justification. Specifically, the Brier Village neighborhood on the northwest quadrant of the Alexander Drive/Page Road intersection is zoned PDR 4.04. On the southeast quadrant of the Page/Alexander intersection is a very good quality apartment complex with 347 units, and adjacent to these apartments to the south is a 27.17 acre parcel zoned PDR 6.850. Less than 2,000 feet directly south of PIN 0758-01-27-3876 is the northern boundary of the residential section of the Bethpage development which is zoned PDR 4.733.

It is important to note that at the intersection of Smallwood Drive and Page Road there is an African-American Church, Henderson Grove Baptist, and an accompanying cemetery that has been there for approximately 100 years. The applicants believe that low-medium density residential development on PINs 0758-01-27-3876 and 0758-01-37-5818 would be more respectful of this existing church and cemetery than industrial development. Please see the signature of Rev. Bethea, Henderson Grove Baptist Church, on this Plan Amendment application.

Adverse Impacts. PINs 0758-01-27-3876 and 0758-01-37-5818 are located within the Neuse River Basin but not within a watershed protection overlay district. Accordingly, the applicants believe that development of the approximately 75 acres covered by the Plan Amendment can be done in accordance with Unified Development Ordinance standards.

Adequate Shape and Size. The applicant believes that the approximately 75 acres covered by this Plan Amendment are of adequate size and shape to accommodate low to medium density residential development.

OTHER RELEVANT JUSTIFICATIONS

Environmental & Infrastructure Issues. Within the 75 acres comprising this Plan Amendment are significant environmental obstacles to industrial development. Most notably, there are several streams that break up the buildable area within this acreage, so that large industrial building footprints and accompanying large surface parking areas would be very difficult. Protection of such stream features is in accordance with Policy 7.1.2c of the Durham Comprehensive Plan. The acreage covered by this Plan Amendment also has rather rolling topography, which would necessitate significant grading to implement industrial uses on these two parcels. The use of this property for low-medium density residential development, such as townhouses, would allow for amenities such as walk-out basements or rear-loaded garages to

take advantage of this rolling topography and develop these parcels in an environmentally sensitive manner.

In addition to these environmental constraints, there is an infrastructure limitation that prevents industrial development. The City of Durham Public Works Reference Guide for Development requires industrial buildings to have fire flow of 3,000 gallons per minute (gpm). However, water pressure modeling that has been performed for PIN 0758-01-27-3876 shows that the fire flow at this parcel only will reach approximately 2,400 gpm (please see the attached excerpt from Public Works Ref. Guide for Development and Scenario 2 by Withers and Ravenal for details). Moreover, there is a large, two-hundred foot (200') wide power easement that further limits the ability for constructing a large industrial building on the 50.39 acre parcel (PIN 0758-01-27-3876).

