



## Town of Pittsboro, North Carolina

Engineering Department

### Memorandum

To: Mayor Terry and the Town Board of Commissioner's

From: Fred Royal, PE, Town Engineer 

Subject: Elevated Water Tank Recommendations

Date: May 11, 2015

### Background and Discussion

The Town Board of Commissioner's received a staff report concerning alternatives for an elevated water tank on March 9, 2015. Since this date, staff has evaluated the alternatives independently and with the Chatham Park engineers. Subsequently, the CP engineers have submitted a proposal for a two-phase approach to install an elevated tank and make select improvements/enhancements to the town's water infrastructure.

A revised alternative is proposed by staff with a phasing plan as the *preferred alternative* that address the initial needs for the Chatham Park development and meet the Town's most immediate infrastructure improvement needs as outlined below:

Phase 1:

- Provides approximately 10,800 LF of 12"/16" water line extension;
- New 300,000 gallon elevated storage tank on higher pressure zone (from 679' to 710');
- New control valve to allow control for filling the new 300,000 gallon elevated storage tank and Town's existing standpipe.

(See Exhibit Map- Phase I)

Advantages:

- Provides additional elevated storage for fire protection;

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- Allows the existing Town standpipe to maintain pressure by filling from the new 300,000 gallon elevated storage tank; thereby improving pressure on the Town's northern area existing system;
- Provides for better water quality (age);
- Lessens demands on the existing high service pump station for the Chapel Ridge system due to the additional storage capacity;
- Eliminates a proposed water booster station.

Disadvantages:

- With higher pressure zone of 710', there will be a need for individual pressure reducing valves (PRV's) for customers north of the control valve location. *We estimate between 30 and 50 PRV's will be required for private residences. The cost estimate per meter is approximately \$300.*

Phase II:

- Provides for new 1.0 MG elevated storage tank for potable water;
- Converts the 300,000 gallon elevated storage tank to reclaimed water (RCW) storage;
- Provides upgrades to Town's existing high service pump station at WTP with new pump and controls.

(See Exhibit Map- Phase II & Exhibit Map –Town Alternatives)

Advantages:

- Provides additional elevated storage for fire protection;
- Allows for the removal/demolition of the existing standpipe;
- Provides for improved pressure on the Town's system with new pressure zone at 710';
- With the higher pressure zone of 710' allows for future development at higher elevations within the Town's existing service area while maintaining adequate pressures;
- Allows the Town to consider raising the 1.0 MG elevated storage tank to an even higher elevation of approximately 736' to serve even higher elevations within the Town's existing service area if deemed needed;
- Provides for improvements to the existing high service pump station with additional pumping capacity;
- Provides for a parallel water main across US 64 By-Pass via a 12" water line (*currently begin installed to the Bellemont Apartments site and beyond*).

Disadvantages:

