

Bowman

Memorandum

To: Matt Lowder
Branch Manager / Bowman Consulting NC Ltd

From: Andrew J. Petersen, P.E.
Chief Engineer / Bowman Consulting
Daniela Jurado, EIT
Analyst/ Bowman Consulting

Date: 10/27/2021

Re: Senior Apartments Zebulon - Parking Demand Assessment

As requested, Bowman has completed the Parking Demand Assessment for the proposed 141,186 SF senior apartment building with 72 apartment units. The proposed development is located at the southwest corner of the intersection of W Gannon Ave and Pony Rd, in the City of Zebulon, North Carolina. **Figure 1** depicts the location of the proposed site. The latest conceptual site plan is presented in **Appendix A**.



Figure 1 Location of Site

Access to the site is proposed to be provided by one (1) Access Driveway along Pony Rd. The latest conceptual site plan is presented in **Appendix A**.

The purpose of this memorandum is to provide a summary of the anticipated parking demand for the proposed site.

Background Information

As mentioned before, the applicant is proposing to develop the site with 72 senior apartment units, an age restricted community with a total of 81 proposed parking spaces.

The North Carolina Housing Finance Agency (NCHFA) requires a minimum of 1 parking space per unit. Therefore, the minimum amount of parking permitted by the program is 72.

Section 5.8.4 of the City of Zebulon Unified Development Ordinances establishes the minimum parking spaces required for *Multi-Family Dwelling* as 1.5 per every dwelling unit and 0.25 guest spaces per unit. No category is established for senior and age restricted communities. Thus, at least 126 parking spaces are required for the proposed development according to the City of Zebulon code.

The 81 parking spaces proposed on the Site Plan exceed the minimum number of parking spaces allowed by the NCHFA, however, the number of proposed spaces is below the 126-space threshold given by the City of Zebulon code of Ordinances for Multi-Family housing.

This parking study was conducted to evaluate the number of parking spaces provided on the proposed site will suffice.

Land Use

The NCHFA program, the City of Zebulon Unified Development Ordinances, and the Institute of Transportation Engineers (ITE) *Parking Generation Manual*, 5th Edition provide minimum requirements of parking spaces by land use and size. The purpose for these parking provisions is to provide an adequate planning tool to anticipate parking needs based on specific land uses. These guidelines are often developed based on actual data collected for similar type land uses and grouped together to develop average ratios based on gross square footage or other site characteristics. The ratios are often used to estimate parking needs for a planned development.

The NCHFA has separate requirements for senior apartments and family housing developments. Section 5.8.4 of the City of Zebulon Unified Development Ordinances does not have a specific parking requirement for age restricted residential developments. Therefore, Multi-Family Dwellings category was used for this development.

The Institute of Transportation Engineers (ITE) *Parking Generation Manual*, 5th Edition describes Senior Adult Housing - Attached (Land Use 252) as:

Senior adult housing consists of attached independent living developments, including retirement communities, age-restricted housing, and active adult communities. This type of housing for active senior adults can take the form of bungalows, townhouses, and apartments. These developments may include limited social or recreational services. They generally lack centralized dining and on-site medical facilities. Residents in these communities live independently, are typically active (requiring little to no medical supervision) and may or may not be retired.

The ITE description for Land Use 252 - *Senior Adult Housing-Attached* and parking demand from the ITE *Parking Generation Manual*, 5th Edition are included in **Appendix B**.

Parking Demand

Parking demand for the proposed development was calculated based on the ITE Parking Generation Manual data for Land Use 252, see **Table 1**.

Table 1. Peak period parking demand

Period	Average Peak Parking Demand Rate ⁽¹⁾	Average Peak Parking Demand
Weekday Peak	0.61	44

(1) Parking demand per Dwelling Unit

The ITE Parking Demand Manual results show that 44 parking spaces are required to supply sufficient parking for the peak parking demand of the site.

Table 2 presents a summary of the results of the parking provisions from the NCHFA, the City of Zebulon Unified Development Ordinances, and the parking recommendations from the ITE *Parking Generation Manual*, 5th Edition based on Land Use 252.

