

Memorandum

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Subject **Town of Orleans, MA**
Water Quality and Wastewater Planning
Task Number 1.b – Downtown Planning, Buildout Scenarios

Project Number 60476644

From Thomas Parece, P.E., AECOM Project Manager

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INTRODUCTION

As part of the Downtown Planning task for the Water Quality and Wastewater Planning scope of services, AECOM has prepared buildout scenarios for the Town Center Study Area. The buildout scenarios predict estimates of additional dwelling unit and commercial development square footage under several different conditions. Existing conditions are described to provide a baseline.

EXISTING CONDITIONS

Baseline values for the number of dwelling units and commercial development (i.e. non-residential square footage) within the Town Center Study Area were developed as explained below:

- Dwelling Units for Residential District (R) Parcels:
 - Number of existing dwelling units for each parcel determined by use of the following sources: assessors database, water account records, and online research (Google Earth, etc.).
- Dwelling Units for Business District (LB, GB, VC) Parcels:
 - Number of existing dwelling units for each parcel determined by use of the following sources: assessors database, water account records, FinePoint Associates 2015 Downtown Business Inventory, online research (Google Earth, etc.), and site visits as necessary.
- Commercial Development:
 - Total non-residential square footage in the Town Center Study Area determined for each parcel by use of the following sources: assessors database, FinePoint Associates 2015 Downtown Business Inventory, online research (Google Earth, etc.), and site visits as necessary.

BUILDOUT SCENARIO DEVELOPMENT

The following four scenarios were developed to estimate buildout potential for the Town Center Study Area:

- Scenario 0 – Full Buildout Under Current Zoning with Wastewater Limitation (no sewer)
- Scenario 1 – Full Buildout Under Current Zoning without Wastewater Limitation (sewer provided)
- Scenario 2 – Planning Horizon 2050 (two options reflecting different growth rates, sewer provided)
- Scenario 3 – Full Buildout with Land Use and Zoning Changes Reflecting Increased Density (two options reflecting possible land use changes, sewer provided)

Details on the assumptions and approach used for each scenario are provided below.

Scenario 0: Full Buildout Under Current Zoning with Wastewater Limitation

- Dwelling Units for Residential District (R) Parcels:
 - For parcels with a total area of 40,000 sf (i.e. minimum lot size) or less, assume no separate residential structures can be built.
 - For parcels with a conforming lot size of 40,000 sf or more, assume an accessory dwelling unit can be added if the Town's Nutrient Management Regulations wastewater limitation of 440 gpd / 40,000 sf is not exceeded. For non-conforming lots, assume no accessory dwelling units can be added.
 - For parcels with total area greater than 40,000 sf, parcel size was evaluated using the 40,000 sf of buildable upland (i.e. contiguous area outside wetland resource areas and FEMA 100-year floor zone) minimum requirement to see if additional residential structures could be built by subdividing the property. *Note: This does not apply to any parcels in the Town Center Study Area.*
 - Assume no tear downs and reconstruction resulting in greater number of dwelling units on a parcel.
 - Assume tax exempt properties (i.e. properties with a State Classification Code 9) would not support dwellings in the future.
- Dwelling Units for Business District (LB, GB, VC) Parcels:
 - Zoning regulations were reviewed for each parcel to determine if additional dwelling units could be added. Assume apartment regulations are applicable to condominium uses.
 - Assume that under buildout conditions, business district parcels would max out allowed dwelling units (i.e. three or four units for 2-floor or 3-floor structures, respectively, in the Village Center District; two dwelling units for parcels in other business districts) if it is determined there is no on-site wastewater limitation. *Note: See description of determination of wastewater limitation below under the Commercial Development heading.*
 - Assume commercial condominiums (based on state class description) can support dwelling units.
 - Assume current uses do not change (e.g. do not account for removal of a business and replacement with apartment complex or condo, or conversion of a motel to dwelling units).
 - Assume tax exempt properties (i.e. properties with a State Classification Code 4 and Code 9, respectively) would not support dwellings in the future.
 - For existing apartment and condominium developments, confirm number of existing units (using sources identified above) and assume up to full density / number of units identified in Section 164-31 Apartment Development are built if it is determined there is no on-site wastewater limitation.
 - For non-conforming lots with state class descriptions of single-family, multiple houses, two-family, or three family, assume no accessory dwelling units can be added.

