

FINAL PROJECT REPORT
MAPLE RIVER JUNCTION WASTEWATER SYSTEM CONSTRUCTION
7014-005

Carroll County and its agents recently completed the construction of the wastewater collection and treatment system in the unincorporated village of Maple River Junction, located 2-miles west and 1 mile north of the City of Carroll. Carroll County was cited in 1999 for an unpermitted wastewater discharge coming from the village by the Iowa Department of Natural Resources. After several years of design and funding challenges, the project is complete and the unpermitted wastewater discharge has been eliminated.

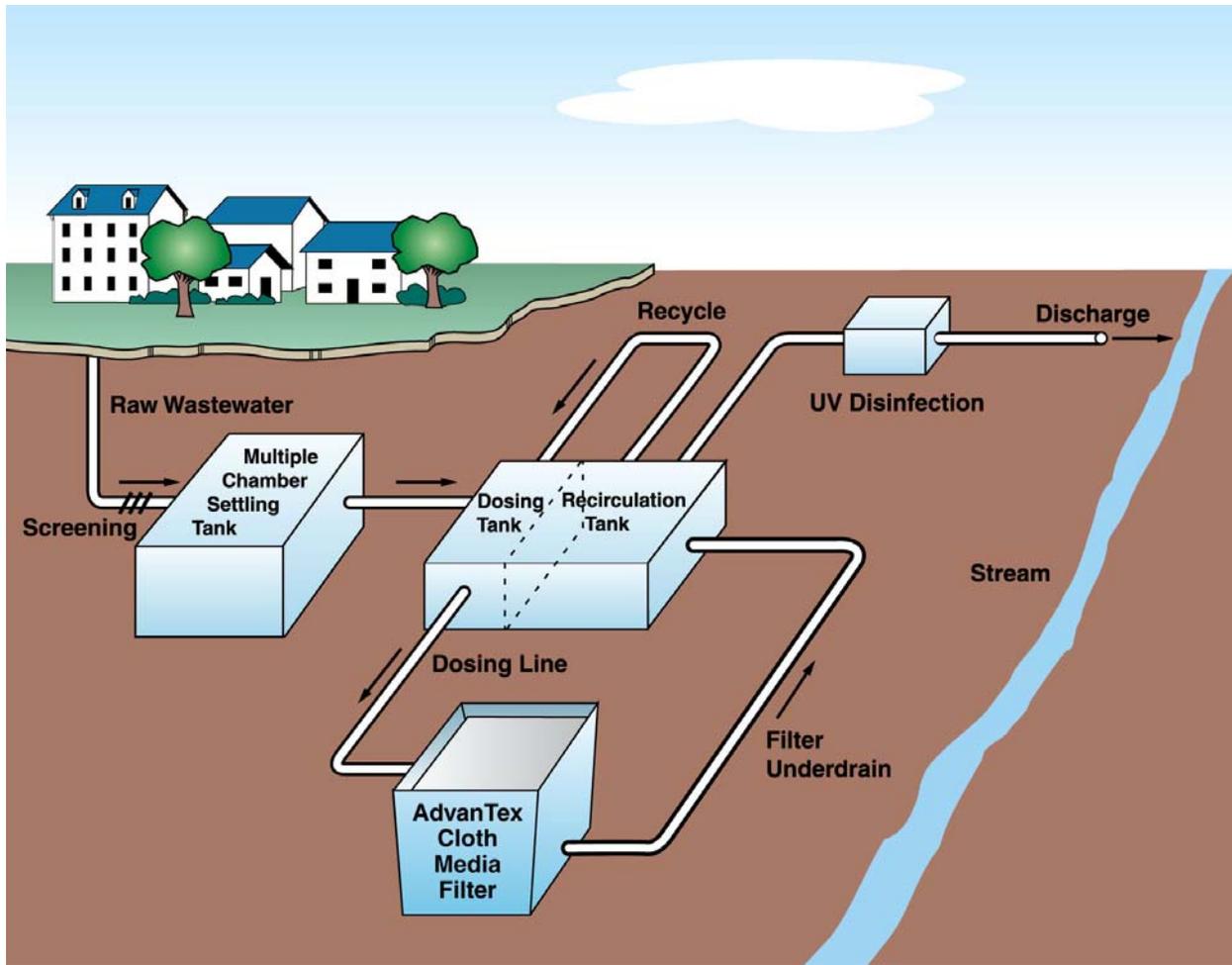
Below are several pictures of the wastewater treatment system in Maple River Junction.





