CHAPTER 5 - SUBWATERSHED AND COMMUNITY ACTION PLANS

5.0 INTRODUCTION

Interviews were conducted during the 2003 project to gather information from governmental units about what Best Management Practices (BMPs) were currently being implemented and where gaps could be identified in watershed protection measures. The 2003 Watershed Management Plan (WMP) stated that although the actions and support of local citizen groups, individuals, and watershed organizations in the Anchor Bay Watershed (Watershed) are crucial to protecting and improving water quality and habitat, the goals and objectives of this WMP can only be fully accomplished through the actions of the counties and local units of government located within the Watershed. These actions are more fully explored in Section 5.2 of this chapter and Table 5.1.

During the 2005 project, inventories and studies were completed that focused on the unique characteristics of each subwatershed. The 13 subwatersheds have different water quality issues and concerns of which communities need to be aware, since various management techniques might need to be applied in the subwatersheds in which their communities lie.

5.1 SUBWATERSHED ACTION PLANS

The development of the 2005 WMP involved specific tasks to better define what actions or BMPs need to be implemented in the subwatersheds to protect Anchor Bay. The specific tasks included:

- Taking a detailed inventory of the Watershed to identify nonpoint source (NPS) sites of pollution.
- Conducting a build out analysis using percent impervious coefficients to identify areas in the Watershed that would impair water quality if developed as planned in the communities' land use plans.
- Performing a hydrologic analysis to determine the most effective detention and infiltration policies to protect the Watershed from development-induced streambank erosion.
- Developing a storm water ordinance to provide protection of the environment against pollution from storm water runoff, to provide flood control and adequate drainage, and to provide for the regulation and control of storm water runoff.

These activities were performed on a subwatershed basis, rather than by community. The following concerns and recommendations have been identified for each subwatershed.

ISLAND SUBWATERSHEDS

Communities within the subwatershed - Clay Township

NPS sites - The islands have a unique place in the Watershed with special concerns to preserve the character and ecosystem. No specific NPS sites were identified.

Imperviousness - The results of the build out analysis revealed that current imperviousness is 2.6%, and if the island is developed according to the future land use plans, the imperviousness will increase to 6.34%, keeping the islands below the standard threshold (<10% imperviousness) for water quality impairment.

Storm water ordinance recommendations based on hydrologic analysis - The alternative and coastal zone design specifications recommended in the storm water ordinance would most likely be applied to all areas of the islands, since most of the storm water has direct drainage to Anchor Bay.

ST. CLAIR RIVER DRAINAGE SUBWATERSHED

Communities within the subwatershed - Cottrellville Township, Clay Township

NPS sites - Two sites were identified as contributing pollutants from unstable stream crossings and upland agricultural sources. One of those sites also had debris and trash.

Imperviousness - The results of the build out analysis revealed that current imperviousness is 7.70%, and if the area is developed according to the future land use plans, the imperviousness will increase to 27.94%. This increase indicates that this area would greatly impact its water resources if practices are not implemented to reduce the imperviousness of the development. This subwatershed had the greatest increase in imperviousness, changing from the sensitive category (<10%) to the degraded category (>25%).

Storm water ordinance recommendations based on hydrologic analysis - Coastal zone design specifications recommended in the storm water ordinance would most likely be applied to all areas of this subwatershed, since most of the storm water has direct drainage to the St. Clair River.

MARINE CITY DRAIN SUBWATERSHED

Communities within the subwatershed - Cottrellville Township, Clay Township, City of Algonac

NPS sites - Debris and trash and nutrient sources were noted at one site. Streambank erosion was identified at another site.

Imperviousness - The results of the build out analysis revealed that current imperviousness is 4.25%, and if the area is developed according to the future land use plans, the imperviousness will increase to 15.87%, indicating water quality impacts.

Storm water ordinance recommendations based on hydrologic analysis - The watershed area within the City of Algonac moves into the degraded category if fully developed without storm water controls.

SWARTOUT DRAIN SUBWATERSHED

Communities within the subwatershed - Clay Township, City of Algonac

NPS sites - Debris and trash, an unstable stream crossing, a construction site, a lack of buffers, urban runoff, and nutrient sources were all identified as contributing pollutants.

Imperviousness - The results of the build out analysis revealed that average current imperviousness is 7.55%, and if the area is developed according to the future land use plans, the average imperviousness will increase to 22.84%. This area has the third highest increase in imperviousness, with the coastal area moving into the degraded category if storm water controls are not in place.

Storm water ordinance recommendations based on hydrologic analysis - Coastal zone design specifications recommended in the storm water ordinance would most likely be applied to the areas along the shorelines, since most of the storm water has direct drainage to the North Channel.

