Integrated Planning

Quantifying the Gap

As concluded previously in the Current Flows and Trending Section, there is insufficient capacity to meet current wastewater flow allocations at the existing Concord WWTP. Therefore, no capacity in the existing WWTP is currently available to provide for or support future development without I/I reductions, as planned in the CWMP. The build-out projections estimated in the Planning and Development Section are significant in magnitude. Associated wastewater flow projections for this build-out are generated below to quantify the potential gap and to initiate discussion as to alternate wastewater management options which might be appropriate for consideration in the future.

This projection describes the total flow for all new properties in the build-out analysis. Note that only a portion of these properties would be in sewered areas. As an example, assuming 80% of commercial and industrial and 60% of housing and non-profit growth are in sewered areas, this amounts to 285,000 gpd ADF potentially requiring connection to the centralized sewer system.

Table 5
Wastewater Flow for Buildout Projections

Current Land Use	Number of Parcels	Total Units at Buildout	Wastewater Flow Calculation Factor[(1)] (GPD)	Projected Wastewater Flow at Buildout (GPD)
Residential	416	713 Units	(x 330 /Unit)	235,290
Public/Non-profit	75	71 Units	(x 330 /Unit)	23,430
Commercial	109	1,265,352 Sq. Ft.	(x 0.075 /Sq. Ft.)	94,900
Industrial	26	896,805 Sq. Ft.	(x 0.075 /Sq. Ft.)	67,260
TOTAL	**626**			**420,880 GPD**

(1) Wastewater flow projections were generated using Massachusetts 310 CMR 15.416, The State Environmental Code, Title 5. Residential calculations assume each unit is a single-family home with three bedrooms. Non-residential units assume office use of the anticipated square footage.

Bridging the Gap

Based on the feedback generated from review of this report, CPW and the DPLM are prepared to develop and implement the necessary policies and projects required to create additional municipal wastewater management capacity. In principle, all costs required to create this additional capacity would be borne by those entities that could choose to benefit from such service (i.e. through betterments, connection fees, improvement fees, etc.). In order to develop and implement such a plan, it is essential for the Town to answer the following questions:

1) How much wastewater flow is associated with the desired development or redevelopment of areas identified in the PPHP and CLRP?

2) For what portion of this flow can and will the Town provide municipal wastewater management options?

3) In what time frame is this new, municipally handled flow anticipated to be generated?

4) How will the Town fund design and construction costs associated with any future wastewater management solutions?

5) Which areas that are currently under-serviced have the highest value to the Town in terms of sustaining continued economic growth through redevelopment and housing production?

The CWMP tenets of reducing Title 5 variances and maintaining a water balance to the extent feasible are still applicable today. These measures are required to preserve public health and safety and promote environmental protection. Any increase in the flows through the WWTP would be designed utilizing groundwater discharge, either at the WWTP site or elsewhere. Growth neutrality, however, must be reexamined as the above questions are considered.

There are many possible approaches to increasing municipal wastewater treatment options, depending on the quantity and phasing requested by the Town to meet housing and economic development goals. These include:

- Construction of one new wastewater treatment facility elsewhere in town with a groundwater discharge system. This would require approval from MADEP of a Groundwater Discharge Permit for any average daily design flows over 10,000 gpd. Ideally, such a system would be located in either the Sudbury or Assabet River watershed, to promote the water balance approach. This is viewed as a long-term option for any substantial increase in flows in the hundreds of thousands of gallons per day range.

- Construction of several small, localized, Town-owned-and-operated treatment systems, again requiring Groundwater Discharge Permits where flows exceed 10,000 gpd. This option could apply to short or long-term solutions, depending on the needs, and could accommodate smaller flow volumes than a new, larger treatment facility.

- Allowance for an increase of flows through the existing WWTP up to the 1.36 mgd hydraulic capacity, with a new Groundwater Discharge Permit for discharge either at the WWTP or elsewhere. If groundwater discharge is proposed at the WWTP site, this is deemed as a short term solution for an interim period pending construction of another option, as it does not meet the water balance goals. If discharge was pumped elsewhere, it could be considered as a long-term solution for up to approximately 160,000 gpd, however pumping of this volume of flow over a long distance could be cost prohibitive.

- Another approach likely to be raised when assessing alternative wastewater management solutions relates to the seeking of DEP and EPA approval to increase the NPDES surface water discharge limit beyond the 1.2 mgd. While this alternative would require a relatively small investment in equipment upgrades, it is acknowledged that these same regulatory entities noted above instructed the Town to not consider such an option during the development of the CWMP.

Outside of such municipal options, individual property owners will continue to be required to utilize private onsite solutions, either using Title 5 systems (under 10,000 gpd) or individual, privately-owned and operated package treatment systems with Groundwater Discharge Permits.

Concord Public Works is also receptive to other creative solutions that could be developed to help desired new growth, if necessary. These could include public/private partnerships where multiple wastewater management needs can be accommodated on one privately-owned parcel. Another consideration would be to establish a mechanism whereby existing wastewater capacity previously committed for Phase I improvements and other bettered properties not yet connected to the municipal system would strategically be deferred to accommodate proposed projects which meet specific criteria and have been deemed in the Town's best interest. Such an approach would require a commitment from the Town to develop and construct additional wastewater capacity pursuant to an accepted Master Plan.

All of these options can be more fully evaluated as the Town provides answers to the critical questions that drive the wastewater management process.