Table 2. Summary of parking recommendation

Land Use	Rate	Parking Spaces Required
Senior Apartments (NCHFA Req.)	1 Per Dwelling Unit	72
Multi-Family Dwellings (Zebulon Req.)	1.5 Per Dwelling Unit + 0.25 Per Guest Space Per Unit	126
Senior Adult Housing (ITE, LU- 252)	0.61 per Dwelling Unit	44
Senior Apartment Proposed Parking	-	81

The results shown in **Table 2** indicate that the proposed 81 parking spaces would exceed the minimum number of parking spaces required as per the NCHFA and the ITE Parking Generation Manual recommendations for LU-225; **Table 2** also shows the site does meet the minimum number of parking spots required by the City of Zebulon Unified Development Ordinances for Family Residential.

The proposed site provides an additional 37 parking spaces from what is recommended by the ITE for Land Use 252, and an additional 9 spaces from what is required by the NCHFA for Senior Apartments.

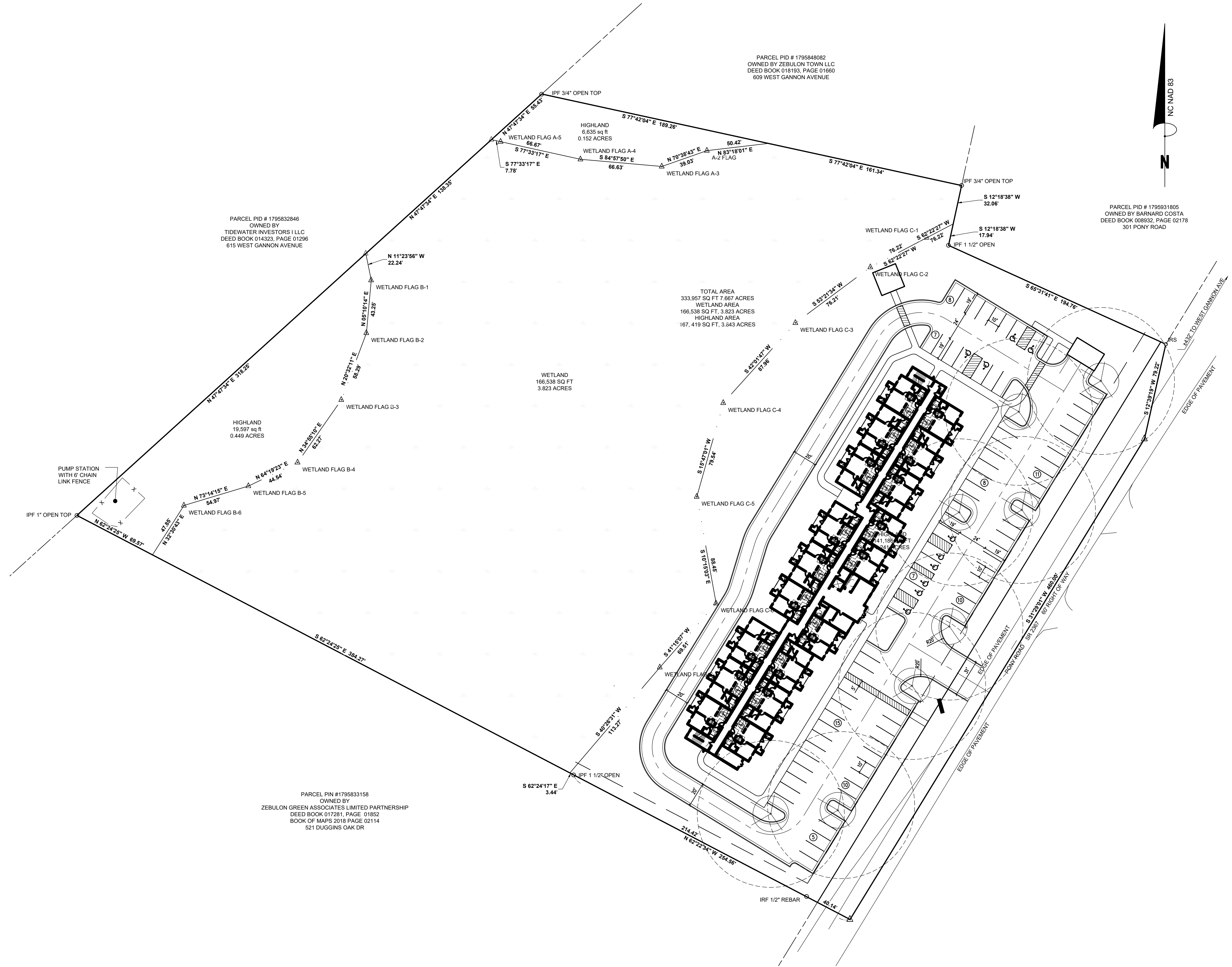
Considering that the ITE Land Use code 252 presents a more accurate description of the proposed site-specific characteristics, it is expected that the results from the ITE Parking Generation Manual reflect more appropriately the parking demand of this specific site than the rates provided for Family Housing Developments/Multi-Family Dwellings presented on the City of Zebulon Unified Development Ordinances.