BEAUBIEN CREEK SUBWATERSHED

Communities within the subwatershed - Cottrellville Township, China Township, Ira Township

NPS sites - Five unstable stream crossings were identified. Three sites where rill and gully erosion was contributing pollutants were identified. Debris and trash, livestock access, streambank erosion, construction site, residential runoff, lack of buffer, urban runoff, and nutrient sources were also identified.

Imperviousness - The results of the build out analysis revealed that current imperviousness is 3.85%, and if the area is developed according to the future land use plans, the imperviousness will increase to 14.18%. The upper area of the Watershed is zoned to remain agricultural, thus not increasing the level of imperviousness.

Storm water ordinance recommendations based on hydrologic analysis - The standard design specifications recommended in the storm water ordinance would most likely be applied to all areas of the subwatershed, with some needing the alternative designs if special circumstances are encountered.

PALMS ROAD DRAIN SUBWATERSHED

Communities within the subwatershed - Ira Township

NPS sites - Urban and residential runoff was observed at two sites. Streambank erosion and lack of buffers were also identified.

Imperviousness - The results of the build out analysis revealed that current imperviousness is 6.19%, and if the area is developed according to the future land use plans, the imperviousness will increase to 20.12%.

Storm water ordinance recommendations based on hydrologic analysis - The coastal zone design specifications recommended in the storm water ordinance would be applied to areas along the shoreline, since the outlying areas are zoned to be low intensity.

SWAN CREEK SUBWATERSHED

Communities within the subwatershed - Casco Township, China Township, Ira Township

NPS sites - Seven instances of unstable stream crossings, streambank erosion, urban runoff, and nutrient sources each were identified. Six riparian areas lacked buffers, and three areas of debris and trash were identified. Rill and gully erosion, agricultural sources, and construction sites were observed contributing pollutants at two sites. Livestock access, residential runoff, and row crop runoff were also observed.

Imperviousness - The results of the build out analysis revealed that current imperviousness is 4.12%, and if the area is developed according to the future land use plans, the imperviousness will increase to 8.50%, displaying the smallest change of percent imperviousness.

Storm water ordinance recommendations based on hydrologic analysis - The standard design specifications recommended in the storm water ordinance would most likely be applied to all areas of the subwatershed, unless special concerns are encountered. The desire of the townships to keep this area with a rural character is reflected in the future land use plans.

MARSAC CREEK SUBWATERSHED

Communities within the subwatershed - Casco Township, Ira Township, City of New Baltimore

NPS sites - Five riparian areas were identified that lacked buffers. Four streambank erosion sites and three sites each of rill and gully erosion and residential runoff were found. Two unstable stream crossings and tile outlets were eroding. Urban runoff, nutrient sources, and debris and trash were also noted.

Imperviousness - The results of the build out analysis revealed that current imperviousness is 8.13%, and if the area is developed according to the future land use plans, the imperviousness will increase to 14.60%.

Storm water ordinance recommendations based on hydrologic analysis - The areas in the Watershed along the shoreline and in the City of New Baltimore will experience the greatest increase of imperviousness and degradation to water quality from storm water runoff with no controls.

CRAPAU CREEK SUBWATERSHED

Communities within the subwatershed - Casco Township, Lenox Township, Ira Township, Chesterfield Township, City of New Baltimore

NPS sites - Four occurrences of rill and gully erosion were observed. Three streambank erosion and urban runoff sites were identified. Agricultural sources and residential runoff was also noted.

Imperviousness - The results of the build out analysis revealed that current imperviousness is 11.99%, and if the area is developed according to the future land use plans, the imperviousness will increase to 26.66%. Almost the entire southern half of the subwatershed in the City of New Baltimore is predicted to move into the degraded water quality category, based on the future land use plans.

Storm water ordinance recommendations based on hydrologic analysis - Crapau Creek has alternative specifications for flood control, of detaining the 100-year runoff volume with a maximum release rate of 0.10 cfs/acre.

GOULETTE POINT DRAINAGE SUBWATERSHED

Communities within the subwatershed - Chesterfield Township, City of New Baltimore

NPS sites - Urban runoff was observed in all areas of this highly impervious subwatershed.

Imperviousness - The results of the build out analysis revealed that current imperviousness is 22.01%, and if the area is developed according to the future land use plans, the imperviousness will increase to 34.06%. This subwatershed has the second highest level of future imperviousness, consisting of high density residential areas.

Storm water ordinance recommendations based on hydrologic analysis - The coastal zone design specifications recommended in the storm water ordinance would most likely be applied to the entire subwatershed, since most of the storm water has direct drainage to Anchor Bay.

SALT RIVER SUBWATERSHED

Communities within the subwatershed - Lenox Township, Casco Township, Chesterfield Township, City of New Baltimore

NPS sites - Fifteen streambank erosion sites and fourteen areas that lacked buffers were observed. Fourteen instances of urban runoff were identified. Twelve unstable stream crossings were surveyed. Debris and trash, rill and gully erosion, livestock access, upland agricultural sources, tile outlets, construction sites, row crop erosion, nutrient sources, and one marina was also observed to be contributing pollutants.

