



**Clean Michigan Initiative  
Non-Point Source Grant**  
Tracking Code 2000-0137



**Eaton County Drain Commission**  
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## Carrier Creek Restoration – CMI I

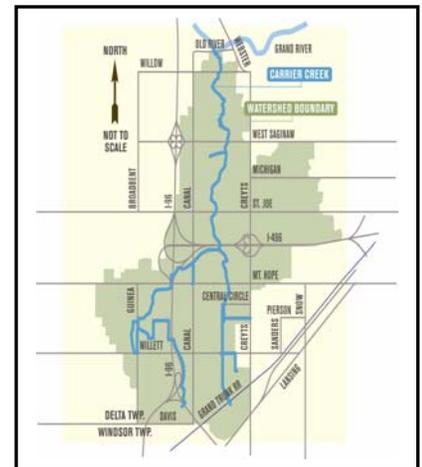
July 27, 2001 thru December 31, 2004

Carrier Creek is a small, warm water tributary of the Grand River located in the Lansing area. Carrier Creek had become seriously impacted by nonpoint source pollution due to increased development, flow obstructions, historical dredging activities and altered channel morphology which reduced the stream's capacity to convey water and sediment. Fish and macroinvertebrates were nearly non-existent and the stream was aesthetically unappealing. Project goals included improving water quality, stabilizing hydrology, and improving the habitat for aquatic organisms and wildlife. The implementation portion of the project was divided into 3 phases and funded with 3 Clean Michigan Initiative grants. Over 260 best management practices were installed during this first phase of the project. The structures that have been installed throughout the restoration area have been extremely effective and are working as expected or better than expected. The Natural Channel design concept used during this phase has proven to be the most effective method for stabilizing stream banks within Carrier Creek.

**Grant Amount: \$ 943,500**  
**Match Funds: \$ 1,040,700**

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**Total Amount: \$ 1,984,200**



**Best Management Practices:**

- J Hooks
- Cross Vanes
- Riffle Zones
- Lunker Structures
- Meanders
- Stream bank stabilization
- Vegetative plantings
- Meanders
- Log/debris removal
- Stream channel construction

**Annual Load Reductions:**

- Not available until CMI phase II and III are complete.

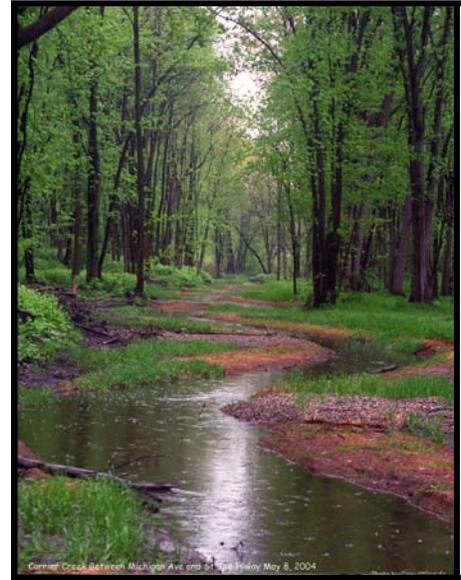
**Partners involved:**

- Eaton County Drain Commission
- Friends of Carrier Creek
- Michigan Department of Environmental Quality





**Before:** The stream channel was significantly over dredged and inefficient at transporting sediment. Water was stagnant and there was no defined low-flow channel.



**After:** The new channel has appropriate width to depth ratio for transport of water and sediment. Meanders help dissipate energy. The floodplain is accessible and dissipates erosion energy at high flow.



**Before:** The channel was too wide, with sediment deposition in center. Bank erosion was a problem.



**After:** A J-hook directs flow away from streambank toward the center of the channel. Sediment is deposited behind the structure, stabilizing the bank and narrowing the stream.