



Section 10 - Conclusions and Recommendations

10.1 Conclusions

The Town of Cary is embracing many opportunities in its sewer collection system in the next five years. The reshaping of the system has substantial fiscal and operational impacts for its future. The Town is committed along with other partners in completing the Western Wake Regional Water Reclamation Facility (WWRWRF) in the timeframe of 2014. Further consolidation of previously Morrisville owned system and Cary owned system would present new opportunities of streamlining existing operation, enhancing services to customers and achieving potential savings.

The inflow and infiltration problems in the Town's collection system are relatively minor. The Town will continue its twin strategies of investing for new growth opportunities while pursuing sewer rehabilitation to prevent the degradation of the aging system. Sewer pipe upgrade through open trench construction or trenchless techniques may prove to be more cost-effective in addressing those capacity deficiencies. However, the Town should continue to maintain and expand the existing sewer rehabilitation program to forestall the decay of the sewer collection system.

Two sewer sub-basins, the sub-basin upstream of Meter 23 in downtown Morrisville and the basin upstream of the Walnut Creek Pump Station in downtown Cary, were identified as the sub-basins with high RDI/I per linear foot of sewer and high peak wet weather to dry weather flow ratios. The Town has implemented several projects to address the capacity issues associated with those two areas, such as Speight Branch parallel projects. New sewer pipe upgrade projects were proposed in this study to further address the surcharges and possible overflows at the downstream system at those locations.

The existing system has adequate capacity to convey existing dry weather wastewater flows; however, this capacity is very limited in terms of delivering the existing wet weather wastewater flows in some parts of the system under extreme conditions, such as Crabtree Creek interceptor, York Branch and Swift Creek interceptor. The existing system would be inadequate to convey future dry and wet weather flows.

A comprehensive capital improvement program was developed using the hydraulic simulation results and included in Section 7. The total capital outlay is projected to be \$104 million (year 2010 dollars).

The Town of Cary is in the process of actively completing many projects, which would expand its current delivering capacity and significantly address the issues identified in this report. It is important to note that the force main parallel projects are to provide PWUT with opportunities to perform more extensive repair and rehabilitation to existing aging force mains. Those projects include,

- Speight Branch parallel. This gravity sewer parallel was recommended in addition to I&I improvements in the basin in order to divert NCWRF basin flows to the SCWRF basin.



- Walnut Creek Pump Station Force Main Parallel
- Swift Creek Pump Station Force Main Parallel

10.2 Recommendations

The master plan study adopts a system-wide approach to mitigate and reduce sewer surcharging and potential overflows. We would recommend that the Town:

- Proceed with the preliminary design, final design, and construction of the Phase 1 projects associated with the WWRWRF
 - Green Level B Gravity Sewer
 - Green Level Force Main
 - Alston Force Main
 - Kit Creek Pump Station Expansion
 - Morris Branch Pump Station Expansion
- Proceed with preliminary design, final design, and construction of projects associated with the new Reedy Creek Regional Pump Station
 - Reedy Creek A/B/C Gravity Sewers
 - Reedy Creek Extension Gravity Sewers
 - Thresher Court Extension A/B Gravity Sewers
 - Medfield/Thresher Pump Station Abandonment
 - I-40 Reedy Creek Regional Pump Station Expansion to 5.6 MGD
- Proceed with the preliminary design and final design of the projects associated with the Rocky Branch and Dutchman's Branch Pump Stations
- Proceed with the investigation and design/construction related to the integration of the Morrisville system into the North Cary system. Special attention should be directed to increasing the delivery capacity in the York Interceptor and at the Aviation Pump Station
- Proceed with the investigation of the surcharge in the Crabtree Creek Interceptor
- Add or relocate more flow meters to the West Service Area and quantify the flow entries to the Kit Creek, Morris Branch and West Cary Regional Pump Stations