Imperviousness - The results of the build out analysis revealed that current imperviousness is 9.64%, and if the area is developed according to the future land use plans, the imperviousness will increase to 22.81%. This subwatershed has the largest area in the degraded category for water quality impacts.

Storm water ordinance recommendations based on hydrologic analysis - The standard design specifications recommended in the storm water ordinance would most likely be applied to all areas of the subwatershed, with some needing the alternative designs if special circumstances are encountered.

ANCHOR HARBOR DRAINAGE SUBWATERSHED

Communities within the subwatershed - Chesterfield Township

NPS sites - Urban runoff was observed in all areas of this highly impervious subwatershed.

Imperviousness - The results of the build out analysis revealed that current imperviousness is 19.64%, and if the area is developed according to the future land use plans, the imperviousness will increase to 33.08%. This is the smallest subwatershed, with the entire area in the degraded category, consisting of commercial and residential areas along the shoreline.

Storm water ordinance recommendations based on hydrologic analysis - The coastal zone design specifications recommended in the storm water ordinance would most likely be applied to the entire area, since most of the storm water has direct drainage to Anchor Bay.

Auvase Creek Subwatershed

Communities within the subwatershed - Chesterfield Township

NPS sites - Five areas where a lack of buffer allowed pollutants into the waterways were observed. Debris and trash, unstable stream crossings, upland agricultural sources, streambank erosion, and urban runoff were also identified.

Imperviousness - The results of the build out analysis revealed that current imperviousness is 20.43%, and if the area is developed according to the future land use plans, the imperviousness will increase to 37.26%. This subwatershed has the highest average future imperviousness, with the whole subwatershed in the degraded category. If fully developed, which is very likely, this area would suffer from water quality degradation without sufficient storm water controls to manage the flow and volume of storm water runoff.

Storm water ordinance recommendations based on hydrologic analysis - The highly impervious subwatershed would benefit from the incorporation of low impact development (LID) techniques to reduce runoff volume and size of water quality controls.

ANCHOR BAY SHORES DRAINAGE SUBWATERSHED

Communities within the subwatershed - Chesterfield Township, Macomb Township, Harrison Township

NPS sites - Urban runoff was observed in all areas of this highly impervious subwatershed.

Imperviousness - The results of the build out analysis revealed that current imperviousness is 19.24%, and if the area is developed according to the future land use plans, the imperviousness will increase to 30.37%.

Storm water ordinance recommendations based on hydrologic analysis - Most of this subwatershed is included in the Selfridge ANG Base, which makes limiting impervious surfaces difficult.

For the 2005 WMP, Table 5-1 was adjusted to reflect the current actions and BMPs being recommended for implementation. Table 5-1 still provides a summary of the interview information and demonstrates the relationship between the actions and BMPs that each community and county is implementing and/or planning and the goals and objectives of this WMP. The following terms are used in Table 5-1, as well as in Appendix F of the original WMP, to describe the level of action or BMP implementation for each community and county within the Watershed:

Current:	The action or BMP is presently being implemented and is intended to continue.
Short Term:	The action or BMP is planned for implementation within the next 3 years.
Long Term:	The action or BMP is planned for implementation within the next 8 years.
Not Applicable:	The action or BMP does not apply to the community or county.
Blank Space:	The action or BMP is not currently being implemented and there are no plans to implement in the future.

TABLE 5-1: COMMUNITY COMMITMENTS TO IMPLEMENTING ACTIONS AND BMPS

No.	Actions and Best Management Practices	St. Clair County	City of Algonac	Casco Township	China Township	Clay Township	Cottrellville Township	Ira Township	Marine City	Macomb County	Chesterfield Township	Clinton Township	Harrison Township	Lenox Township	Macomb Township	City of Mount Clemens	City of New Baltimore	City of New Haven	City of Richmond	Richmond Township
	Key: C = Current S = Short Term L = Long Term N = Not Applicable * = County Program Blank Space = Not Planned																			
1	Facilitate Generally Accepted Agricultural Management Practices (GAAMPs)	S	N						N			N	N			N	N	N	N	
2	Identify and Control Sanitary Sewer Overflows (SSOs)	N	N	N	N	*	N	N	N	N	N	N	N	N	N	C	C	C	N	N
2	Maintain Sanitary Sewer Infrastructure	C	C	N	N	C	C	*, C	C	C	C	C	C	C	C	C	C	C	C	
3	Identify and Eliminate Failing Onsite Sewage Disposal Systems (OSDSs)	C	N	*	*	*	*	*	N	C	*	S	C	*	*	C	N	*	*	*
3	Implement Septic System Maintenance Measures		N	S	S	*	S	C	N	C		*		C		N	N	*	*	C
4	Manage Lagoon Systems and Package Wastewater Treatment Plants		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
4	Utilize Comprehensive Planning for Wastewater Treatment Systems	C	N		S	C		C,S	C		C	C	C	S	C				C	C