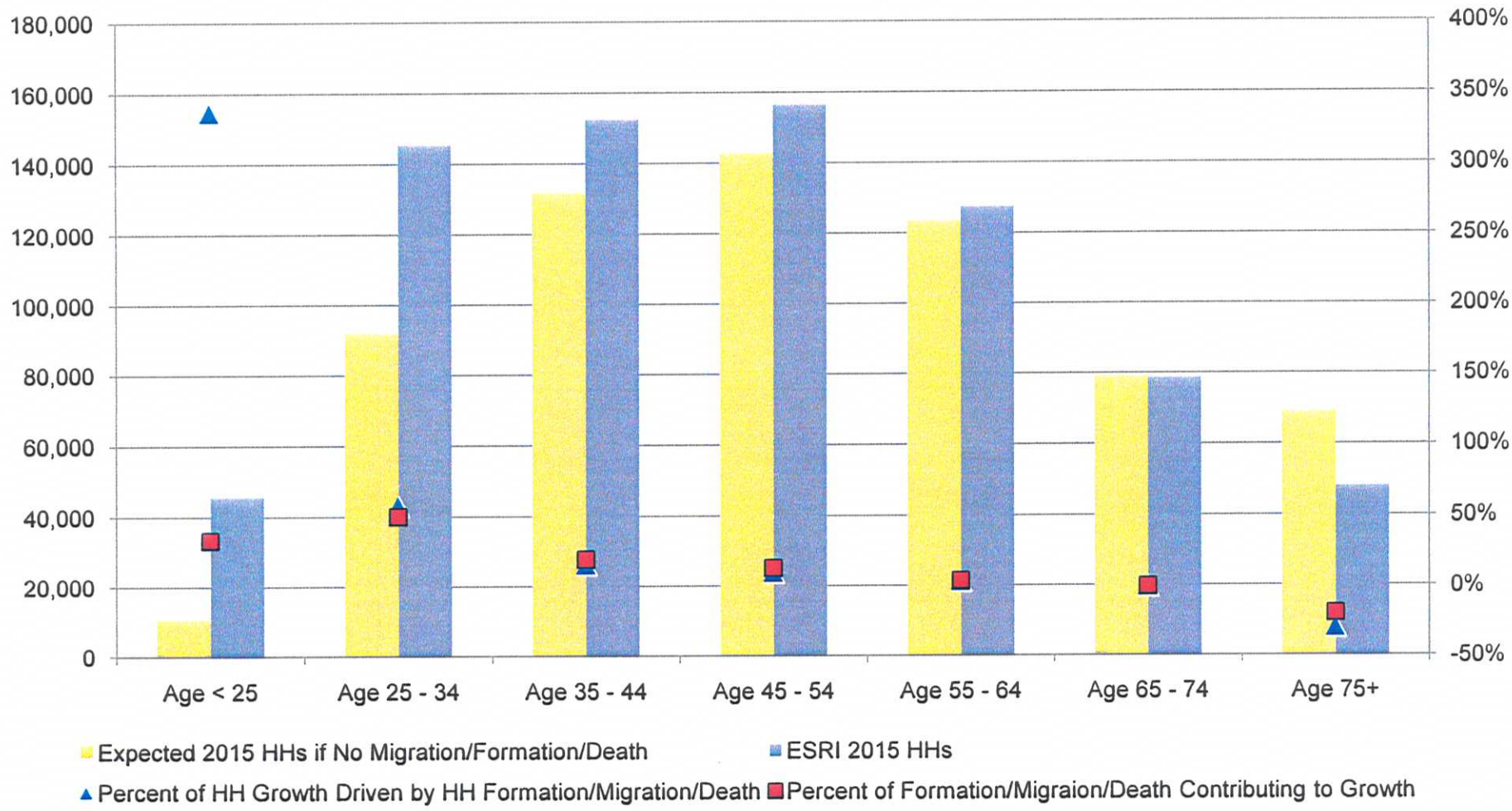
Economic and Demographic Factors. One important factor that warrants consideration is the economic reality affecting Durham since the economic downtown of late 2008. There are literally hundreds of thousands of vacant square feet of industrial/manufacturing/research space in the RTP and the section of Durham County in the vicinity of RTP. For example, the entire Nortel Networks campus is vacant and available for sale or lease, and the iconic former Burroughs Wellcome building is vacant and for sale as well. Numerous other buildings are vacant as well. Accordingly, there is probably no demand for constructing new industrial buildings in this section of Durham and it appears unlikely that will change for the next five to ten years.

Another important factor is the growing demand in the Triangle for housing to meet the needs of people in the 25-34 age group. According to a study released early this year by Urban Land Institute (ULI), eighty-five percent (85%) of the new households in the Triangle from 2010 to 2015 will be comprised of people under the age of 34 (please see excerpt from presentation given at Triangle Chapter of ULI on March 1, 2011). Low-Medium Density residential development, such as townhouses, creates an opportunity for younger persons to be homeowners rather than renters.