- Commercial Development:
 - Determine estimated remaining / future developable floor area by calculating buildout potential for each LB, GB, and VC parcel based on existing floor area ratio (FAR) compared to max allowed FAR in the Town's zoning regulations (GB and LB: 40%; VC: 100%). Existing FAR determined by dividing the current gross floor area (as reported in the FinePoint Associates 2015 Downtown Business Inventory or the Town's assessors database) by the lot area (as calculated using the Town's GIS parcel data layer).
 - Assume square footage expansion would be lateral.
 - Reduce buildout potential for each parcel as needed due to on-site wastewater limitation.
 - Estimate wastewater limitation using the following approach:
 - Estimate remaining developable lot area for a parcel by deducting approximate lot setback requirements, Title 5 setback requirements, and existing building coverage from the buildable upland area value (i.e. contiguous area outside wetland resource areas and FEMA 100-year flood zone).
 - Estimate the total additional wastewater flow (gpd) for a parcel by calculating flow associated with the remaining developable floor area square footage (using a gpd/sf value derived from historic water usage and existing gross area) and new dwelling units (assuming an average 1.5 bedrooms per new unit and Title 5's factor of 110 gpd per bedroom), if applicable.
 - Estimate the area requirements for the new Title 5 system required to handle the projected flows for each parcel, as well as area requirements for additional parking required for the additional development. Assume that the Title 5 system would not be constructed beneath parking, which requires a variance from the Board of Health. Note that if it is determined that less than 6 off-street parking spaces are required to support the additional development, then no additional parking spaces are required per Section 164-34.B.(1) of the Town's zoning regulations. These values are deducted from the remaining developable lot area estimated for each parcel (see first bullet) to determine if adequate area is available to support the additional development. If adequate area is available, then assume no wastewater limitation factor needs to be applied. If adequate area is not available (or if projected wastewater flow generation would exceed the Town's Nutrient Management Regulations 440 gpd / 40,000 sf ratio), additional development is scaled back to reflect a wastewater limitation and what could be supported on the parcel.

Scenario 1: Full Buildout Under Current Zoning without Wastewater Limitation

- Same approach / assumptions as used for Scenario 0, except the on-site wastewater limitation is eliminated due to assumed future provision of sewer to the Town Center Study Area.

Scenario 2: 2050 Planning Horizon without Wastewater Limitation

- Same approach / assumptions as used for Scenario 1, except a planning horizon is applied.
- Planning horizon determined based on an assumed 2020 construction date of a new wastewater treatment facility and 30 year estimated useful life.
- Scenario 2 includes two options.
 - Scenario 2a applies annual growth rates based on historical data.
 - Dwelling Units: Assume annual increase of 0.3% through 2050 based on U.S. Census data for Orleans CDP.

- Commercial Development: Assume annual increase of 0.2% through 2050 based on consideration of historic assessors data for non-residential square footage and trend of commercial development being outpaced by residential development.
- Scenario 2b applies increased annual growth rates with the assumption that removal of a wastewater limitation to the Town Center Study Area could yield an increase in allowable development.
 - Dwelling Units: Assume annual increase of 0.5% through 2050.
 - Commercial Development: Assume annual increase of 0.4% through 2050.

Scenario 3: Full Buildout with Land Use and Zoning Changes Reflecting Increased Density

- Results from Scenario 1 are used as a starting point.
- Scenario 3 includes two options.
 - Scenario 3a:
 - Assume the 20 parcels with frontage on Route 6A between West Road and Canal Road and a lot size of 40,000 sf or greater of buildable upland could support a future residential use with a density of up to 9 units / acre, and assume no commercial use on these parcels.
 - Assume zoning changes are made for the affected parcels to reduce the minimum lot area requirement from 60,000 sf to 40,000 sf of buildable upland and increase the allowable density from 6 units / acre to 9 units / acre.
 - Scenario 3b:
 - Assume 55 parcels located within a “downtown core” area (i.e. vicinity of the Main Street / Route 6A intersection) could support a future mixed use based on application of the following ratios, which were derived from a proposed large-scale mixed use development in the VC district:
 - Residential: 9 dwelling units / acre
 - Commercial: 9,000 sf / acre
 - Assume zoning change is made for the affected parcels to eliminate the minimum lot area requirement of 60,000 sf of buildable upland.

PRELIMINARY DRAFT BUILDOUT SCENARIO RESULTS

Preliminary draft results (dwelling units and commercial square footage) for the buildout scenarios described above are presented in Table 1 on the following page. Existing conditions information is also included for comparison. These preliminary draft results will be finalized and included in a Technical Memorandum submitted to the Town.

Table 1. Summary of Orleans Town Center Study Area Existing Conditions and Buildout Scenarios¹

Sector	Existing Conditions	Orleans Town Center Study Area Buildout Scenarios					
		Scenario 0: Full Buildout Under Current Zoning with Wastewater Limitation	Scenario 1: Full Buildout Under Current Zoning without Wastewater Limitation	Scenario 2: 2050 Planning Horizon without Wastewater Limitation		Scenario 3: Full Buildout with Land Use and Zoning Changes Reflecting Increased Density	
				Option 2a: Historic Growth Rates	Option 2b: Higher Growth Rates	Option 3a: Conversion of 20 Route 6A Parcels to Higher Density Residential	Option 3b: Conversion of Downtown Core Area to Higher Density Mixed Use
Residential - Dwelling Units	800	1,102	1,210	888	953	1,523	1,350
Commercial - Square Footage	1,474,128	2,333,338	3,841,651	1,580,904	1,695,177	3,478,427	3,745,997

1. Table reports preliminary draft results that are subject to revision.