TABLE 5-1: COMMUNITY COMMITMENTS TO IMPLEMENTING ACTIONS AND BMPS

No.	Best Management Practices	St. Clair County	Algonac	Casco Township	China Township	Clay Township	Cottrellville Township	Ira Township	Marine City	Macomb County	Chesterfield Township	Clinton Township	Harrison Township	Lenox Township	Macomb Township	Mount Clemens	New Baltimore	New Haven	Richmond	Richmond Township
		Key: C = Current S = Short Term L = Long Term N = Not Applicable * = County Program Blank Space = Not Planned																		
5	Reduce Bacterial Runoff from Domestic Animals and Wildlife	S	C			C	S				C		C		L	C	C			
6	Support Environmental Friendly Lawn and Garden Maintenance		S	C	S	C	S	C		C	C	C	S		S	C	C	S		
6	Reduce Fertilizer, Pesticide, and Herbicide Usage		S	C		S	C	C		C	C	C	C	C			C	C	C	
7	Conserve Riparian Land for Future Parks and Public Access		N				C	C	C			C	C		S	C	C	C		
7	Identify Areas for Recreation Enhancement		C	C		C	C	C	C	S	C	C	C	C	S	C	C	S	C	
8	Manage Riparian Corridors	C	N	N		N			C			N	C			C	C	S	N	
10	Utilize Habitat Restoration Techniques		N			N					S	C			N	C		S	C	
11	Install/Maintain Oil and Grease Trap Devices	C		C	N	C	C	C	C	C	C	C	C	C	S	C		C		

TABLE 5-1: COMMUNITY COMMITMENTS TO IMPLEMENTING ACTIONS AND BMPS

No.	Best Management Practices	St. Clair County	Algonac	Casco Township	China Township	Clay Township	Cottrellville Township	Ira Township	Marine City	Macomb County	Chesterfield Township	Clinton Township	Harrison Township	Lenox Township	Macomb Township	Mount Clemens	New Baltimore	New Haven	Richmond	Richmond Township
		Key: C = Current S = Short Term L = Long Term N = Not Applicable * = County Program Blank Space = Not Planned																		
12	Minimize the Effects of Salt and De-icing Chemicals Storage Areas	C			N	C	C	C	C	C	C	*,S								
13	Control Soil Erosion	C	*	*	*	*	*	*	*	C	*	*	*	*	*	C	C	*	*	*
13	Implement Soil Erosion and Sedimentation Control (SESC) Programs	C	*	*	*		*	*	*	C	*	*	*	*	*	C	C	*	*	*
14	Implement Streambank Stabilization Measures	S	C	N	N	N		C	C	C,S		N		C	N	C	C	*	N	*
15	Perform Street Sweeping	C	C	N	N	N	N	N	C	C	C	C		*	C	C	C	C	C	N
16	Conduct Natural Feature Inventory and Assessments	L	N	C						C	*	L	S	*	S	*	*	C	*	*
17	Construct Wetlands	L		N							C	N								
17	Preserve and Enhance Existing Wetlands/Woodlands		N	C		C		C			C	C	C	C		C	C	C	C	
17	Support Wetland Mitigation Banking	L										C								
18	Implement Natural Features and Floodplain Protection Ordinances							C		C		L	S	C	C		C	C	C	

TABLE 5-1: COMMUNITY COMMITMENTS TO IMPLEMENTING ACTIONS AND BMPS

No.	Best Management Practices	St. Clair County	Algonac	Casco Township	China Township	Clay Township	Cottrellville Township	Ira Township	Marine City	Macomb County	Chesterfield Township	Clinton Township	Harrison Township	Lenox Township	Macomb Township	Mount Clemens	New Baltimore	New Haven	Richmond	Richmond Township
	Key: C = Current S = Short Term L = Long Term N = Not Applicable * = County Program Blank Space = Not Planned																			
18	Integrate Natural Resource Protection into the Planning Process	C	C	C		C		C		C	S	L	C	C			C	C		
19	Continue/Expand Litter and Debris Clean-up and Recycling Programs	C	C		C	C	C	C	C	C		C		S		C	C	C	C	C
20	Conduct Household Hazardous Materials Management Programs	C		*	*	C	C	*	C	C		C	*	*	*	*	C	C		C
22	Identify and Eliminate Illicit Discharges	C	*	*	*	C	*	*	C	C	*	S	S	*	S	C	C	*	*	*
22	Reduce/Eliminate Oil/Chemical Discharges	C	C	N	N	C	N			C	C	C	S	C	S			S	C	N
24	Implement Storm Water and Water Resource Protection Ordinances	L	C,S					S		C, L		S			L	S				C
25	Construct/Maintain Storm Water Storage Facilities	C		C		C		C		N	C	C	C	C,S	C	C	C	C	C	C