Transit Availability. Last, there is good transit service along Alexander Drive, with stops for both DATA and TTA near to the subject properties. DATA provides service from this location on Alexander Drive to Downtown, while TTA provides access throughout the Research Triangle Park. Low to Medium Density Residential development will create potential for increased transit ridership in this part of Durham.

GEN Y
85% OF HH GROWTH TO 2015 FROM UNDER 35 YR OLDS

Household Growth and Forecast – Triangle Region
2010-2015

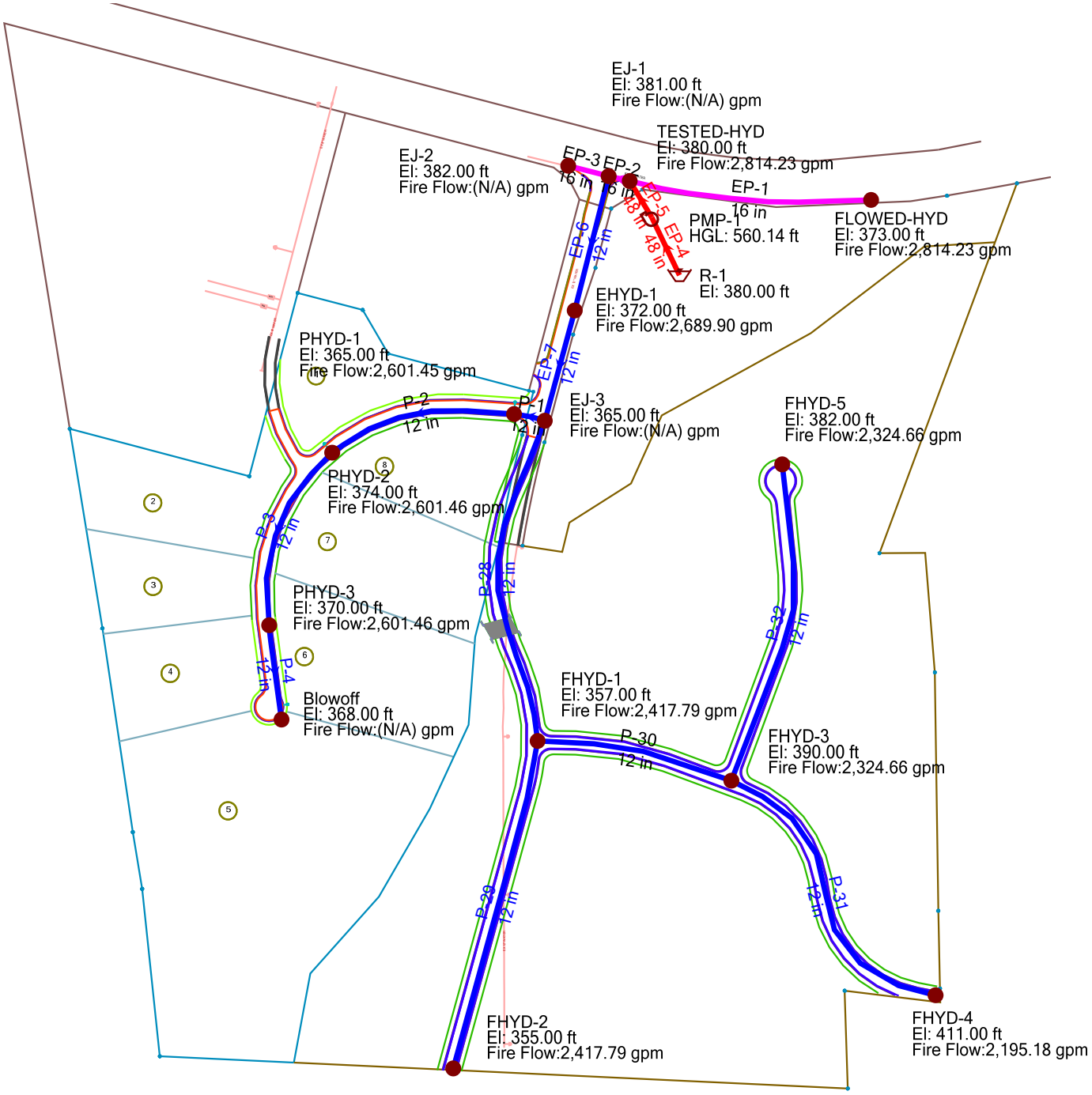


SOURCE: ESRI, RCLCO

Attachment 4, Applicant's Justification

Print Preview

Active Scenario: Phase 2



SECTION 5.0

WATER SUPPLY/DISTRIBUTION

I. General

This section provides guidelines for the design of water main extensions for the City of Durham water distribution system. As a minimum, the Developer/Engineer shall satisfy the requirements contained herein and the City of Durham Construction and Specification Standards. See also Section 2.1, Construction Plan Approval Process.

II. Sizing Of Water Mains

A. Source

If the proposed development has 100 or more dwellings the site shall have no less than two public water main feeds serving the site. Existing mains greater than 16-inches in diameter are considered transmission mains and no connection of any kind to these mains is allowed. Developers must use mains 16-inches in diameter and less as the source location.

B. Size

1. The size of the water lines are determined by:
   a) Fire flow plus domestic demand for the site (see also C. Pressure).
   b) Future growth beyond the site.
   c) Engineering Division.
2. The standard pipe diameter for public and private lines are 4-inch, 6-inch, 8-inch, 12-inch, 16-inch (refer to the City of Durham Water and Sewer Specifications). In addition, 10-inch diameters may be used for private lines.

C. Pressure

Water mains shall be sized to provide a minimum system pressure of 20-pounds per square inch (psi) during peak system demands plus fire demand. In certain areas of Durham, or for multi-story buildings, there is a potential for having lower water pressure and a private booster pump may be needed to assure adequate service to the site. If it is determined that the proposed