This media filter system recirculates the community's wastewater until treatment is achieved and then is treated again with Ultra-Violet disinfection and discharge into the Middle Raccoon River.

The schematic drawing below illustrates how the wastewater flows through the community. It should be noted that the each residence still has a septic tank which would be virtually the same as the "Multiple Chamber Settling Tank" illustrated below.



Financial

Carroll County received funding from the Iowa Watershed Improvement Review Board (\$150,000), the Community Development Block Grant Funds (\$104,000) and USDA-Rural Development Loan and Grant Funds for this project.

Since, the WIRB grant was funded, the project costs total \$716,783. WIRB participation was 22% of the project with a maximum of \$150,000. At the end of the project, WIRB funding amounted to 21% of the total project costs. CDBG funds participated in 14% of the project up to \$104,000 and the USDA-Rural Development loan and grant funds covered the balance of the project. Additional project costs including engineering and administration and legal were incurred prior to the WIRB grant award and are not included in this report.

Budget Items	Current Budget Amount	Budget Modification Request	Difference
1. Engineering	\$ 16,600	\$24,410	\$7,810
2. Legal and Administrative	\$ 5,500	\$3,313	-\$2,187
3. Property Acquisition/Easements	\$ 1,400	\$1,400	\$0
4. Septic System Replacement	\$ 41,000	\$37,178	-\$3,822
5. Septic Collection System	\$ 22,200	\$28,575	\$6,375
6. Seeding and Pavement Repair	\$ 6,700	\$83	-\$6,617
7. Erosion Control	\$ 1,100	\$1,100	\$0
8. Wastewater Treatment System	\$ 55,500	\$53,941	-\$1,559
Total Amount:	\$ 150,000	\$150,000	\$0

The budget line items for property (3) and erosion control (7) remain unchanged from the original WIRB application. Budget line items for septic system replacement (4) and wastewater treatment system (8) have varied but within 10-percent of the original project amount. Larger budget changes have occurred in the areas of engineering (1), legal (2) and septic collection system (5) and seeding and pavement repair (6). The following will provide a brief explanation as to the reason for these budget changes.

- #1 Engineering: Due to the lack of responsive of the general contractor to complete the project in a timely manner, additional engineering was required for on-site project representation and inspection.
- #2 Legal: Carroll County has utilized the County Attorney for some of the legal and bonding work that was required for this project which resulted in lower cost to the project.
- #5 Septic Collection System: Once the septic collection system was un-covered (most of it was installed in the 1970s) additional repairs were needed and new pipe needed to be installed.
- #6 Pavement and Seeding Repair: The repair of resident's lawns and yards was the majority of this original budget line item. This item was eliminated and residents were asked to repair their own lawns and seed them according. Many local residents were doing this already immediately after construction so this was eliminated from the construction contract.

Environmental Impacts

Carroll County installed 5 gravel filter wastewater treatment pods in the Village of Maple River. This is an increase of 2 gravel filters from the original WIRB application. All of the 37 septic tanks in the village were pumped and inspected and 22 were replaced. Approximately 1,600 lineal feet of 6" PVC sanitary sewer line was installed, an increase of 150 lineal feet over the original WIRB application.

In August of 1999, when IDNR first collected samples from the unpermitted wastewater discharge from Maple River Junction the following contaminants were found.

Environmental Microbiology	Result
Membrane Fecal Coliform	650,000/100 mL
Inorganic Chemistry	
Total Biochemical Oxygen Demand	40 mg/L
Ammonia Nitrogen as N	25 mg/L

With the installation of the gravel filter system and the on-site septic tanks the environmental benefits of the Maple River Junction Wastewater System Project as strong as the fecal coliform, BOD and Ammonia Nitrogen have been greatly reduced. The system also operates an Ultra Violet UV disinfection system.