TABLE 5-1: COMMUNITY COMMITMENTS TO IMPLEMENTING ACTIONS AND BMPS

No.	Best Management Practices	St. Clair County	Algonac	Casco Township	China Township	Clay Township	Cottrellville Township	Ira Township	Marine City	Macomb County	Chesterfield Township	Clinton Township	Harrison Township	Lenox Township	Macomb Township	Mount Clemens	New Baltimore	New Haven	Richmond	Richmond Township
Key: C = Current S = Short Term L = Long Term N = Not Applicable * = County Program Blank Space = Not Planned																				
25	Maintain Storm Water Controls		N		N	N	N	N	N	N	C	C	C	C	C	N		C		N
25	Perform Storm Sewer System Maintenance and Drain Cleaning	C	C	N	N	N	N		C	C,S		C		N	C	C	C		C	N
26	Install/Maintain Storm Sewer Infiltration Treatment Devices		C	*		C				C		S	C					C		
26	Reduce Directly Connected Impervious Surfaces		C	C		C	C	C			C	S	C	C	C			C	C	N
27	Enhance Catch Basin Functionality		C	N	N	N	N	N	C	C		C		S	C		C	C	C	N
27	Install/Maintain Sediment Control Devices	C	C	N	*	N		C			C		C	C			*	C		C
28	Prevent and Remove Flow Obstructions Following Woody Debris Management Techniques		*	*	*	N	*	*	C	C,S		N	C	C	N	C	*	*		*

5.2 COMMUNITY HIGHLIGHTS

A series of meetings were held with the counties and local communities to determine what BMPs they were currently implementing or planning to implement in the short- or long-term time frame. A BMP includes projects, planning ordinances, or practices that the community or county is, or will be, implementing to control pollution sources or causes of pollution. Members of the 2003 Anchor Bay Technical Committee (Technical Committee) met with representatives from each of the local communities, including public works directors, planning staff, supervisors, and community engineers. To the maximum extent possible, the same Technical Committee members participated in each interview to ensure uniformity in regard to presentation and information collection.

To facilitate meetings with governmental units, an interview form was developed using the BMPs discussed in Chapter 4. For the purpose of discussion, the BMPs were grouped into five categories: 1) illicit discharges, 2) soil erosion, 3) public education, 4) infrastructure, 5) habitat and planning. The goals and objectives of the plan were reviewed at these meetings prior to discussing the BMPs that were being implemented. The completed interview forms, with detailed notes, are included in Appendix F of the original WMP and should be used by the community and county as an indication of the activities that may be included in their Storm Water Pollution Prevention Initiative (SWPPI), which is required under the National Pollutant Discharge Elimination System (NPDES) Phase II Storm Water permit.

Interview results show that many of the activities required to protect and restore the Watershed are ongoing. This section highlights a number of projects that are currently taking place. Each project serves as an example of how Anchor Bay communities are currently working toward addressing water quality and/or quantity problems.

FINANCIAL SOLUTIONS

Most communities have considered how to finance projects associated with the storm water control programs, but Clinton Township is the only community that has developed an ordinance that allows for establishing storm water fees based on the impervious area in new development projects. These fees will be used to support programs required under this plan.

WATER QUALITY MONITORING

Since 1997, Macomb County has performed monitoring in the Watershed through the Lake St. Clair Assessment Program (Assessment Program). Recently, additional funding was allocated from the State of Michigan (State) to geographically expand the Assessment Program to areas in St. Clair and Oakland Counties. This project, named the Lake St. Clair, Clinton River, and St. Clair River Water Quality Monitoring Project, is a cooperative effort between Macomb, Oakland, and St. Clair Counties to evaluate impairments in the St. Clair River, Clinton River, and Lake St. Clair. The project consists of developing a three-year comprehensive monitoring effort that will include the following components:

- Continuous water quality monitoring at 14 fixed stations (one station within Anchor Bay).
- Automatic sampling during wet weather events for various parameters (one site within Anchor Bay).
- Manual grab sampling for various parameters (two sites within Anchor Bay).
- Sediment sampling in depositional zones in Lake St. Clair and inland lakes (two sites within Anchor Bay).
- Macrophyte and algae sampling in Lake St. Clair (two sites within Anchor Bay).
- Current, flow, and rainfall monitoring (one site within Anchor Bay).
- A bacterial source tracking study (site to be determined).
- Long-term toxin monitoring (site to be determined).