development has a potential of being in one of these lower pressure areas, complete and submit the "Potential Low Water Pressure Acknowledgement" in Section 13.0, Forms, as directed by the City of Durham Engineering Division. If higher pressures are required or desired, it is the responsibility of the water customer to provide the necessary booster pumping equipment and facilities. If booster pumps are used contact the Engineering Division and Cross-Connection Control for requirements (back-flow, etc.). The booster pumps should be clearly noted on the construction plans if they are proposed. The peak system demands are to include:

1. The peak domestic demand plus
2. The Fire Protection System (sprinkler) demand plus
3. The fire flow demand shall be the demand for any hydrant on the project. A minimum residual pressure of 20-psi shall be available at all points in the distribution system during peak system demands. The project types and demands shall be as follows in gallons per minute (gpm):

a) Single family residential	1,500-gpm
b) Office; hotels with sprinklers; institutional; townhomes; multifamily; or apartment buildings (24 units or less)	2,000-gpm

c) Commercial with sprinklers; hotels without sprinklers; large scale multifamily apartment buildings (greater than 24 units in building)	2,500-gpm
d) Commercial without sprinklers	3,000-gpm
e) Industrial with sprinklers	3,000-gpm
f) Industrial without sprinklers	3,500-gpm

Hydrant demand may also be calculated using Appendix B from the International Fire Code. A reduction of required hydrant demand is allowed when an approved sprinkler system is installed. The resulting hydrant demand (after reduction) shall not be less than 1,500 gpm.

For projects designed with more than one phase, pressure shall be checked so that these guidelines are satisfied during each phase of construction as well as after final completion of all phases.

For projects that are designed with multiple uses, the fire flow selected shall be based on the highest use allowed by zoning (i.e. – a use is set up as an office building but the zoning would allow a commercial or retail occupant to occupy the building then the requirement would be to satisfy the ultimate use of a commercial or retail occupant).