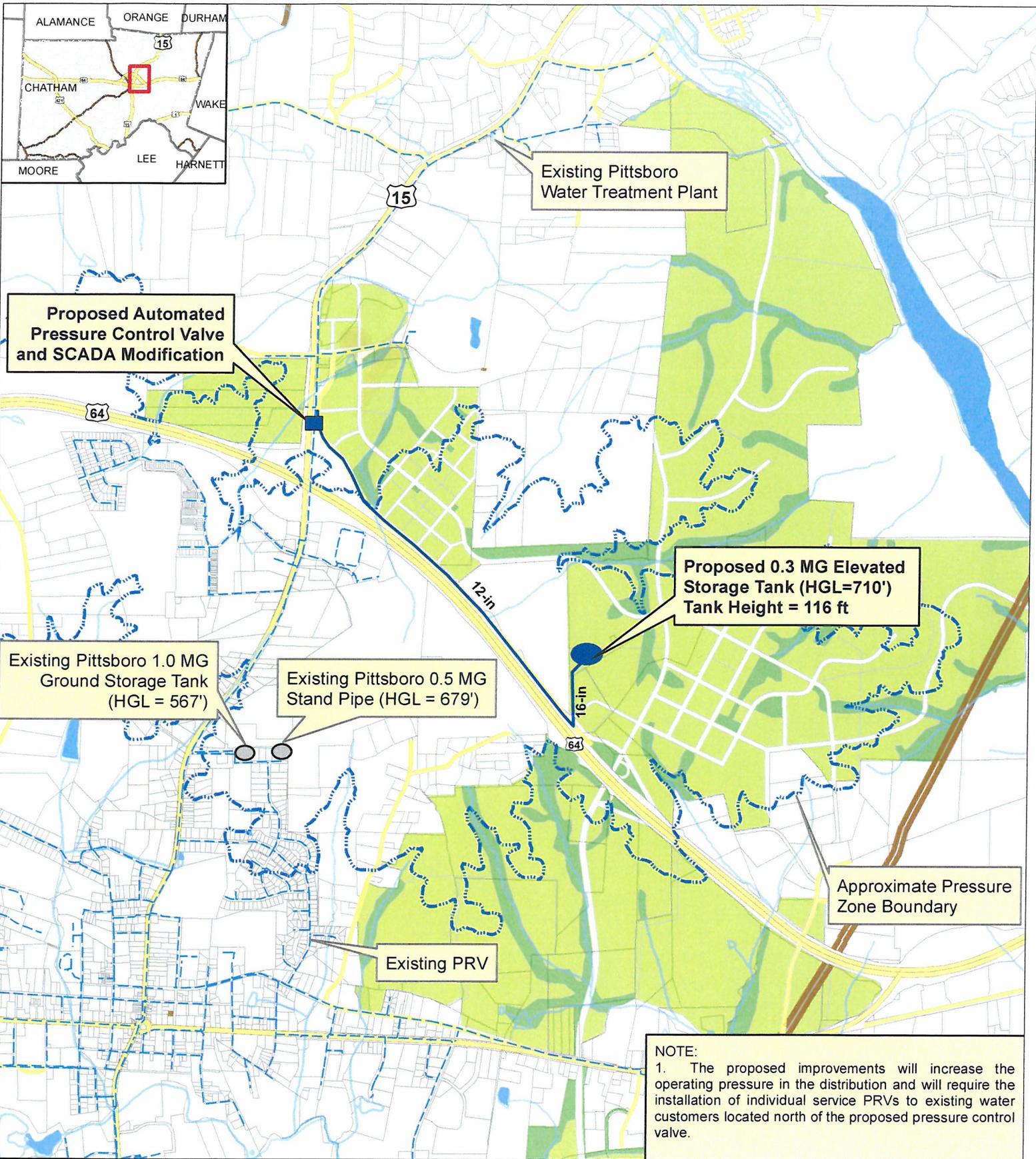
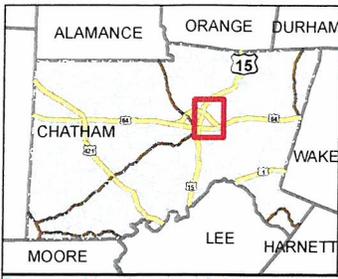
- With higher pressure zone of 710', there will be a need for individual PRV's for customers on the existing 679' zone;
- Extend approximately 5,800 lf of 12" water main for looping from Town's existing distribution system to north side of US 64 By-Pass. However, this is offset by development currently planned to install approximately 2/3 of this 12" main behind the existing Lowe's Lumber shopping center area.

Staff believes that with the increased development within the proposed pressure zone and with the current challenges associated with fire flow and pressure, there are multiple benefits for the Town with this phased approach.

### Staff Recommendations

Staff recommends Town Board approval of Phase I as described above, with conditions. The conditions include the following:

1. BOC review and approval of a CP provided capital and annual cost opinions
2. Review and approval of an Operations and Maintenance Plan of Phase 1 infrastructure
3. Town to develop a Development Agreement for Phase 1 (*Phase II is considered as conceptual and will be further developed until the water demand increases to warrant Phase II*).
4. The project include selected improvements to the Town distribution system to include SCADA and other system improvements to ensure improved monitoring and general operations of the distribution system in this northern area of town.