Other important aspects of the project include: development of a water quality database; improved understanding of water quality in the study area; identification of areas needing remedial actions; enhanced partnering between counties, municipalities, academia and others; public involvement; and publication of project data through a website. The complete work plan and project description for this project can be obtained by contacting the Macomb County Health Department.

ILLICIT DISCHARGES

Illicit discharges may contribute a significant pollutant load to Anchor Bay and its tributary streams. Control and elimination of these illicit discharges generally involves locating outfalls and eliminating contaminants at the source rather than providing end-of-pipe treatment. Both Macomb and St. Clair Counties have recently invested extensive resources to investigate and eliminate sources of human sewage throughout the Watershed. In 2002, both counties received Clean Michigan Initiative grants to conduct Illicit Discharge Elimination Programs (IDEP). Sources are being eliminated as they are identified. Problem outfalls are being referred to local communities for source investigation and correction, and businesses and residents are being asked to fix discharges from privately owned buildings and homes. Macomb County has also implemented an onsite disposal system evaluation and maintenance ordinance that requires the inspection of septic systems when a house is sold.

Locating sources of illicit discharges within enclosed storm water drainage areas can be a time-consuming and expensive process. The City of New Baltimore has been actively pursuing potential sewage sources that have been contributing to elevated *E. coli* levels in Crapau Creek for years. To date, they have spent a substantial amount of time and money to locate and eliminate several illicit connections throughout their storm water system. However, elevated levels of *E. coli* still exist in the Crapau Creek, a situation that indicates the presence of additional sources. Although this situation is not unique to an established community like the City of New Baltimore, stakeholders need to understand the complexity and expense of locating illicit connections in developed areas.

Although many of the bacteria sources within the Watershed are human, pet waste also contributes to this problem. To alleviate this problem, some Watershed communities have restricted pet access to community parks and other public property, or passed ordinances that require owners to clean up after their pets. The City of Algonac has taken a unique approach to controlling the problem by providing bag dispensers and disposal stations for pet waste cleanup (Figure 5-1).

Figure 5-1: Pet Waste Disposal Station in Algonac

SOIL EROSION

As noted in Chapter 1, soil erosion and streambank erosion result in habitat destruction and a significant sediment load to tributary streams. Most communities require that new developments obtain a soil erosion permit from the county agency and provide a copy of that permit to the community as part of their building permit approval process. However, the City of Algonac and the Village of New Haven have taken this a step further by incorporating this requirement, as well as other storm water controls, under their Engineering Standards Ordinance. China Township includes these requirements as part of the standard building permit package that they provide to residents and developers. Several of the communities, including New Baltimore, Clinton Township, and Chesterfield Township, have enabling ordinances that allow them to maintain any sedimentation basins installed within their communities. If a local developer and/or homeowners association fails to properly operate and maintain the devices, then the community will maintain the basins and assess the cost back to the developer or association.

PUBLIC EDUCATION

While many programs can be initiated by communities and counties to ensure protection of the water quality and habitat, residents within the Watershed need to be aware of how their individual actions affect water quality and what they can do to eliminate or reduce pollution sources. This is accomplished through public education-related BMPs.

In the near future, all communities within the Watershed will be providing educational materials to their residents through cable television public access channels, websites, periodic newsletters, and/or brochures that will be made available at public buildings and offices. Chesterfield Township has gone a step further by implementing a catch basin decal program to serve as a reminder to their residents that the storm sewer catch basins drain directly to the bay.

Both Macomb and St. Clair Counties educate the next generation through various student programs, such as the Pollution Solutions! presentation (Figure 5-2). This is offered to all elementary and high schools in the Watershed and has proven to be a very effective program for helping students understand pollution sources and water resource issues.

Figure 5-2: The Pollution Solutions! presentation is offered to schools in both St. Clair and Macomb Counties

A very important public outreach component has been to involve communities in the Watershed-planning efforts. Although many communities are hesitant to take on additional responsibilities due to limited budgets and staffing constraints, most of the communities within the Watershed have been active participants. In particular, Ira Township and the City of New Baltimore have recognized the importance of water resources protection and have taken the lead on the Anchor Bay Watershed Steering Committee (Steering Committee). The Ira Township Supervisor serves as the Chairman of the Steering Committee, and the Mayor of the City of New Baltimore serves as the Vice-Chair.

INFRASTRUCTURE

Proper infrastructure maintenance is essential if the installed BMPs and the sewage and storm water collection systems are to function as designed. Failure of these systems can result in sewage discharge to the streams and bay, increased sediment discharges, and excessive flows in the streams that result in downstream and localized flooding. Additionally, as development increases within the Watershed, it is important that communities limit the amount of area that can be made impervious and control the locations of development to reduce the impact on waterways to the maximum extent possible.

