

Town of Lancaster, Massachusetts

Environmental Overlay District Pilot Project

8.0 Recommendations

The results of the water balance highlight the importance of protecting streams and aquifers from the impacts of development. Although most people likely assume that new developments have little or no impact on the environment, the reality is that today's developments can have significant impacts on the overall hydrologic budget, as described below.

There is a rule of thumb that each acre of land produces roughly one million gallons of water per year (1 MG). If that acre is forested A or B soil, about half the 1 MG is evapotranspiration that reenters the water cycle through the atmosphere while about half is recharge. If that same acre of land is paved for a parking lot, using today's stormwater controls, evapotranspiration is close to nothing, as is recharge. The shocker is that 1 MG is now new runoff! While this is perhaps an extreme example, it shows that change is needed to avoid losing this water quickly downstream, creating flooding and damaging banks and aquatic habitat. It is now also lost to human use unless there is a major reservoir downstream. The river or stream becomes flashy during rainfall and dry during even minor droughts as the groundwater table falls below the bottom of the stream.

In addition to the flow component of the water balance, water quality must also be considered. Reduced baseflows and increased runoff lead to increased pollutant loadings and stream warming. Without proper treatment, recreational water bodies, aquatic habitat and organisms and downstream water supplies will suffer.

Currently, the North Lancaster area is only lightly developed, so the time is perfect for putting good land use controls in place. These controls are not unusually expensive for the development community, especially in comparison to the benefit of being able to develop their land and the benefits to the Town of Lancaster as a whole.

One concept, to be developed further in the IWRM that is now ongoing, is that the area south of Route 2 could become a secondary 'village' of mixed use, with retail developments as an anchor and tax base staple, but also industrial/business office components and perhaps even limited, connected housing for nearby workers. Recreational facilities, such as trails and green space, bike paths and the like, could link the businesses to residents in North and South Lancaster. Retail businesses might include the type of stores not appropriate for downtown south Lancaster as well, but these would need to fit the village design concept instead of a massive commercial strip. Lancaster is now working on a revised Master Plan that may include some of these elements, so there is no need for this report to go further into the planning aspects of economic development except to clearly state what has become obvious to Lancaster officials already – some form of sewer and water services will be needed to attract the necessary economic growth in this area. Since this same sewer and water may also bring environmental impacts, it is critical that the protective controls be put in place prior to this occurrence.



Town of Lancaster, Massachusetts

Environmental Overlay District Pilot Project

CEI's recommendations are as follows:

1. Lancaster should expand and modify the existing Water Resources District Overlay – the existing district has some land use restrictions and also prohibits septic systems that discharge more than 440 gpd per acre. The additional treatment requirements on large flow systems (>1,000 gpd) should be added to these restrictions. The area covered should also be expanded as shown on the map in Figure 5-1 to cover additional high and medium yield aquifers that are not now included. Although there may not be immediate plans to tap these aquifers for public water supplies, they may be needed at some future date by either the Town or by private entities for larger developments such as may occur with the village concept for North Lancaster discussed previously.
2. Develop Fisheries District Overlay – Lancaster should develop a fisheries overlay district that matches the jurisdiction of the Wetlands Protection Act. This can be used to provide extra controls on large flow septic systems and their potential contaminant contributions to minimize impacts on aquatic life. Since these types of systems may well be likely considering the political and economic issues in some portions of North Lancaster, these types of controls can only benefit the Town and its important environmental resources at minimal cost to developments.
3. Stormwater Overlay – Lancaster should incorporate the Stormwater Overlay and associated performance criteria from Section 5.0 into Lancaster's regulations. This will help control impacts from development to maintain a healthier water balance and aquatic habitat. This includes stormwater performance criteria, as well as criteria for the proposed Water Resources Protection and Fisheries Overlay.
4. Model Development – MA DEP, in conjunction with Riverways, should consider developing the model created for this project into a more user-friendly version. The model is a valuable tool in identifying the impacts of different development, sewerage and water supply scenarios and can be used to evaluate the most cost-beneficial options in a CWMP or IWRM.
5. Developer's Guide to the Environmental Overlay Districts – There is a need for a Developer's Guide to go with the regulatory changes and overlays. Although meeting the performance criteria is technically all that is needed, developer's may need additional guidance on some techniques (such as the underdrained filters for cooling stormwater) and Lancaster/DEP/Riverways may wish to limit the types of techniques allowed to promote Low Impact Development. This could have wide application across the state, and could be an adjunct to the Stormwater Policy by including engineer's plan review checklists and other materials to help both developer's engineers and engineering reviewers understand how LID concepts differ from 'design as usual'.