D. Fire Flow Report Requirements

If a hydrant is proposed on a project a fire flow analysis report is required to be approved by the City of Durham Engineering Division. The Engineer shall be responsible for contacting the City of Durham Engineering Division to determine the water system characteristics in the vicinity of the project. See Fire Flow Test Application in Section 13.0, Forms. The City will provide fire flow information in the vicinity of the proposed development. The Developer/Engineer shall submit information on the required fire flow and calculations in accordance with the submittals section to confirm the required fire flow is available. The fire flow analysis shall include the following:

a) Cover sheet with project name, property identification number and PE seal and signature

b) Summary Report should include the following:
   1) Location of pressure hydrant in relation to the site.
   2) Statement of required fire flow for the project. Briefly describe the project and indicate current zoning of the parcel.
   3) Statement of the following: "The (name of project) project with (required fire flow) gpm fire flow, (required peak domestic demand) gpm peak domestic flow and (sprinkler flow demand from sprinkler designer) gpm sprinkler flow provides (lowest residual pressure in system) psi residual flow at the critical node (lowest residual pressure system node). This (meets)/ (does not meet) the City of Durham fire flow requirements.

c) Schematic drawing with pipe system layout referencing nodes and pipes. Map (to scale) of location of test hydrant (pressure) and the location of the site clearly indicated.

d) List original water system characteristics as provided by the City noting date, location, flow hydrant, pressure hydrant and Q20 flow available.

e) Pipe and node report indicating pipe sizes, lengths, frictions factor, minor losses and appropriate elevations and demands. Provide all references for minor loss factors and if a range is given state the value you are using. (Use C=120 for new pipes and C=110 for existing pipes)

f) Static condition indicating only new domestic demand. (Provide all references and calculations for domestic peak demands)

g) Separate fire flow models from each hydrant to indicate each hydrant is capable of providing the fire flow demand while concurrently providing peak domestic and fire protection system demand.

If the fire flow analysis does not meet the minimum City of Durham requirements then the consultant shall contact the City of Durham Engineering Division for further instruction, which may include additional offsite/onsite improvements.

NOTE: At the successful completion of the waterline testing phase the City of Durham Engineering Division may elect to flow test some of the hydrants to obtain data to compare against the fire flow analysis. If the flow data is inconsistent with the analysis, the design consultant and developer will be contacted to remedy the situation.

E. Water Main Material

All waterlines shall be ductile iron and services to be copper to the water meter or to the property line (meeting AWWA standards).

III. Water Main Location

A. Depth

1. Water mains shall be designed with a minimum of three feet of cover or as directed by the Engineering Division from the top of the ground to the crown of the pipe.
2. For proposed waterlines along existing roads, road centerline or edge of pavement will be required on profile in addition to the top of ground above the waterline (Cross-sections of the road from centerline of roadway to right-of-way will be required at 100-foot intervals in addition to waterline profiles). Additional cross-sections may be required depending on the project. Over long distances (greater than 1000-feet) the number of cross-sections may be reduced with the City of Durham Engineering Division approval.

B. Location

Water mains are normally located:

1. Under pavement unless approved by the City of Durham Engineering Division.
2. On the north and east sides of streets.
3. Additional waterline stubs can be required at the discretion of the City of Durham Engineering Division. At a minimum, additional stubs will be required at all intersecting roadways or rights-of - way (locations to be determined by the Engineering Division).
4. 10-feet from centerline of street (not to be under the curb and gutter section).
5. Shall be 18-inches above or 10-feet horizontal from sanitary sewer lines. If unable to maintain either of these separations both lines shall be made of ductile iron for a minimum of 10-feet beyond the crossing with the joint being centered at the point of intersection.
6. Shall be 12-inch separation from storm sewer lines and other utilities.

C. Easements, Encasements and Rights-of-Way

1. All public water mains shall be located within a street right-of-way to allow City personnel access to the main for maintenance and repair. Public water mains in easements are the exception and require special approval for use.
2. Public water main easements shall be no less than 25-feet and may be greater depending upon depth and location.