All communities that have sanitary sewer systems have maintenance programs to ensure that their systems operate properly. However, the City of Mount Clemens is the only community that has formalized the program to the extent of developing a Capacity, Management, Operation, and Maintenance program in accordance with U.S. Environmental Protection Agency (EPA) draft policies.

HABITAT AND PLANNING

Macomb County is currently conducting a Michigan Natural Features Inventory (MNFI) that will be available to all communities in Macomb County. The County will also conduct a program, called a "leaf-off flyover," to take digital photographs of the entire county. These tools will significantly improve the ability of the county and local communities to protect, preserve, and enhance valuable wetland and woodland areas.

Many communities have recreational master plans and have begun to review property that becomes available along stream corridors for possible purchase in order to protect the riparian zone from additional development. Clay Township, Ira Township, and the City of Algonac participated in development of a nature trail in St. Johns Marsh, which provides habitat protection and a venue for public education.

The City of Mount Clemens installed a wet weather flow retention basin along the Clinton River as part of their combined sewer overflow control program. Since the installation, the City went back and developed a habitat restoration project adjacent to the basin; that included planting native vegetation and soft engineering methods to stabilize the banks.

Land use planning for future development in the Watershed is imperative if it is going to be done in a manner that minimizes impacts on the habitat and water quality. Richmond Township has adopted an ordinance that allows for the transfer of development rights within the township to protect existing farmland. Ira Township has developed a land use master plan that reflects, and is based on, the sewer master plan for the community. These ordinances are examples of how proper planning efforts can aid with long-term protection and enhancement of the habitat and water quality within the Watershed.

COST ESTIMATES

The Watershed communities may not be familiar with the activities outlined in the gap analysis. To aid the communities, the Steering Committee will develop a table of unit costs for the effort associated with these activities. Costs will be developed using informational documents created by neighboring watersheds, and reviewed by the Technical Committee. A brief description of each activity will be provided, along with a range of hours and typical hourly rates. The purpose of this table is to give communities a rough cost estimate for implementing various projects. Costs of specific BMPs are also listed in Tables 4-1 and 4-2. Once a specific scope of work is developed for an activity, better costs should be obtained.

Additional cost information and criteria for BMPs can be found from numerous sources including:

www.cwp.org/pubs_download.htm
www.rougeriver.com/watershed
www.bmpdatabase.org
www.michigan.gov/deq
www.epa.gov.

5.3 GAP ANALYSIS

The Technical Committee evaluated community and county activities to identify gaps in the implementation phase of the WMP. A gap was identified where goals and/or objectives are stated but no or minimal community and county actions are being implemented or planned for future. The identified gaps can serve as recommendations for actions needed in order for the goals of this WMP to be accomplished.

Two of the most important gaps identified in implementing this WMP are the lack of sustainable funding for storm water programs and the lack of water quality monitoring programs.

FINANCIAL SOLUTIONS GAP ANALYSIS

In order for this WMP and Phase II NPDES Storm Water permit regulations to be implemented, communities and counties need to develop methods to fund storm water programs. Some possible funding mechanisms include state and federal grants, special assessment districts, and storm water utility fees. Communities and counties should work together to develop coordinated program funding strategies.

2005 UPDATE

The St. Clair County Health Department secured an EPA Section 319 transition grant to revise the original WMP to meet the EPA Nine Required Elements. With the completion and approval of the revised WMP, entities within the Watershed will be eligible to apply for additional 319 and CMI funding to implement recommended actions.

Water Quality Monitoring Gap Analysis

The Lake St. Clair, Clinton River, and St. Clair River Water Quality Monitoring Project has recently been developed to establish baseline conditions at select locations within the Watershed over the next three years. This project aids in characterizing water quality in the Watershed by expanding existing monitoring programs being performed by St. Clair and Macomb Counties. The communities and counties within the Watershed need to develop a mechanism to sustain and expand this project beyond its initial three years.

2005 UPDATE

ILLICIT DISCHARGE GAP ANALYSIS

Both of the Macomb and St. Clair County IDEP programs have surveyed, detected, and eliminated many illicit discharges in the Watershed. By September 2004, all other NPDES Phase II communities should have also begun implementation of a program within their community. All communities within the Watershed, whether Phase II or not, should be responsible for proactively finding and eliminating illicit discharges within their jurisdiction.

In order to maximize resources, the two counties and communities within them should have coordinated complimentary IDEP activities. Before communities submitted their IDEP plan to the Michigan Department of Environmental Quality (MDEQ) in September 2004, discussions were held regarding: consistency of IDEP data; public education regarding illicit discharge reporting; reduction of bacterial runoff from domestic animals and wildlife; and identification of agricultural problem areas and how GAAMPs can best be encouraged in those areas.

2005 UPDATE

All NPDES Phase II local communities and counties within the Watershed submitted their IDEPs to the MDEQ. Plans are still in the process of being approved.