Based on this analysis, the 81 parking spaces provided for the proposed development are expected to provide adequate number of parking for the proposed site.

Summary of Findings and Conclusions

- Per the North Carolina Housing Finance Agency (NCHFA), a minimum of 72 parking spaces are required for the proposed development.
- Section 5.8.4 of the City of Zebulon Unified Development Ordinances does not have a specific parking requirement for age restricted residential developments, therefore, Multi-Family Dwellings was defined as applicable land use category, yielding 126 parking spaces.
- The ITE Parking Demand Manual results for Land Use 252 (Senior Adult Housing) shows that 44 parking spaces are required to supply sufficient parking for the peak parking demand of the proposed site.
- The proposed site exceeds the minimum parking demand requirements calculated based on the applicable land use as per the NCHFA and the ITE Parking Generation Manual.
- The ITE Land Use code 252 presents a more accurate description of the proposed site-specific characteristics. Based on this, it is anticipated that the peak parking demand calculated based on these provisions would reflect more accurately the conditions of this specific site than the parking demand rates provided by Section 5.8.4 of the City of Zebulon Unified Development Ordinances.
- Based on this analysis, the proposed 81 parking spaces on the Senior Residential Development are expected to provide adequate number of parking spaces for the site demand.

Appendix A



Appendix B

Land Use: 252 Senior Adult Housing—Attached

Description

Senior adult housing consists of attached independent living developments, including retirement communities, age-restricted housing, and active adult communities. This type of housing for active senior adults can take the form of bungalows, townhouses, and apartments. These developments may include limited social or recreational services. They generally lack centralized dining and on-site medical facilities. Residents in these communities live independently, are typically active (requiring little to no medical supervision) and may or may not be retired. Congregate care facility (Land Use 253), assisted living (Land Use 254), and continuing care retirement community (Land Use 255) are related uses.

The minimum age thresholds for the study sites in the database are not known. It would be expected that a development with an age restriction of 55 would include more households with an employed resident than would a development with an age restriction of 65. How this age restriction affects parking demand cannot be determined from the available data.

Additional Data

The average parking supply ratio for the three study sites in a general urban/suburban setting and with parking supply information is 0.9 spaces per dwelling unit.

The sites were surveyed in the 2000s in Pennsylvania.

It is expected that the number of bedrooms and number of residents are likely correlated to the parking demand generated by a residential site. Parking studies of multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex). Future parking studies should also indicate the number of levels contained in the residential building.

Source Number

431

Senior Adult Housing - Attached (252)

Peak Period Parking Demand vs: Dwelling Units

On a: Weekday (Monday - Friday)

Setting/Location: General Urban/Suburban

Peak Period of Parking Demand: 10:00 p.m. - 8:00 a.m.

Number of Studies: 3

Avg. Num. of Dwelling Units: 58

Peak Period Parking Demand per Dwelling Unit

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
0.61	0.45 - 0.67	0.51 / 0.67	***	0.11 (18%)

Data Plot and Equation

Caution – Small Sample Size