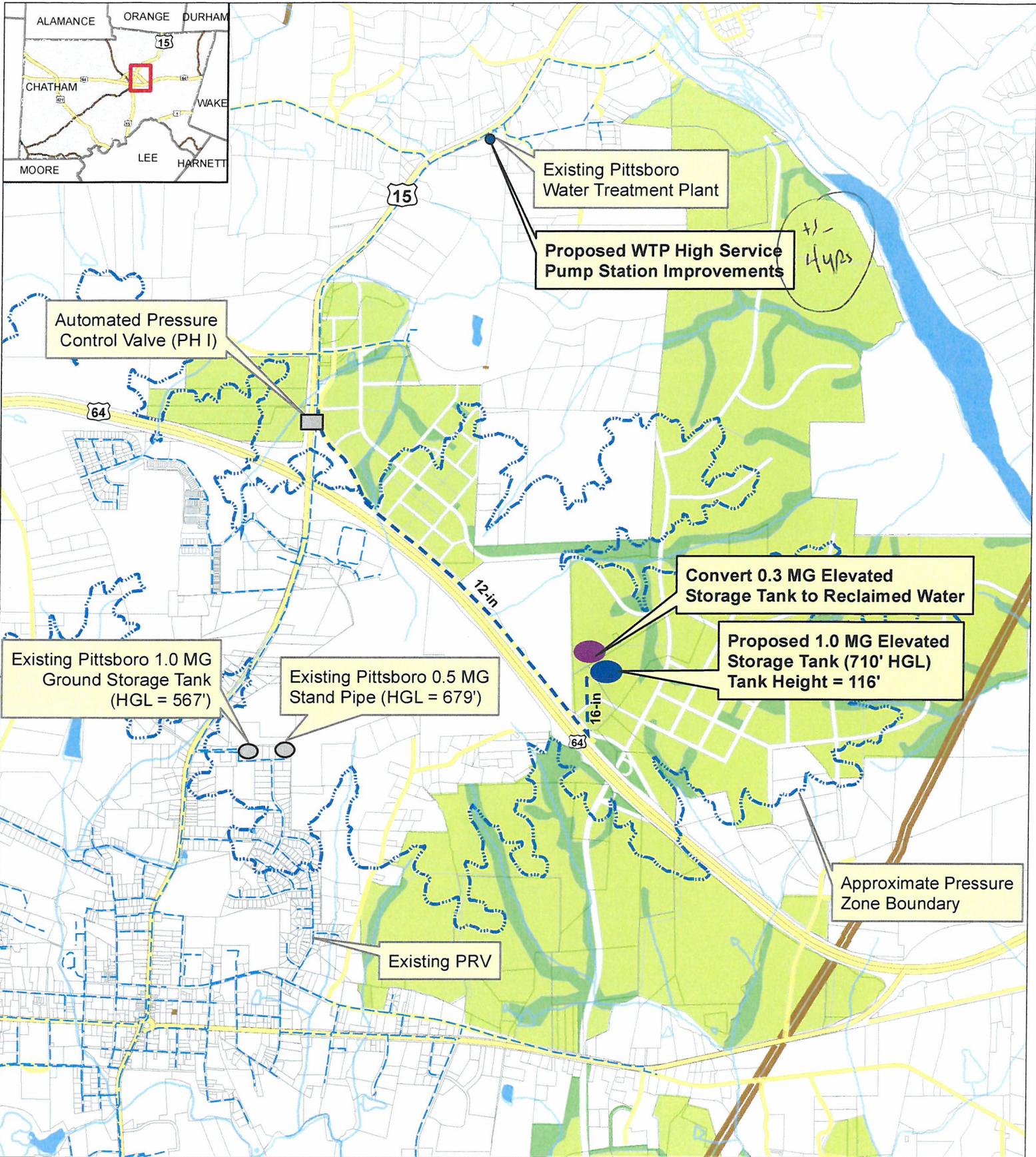


## Chatham Park Water System Improvements - PHASE I

Chatham County, NC



4/2/2015

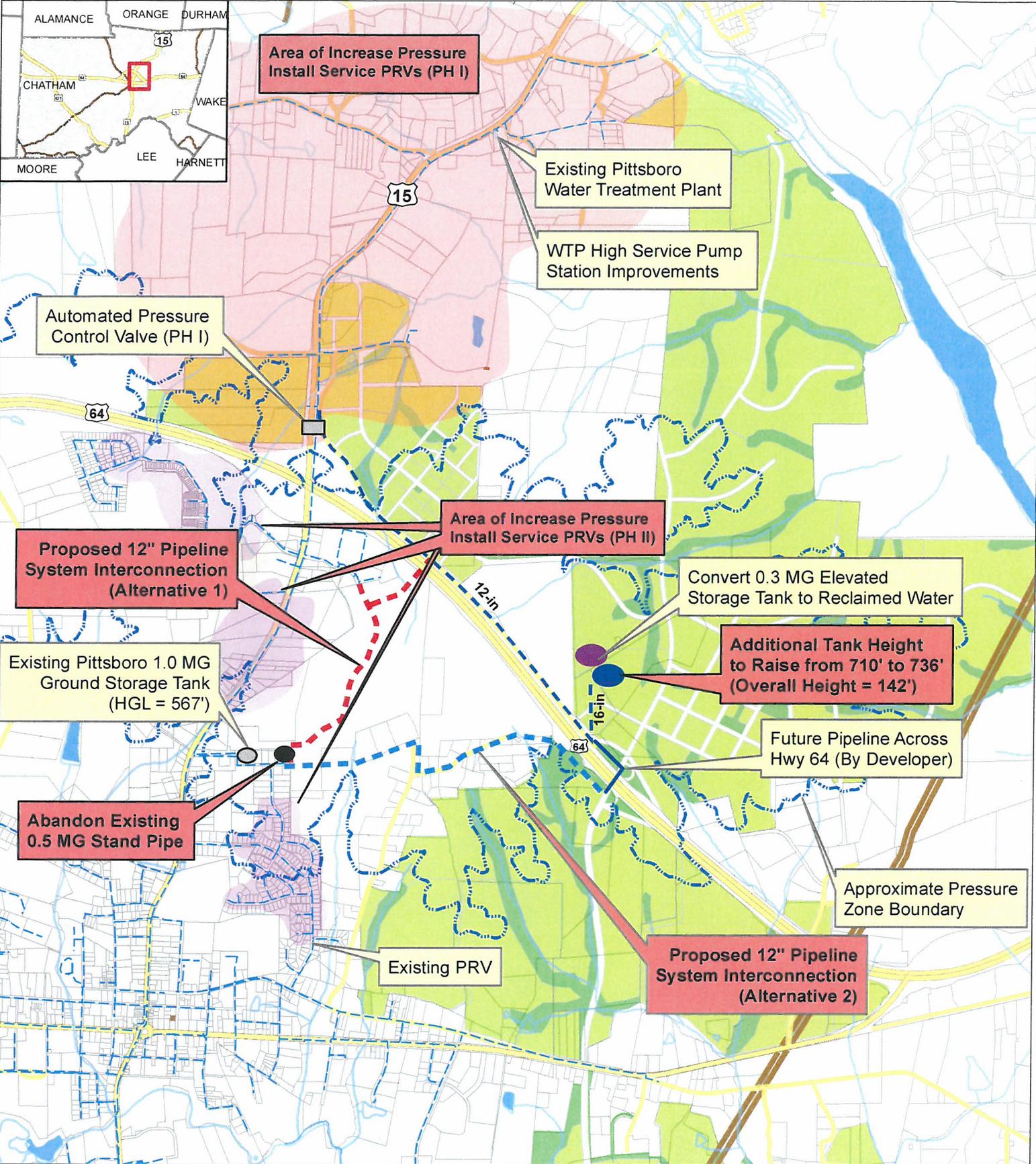


### Chatham Park Water System Improvements - PHASE II

Chatham County, NC



4/2/2015



**Chatham Park  
Water System Improvements - Town Alternatives**

Chatham County, NC



4/8/2015