SOIL EROSION GAP ANALYSIS

Although both counties conduct SESC for most communities, field data has demonstrated a need to improve these programs. A detailed review of SESC programs, fee schedules, enforcement, and the number of inspections per site should be analyzed for improvements needed. Soil erosion training should also be implemented among municipal field staff so they can alert county SESC inspectors of any problems they observe in the field. Documentation of municipal employee training programs will be required as part of community and county SWPPI.

Erosion problems have also been noted at road stream crossings, along the banks of county drains, and natural waterways. Table 5-1 depicts that very little streambank stabilization is being done or planned within the Watershed. Waterways and stream crossings showing evidence of erosion should be identified and prioritized for stabilization. Stream erosion is a function of the water velocity and volume carried in the stream, as well as the stability of the stream. A geomorphology study will determine how stabilization efforts will affect reaches above and below the project site. If it is determined that stabilization is needed, a geomorphology study should be conducted prior to making any changes in the stream.

2005 UPDATE

Both Macomb and St. Clair Counties have developed a county-wide SESC ordinance that adopts the State's statute for their SESC programs.

PUBLIC EDUCATION GAP ANALYSIS

Training programs should be developed and implemented for municipal staff in the BMPs that affect storm water runoff. This training will help fulfill the communities' Phase II requirements. The type of education a municipality should provide to fulfill this requirement includes: fertilizer, pesticide, and herbicide application methods; illicit discharge detection and reporting; fleet maintenance; storage and disposal of hazardous materials; SESC; general storm water awareness; and land use planning.

2005 UPDATE

The Watershed's communities and counties established a Public Education Subcommittee to revise the 2003 PE Strategy and develop a Public Education Plan (PEP) template for all entities to use as a basis for their individual PEP commitments. This template and strategy not only helped communities fulfill permit requirements, but also helped them choose activities that are common across the Watershed.

INFRASTRUCTURE GAP ANALYSIS

In order to protect watercourses within the Watershed, increased inspection and maintenance of storm water control facilities is needed. In order to fill this gap, communities and counties need to assess storm water control programs and their funding sources to ensure they can be properly implemented.

Storm water ordinances are needed across the Watershed to ensure that proper infrastructure is built and storm water flows are managed. This is required as part of Phase II post-construction requirements. A storm water ordinance is a common method of meeting this requirement and can be developed by both the counties and local communities. Local communities could also refer to a county ordinance in their new construction specifications rather than developing their own ordinance.

Package treatment plants are also part of the Watershed infrastructure that needs increased planning, inspection, and maintenance. Currently, package treatment plants are permitted through the MDEQ with little or no consultation with local communities or the county. Local communities and the county should have input regarding the location, number, and amount of discharge permitted for each package treatment plant within each region and along each waterway on a cumulative basis.

2005 UPDATE

Macomb County has developed a model storm water ordinance to encourage the use of structural, vegetative, or managerial practices, designed to treat, prevent, or reduce degradation of water quality due to storm water runoff. Fishbeck, Thompson, Carr & Huber, Inc. developed a model ordinance for the entire Watershed that recommends certain design specifications for criteria of flood control, stream protection, water quality, spill protection, groundwater recharge, and LID.

HABITAT AND PLANNING GAP ANALYSIS

St. Clair County should join Macomb County in its efforts to initiate an MNFI. These inventories aid local communities in identifying riparian land for future parks and public access, areas where wetlands may be constructed for use as regional detention and flood control, or natural features, such as woodlands and wetlands.

Local communities that have identified natural features for protection should utilize land use planning tools to ensure their protection. A natural features ordinance, wetland ordinance, other types of ordinances, or modification of the site plan review process for natural resource and environmental protection is needed if these features are to be protected. For example, local communities that have identified farmland as a resource to be preserved should adopt an ordinance, like Richmond Township has, that will protect existing farmland and habitat areas while allowing development in prescribed township areas. In addition, comprehensive master plans should incorporate language regarding the need for natural features protection in order to support community ordinances, policies, and practices. At a minimum, water resources should be identified as a natural feature to protect.

Riparian land is one of the most important land areas that the communities and counties should protect, including the establishment of buffer zones for water quality protection. Managing riparian corridors has been identified as a gap in Table 5-1. Natural feature setbacks or overlay districts are examples of planning tools that can help protect these areas with natural vegetation buffers.

The lack of habitat restoration efforts is also identified as a gap across the Watershed. Bioengineering, natural plantings, tree cover, and log and bank shelters are some of the habitat improvement techniques that local communities can use on natural waterways and counties can use on drains.

2005 UPDATE

Macomb County developed model environmental ordinances through a series of workshops with governmental leaders and planners. The ordinances address storm water management, floodplains, wetlands, resource protection overlay, natural features setbacks, native vegetation, and woodlands and trees.