6. PLAN IMPLEMENTATION

I. INTRODUCTION

Areawide 208 planning is, by its very nature, planning for implementation. Moreover, the ultimate implementation of approved plans has been clearly mandated by Congress in the language of Section 208 as well as in other sections of the Federal Water Pollution Control Act of 1972 (P.L. 92-500). Both the letter and spirit of this law clearly emphasize the necessity for implementation as the prime objective of the entire planning process. In addition, the Environmental Protection Agency, in drafting guidelines and regulations for the 208 program, has gone even further to assure that final plans will, in fact, be carried out. To assure implementation, EPA has encouraged 208 planning agencies like Gateway to design an institutional system that is directly linked to this region's water quality and financial needs as well as to its particular governmental structure.

Many of the specific requirements for the 208 management system are set forth in the controlling federal law. These requirements relate, in part, to the financing, construction, operation and maintenance of wastewater treatment works. The law also includes a general requirement that pertains to the entire management/institutional program. This requirement states simply that the management program must be able to carry out the approved 208 plan. This general feature of the law goes beyond those plan elements relating to treatment works, to insure that all management functions called for in the 208 plan are handled effectively by the system. Furthermore, it requires that the final management/institutional strategy be politically feasible and be built upon organizations that either exist or that are likely to be created with enough power and funding to do the job that needs to be done.

Thus, the prime objective of the implementation program has been to develop a management/institutional program that will revolve around competent decision-making bodies working together for the achievement of water quality objectives at the lowest economic, social, political and environmental cost.

II. METHODOLOGY

A. Financial Analysis and Recommendations

Introduction. An important preliminary step which underlies the broad management recommendations presented in a later section is the financial analysis of alternative point and nonpoint source pollution control techniques. An understanding of the financial analysis presented below is critical to an objective evaluation of management/institutional options presented later.

In this final plan, annual household cost estimates are presented for each of the recommended point and nonpoint source alternatives. These cost figures represent the culmination of a lengthy process of surveying existing water quality costs, estimating future costs, and eliminating excessively costly alternatives. The annual cost to local residents of the proposed water quality measures has certainly been a major concern of this 208 project.

Financial analysis is one thread that ties various elements of the planning process together. Certain fiscal criteria, including adequate and flexible financial powers, economies of scale, and effective administrative structure, were used to evaluate the management alternatives. Cost effectiveness guidelines were applied to each point source and nonpoint source alternative proposed by the technical consultants, thereby aiding the elimination of the least feasible projects. Finally, annual costs provided a common basis for comparison of all the alternatives. The point source control recommendations which are included in this final plan are actions which will provide the St. Louis region with the best water quality possible at the least cost.

The financial analysis component of the 208 project included three phases: examination of existing conditions, costs and powers; estimation of alternative costs; and elimination of alternatives and refinement of costs. Each element built upon the products of previous work to move continuously toward providing cost estimates and other data for the evaluation of each recommended action.

Financial Background Data.

a. Glossary. In order for those involved in water quality management planning to understand the financial techniques involved in implementing an alternative, a glossary of basic financial terms was prepared (Element 13, Appendix 1). Included in this section were definitions and explanations of advantages and disadvantages associated with such financing tools as general obligation bonds, revenue bonds, intergovernmental grants, ad valorem taxes, and industrial cost recovery. These terms commonly appear in discussions of public finance and they were referred to frequently in the survey of existing management agencies. An understanding of financial tools and operations was important in many later phases of the 208 project.

b. Survey of Existing Financial Conditions. Early in the St. Louis 208 study (Element 9 Report), a survey was conducted of existing operating agencies to provide a base line of current practices in water quality management activities. This survey did not, however, include questions relating specifically to financial matters. Since it was felt that an understanding of current financial conditions would be necessary in assessing the financial impact or any proposed action, a much more detailed financial survey was made of 18 public and private sewer entities (Element 13, Report). Financial data was collected for each agency, including current operating and maintenance costs, sources and amounts of revenue, indebtedness and annual user costs. The survey results were supplemented by information from the agencies' financial statements to provide a consistent set of financial data.

The financial survey covered a variety of agencies ranging from small municipal systems and private companies to the vast scale of the Metropolitan Sewer District. The bottom line of the survey was the calculation of per capita cost. It was found that differences in size of service area, treatment capacity and level of treatment led to wide differences in the costs of operating the system, the types of revenues raised and the methods of financing the present operations and future plans of the system.

The results of the survey are summarized in Table 14. Several significant conclusions were drawn from these results:

1. Present costs of wastewater treatment are generally low with annual per capita costs ranging from $12 to $93.

2. Large cost benefits can be derived from the economies of scale of wastewater treatment. Small facilities

TABLE 14

FINANCIAL PROFILES OF SURVEYED WASTEWATER TREATMENT AGENCIES

CHARACTERISTIC	ARNOLD	EUREKA	FESTUS/ CRYSTAL CITY	O'FALLON[x]	MANCHESTER	PACIFIC	ST. CHARLES	ST. PETERS	UNION
GENERAL									
Type of System - e.g.: Sewer District / Municipality / Private System	Municipality	Municipality	Sewage Commission	Municipality	Municipality	Municipality	Municipality	Municipality	Municipality
For Municipal System - Are service area boundaries coterminious with municipal lines	No	No	No	Yes	No	Yes	No	No	Yes
1976 Population of Service Area	23,000 (1) 3,000 serviced	3,400 (1)	12,000 (1)	8,500 (1)	4,500 (1)	4,101 (1)	40,000 (1)	8,000 serviced (1) 15,000	5,740 (1)
Estimated 1996 Population of Service Area	ID	7,000 (1)	25,000 ('81) (1)	17,500 (1)	9,500 (1)	ID	94,000 (1)	90,000 (1)	6,300 ('81) (1)
Number of Households in Service Area - (1976)	800 serviced (1)	970 (1)	3,000 (1)	1,800 (1)	1,125 (1)	1,223 (1)	12,000 (1)	2,200 serviced (1) 4,000	1,828 (1)
Size of System - 1976 Capacity in million gallons/day	ID	.5 mgd (1)	1.02 mgd (1)	1.5 mgd (1)	.45 mgd (1)	ID	8.5 mgd (1)	Spencer Cr. .6 mgd (Dardenne Cr. ID	.98 mgd (1)
Actual utilization of system in million gallons/day	ID	50% .25 mgd (1)	100% (1)	75% 1.125 mgd (5)	133% .5985 mgd (1)	ID	45% 3.8 mgd (1)	Spencer Cr. - 100% (Dardenne Cr. - 60%	47% .46 mgd (1)
CAPITAL FUNDING									
Assessed Property Valuation of Service Area	$17,000,000 (5)	$8,200,000*	ID	$21,000,000 (1)	ID	$7,316,462 (1)	$92,000,000 (1)	$20,000,000 (1)	Approx. $9,000,000 (1)
Statutory debt limit: General Obligation bonds	$ 3,500,000 (5)	$ 820,000*	ID	$ 2,100,000 (1)	ID	$1,463,292 (1)	$18,400,000 (1)	$ 2,000,000 (1)	$1,000,000 (1)
Long-term bonded indebtedness for WQM: General Obligation	---- (1)	$ 180,000*	ID	ID	$205,000 (2)	$ 646,000 for both general obligation & revenue	$ 987,000 (2)	---- (1)	---- (1)
Long-term bonded indebtedness for WQM: Loans or Revenue bonds	$ 2,500,000 (1)	$2,600,000 (1)	Both cities are paying off revenue bonds	----	$ 36,000 (2)		$ 1,100,000 (2)	$ 1,100,000 (1)	$ 193,000 (2)
Remaining debt capacity: General Obligation bonds	$ 3,500,000 (3)	$ 640,000 (5)	ID	$ 1,100,000 (1)	ID	$ 817,292 (1)	$12,700,000 (1)	$ 1,901,000 (3)	$1,000,000 (1)
Annual debt service: (principal + interest per year) for WQM General Obligation	---- (1)	$ 12,710 (1)	ID	ID	$ 49,150 (2)	$ 21,990 (1)	$ 138,600 (2)	---- (1)	---- (1)
Annual debt service: Revenue bonds for WQM	$ 250,000** (3)	$ 260,000 (3)	ID	----	$ 6,742 (2)	$ 13,450 (1)	$ 80,100 (2)	$ 110,000 (3)	$ 23,368 (2)
Debt per person for WQM: (total long-term indebtedness / total population)	$108.69 (3)	$817.65 (3)	ID	ID	$53.55 (3)	$157.52	$52.18 (3)	$137.50 (3)	$33.62 (3)
REVENUE SOURCES									
Revenues from 1976 Property tax levy for WQM	---- (1)	ID	---- (4)	ID	$ 31,252 (2)	ID	$ 88,259 (2)	NA	---- (1)
1976 Property Tax Assessment for WQM	---- (1)	40¢/$100 A.V. (4)	---- (4)	90¢/$100 A.V. (4)	98¢/$100 A.V. (4)	12¢/$100 A.V.	9¢/$100 A.V.	NA	---- (1)
Revenues from Connection (tap-in) Fees	---- (1)	$ 9,625 (1)	---- (1)	$ 12,000 (1)	$ 12,535 (2)	---- (1)	$ 60,000 (1)	$ 1,500 (2)	---- (1)
Total Users Fees 1976 (See Appendix for actual user charges, rates)	$ 67,200*** (2)	$ 34,992 (5)	$ 63,618 (2)	$ 120,000 (1)	$ 40,583 (2)	$ 77,461* (2)	$ 720,000 (2)	$ 124,543* (2)	$ 50,000 (1)
Special Assessment Charges (amount per customer)	---- (1)	---- (1)	---- (1)	---- (1)	---- (1)	---- (1)	---- (1)	---- (1)	---- (1)
Total Revenues Collected (1976 from all sources)	$ 67,200*** (2)	$ 84,615 (5)	$ 63,905 (2)	$ 180,000 (5)	$131,667 (2)	$ 86,334* (2)	$ 852,300 (2)	$ 139,136* (2)	$ 207,385* (2)
COST DISTRIBUTION									
Cost of Operations (1976)	$ 13,810 (1)	$ 60,186 (2)	$ 64,365 (2)	ID	$116,958 (2)	$ 88,439* (2)	$ 1,075,875 (2)	$ 164,926* (2)	$ 81,433* (2)
Total Debt Service + Cost of Operations	$ 263,810 (3)	$ 332,896 (3)	ID	ID	$172,850 (3)	$ 123,879* (3)	$ 1,293,175 (3)	$ 274,926* (3)	$ 104,891* (2)
Annual cost per person: Total debt service + operation costs / population	$ 11.47 (3)	$ 97.91 (3)	ID	ID	$38.41 (3)	$ 30.21* (3)	$32.33 (3)	$ 34.37* (3)	$18.26* (3)
FUTURE PLANS									
What type of expansion or improvements are planned?	Consolidation with city-wide system, construct new treatment plant	201 Facility plan to replace present system	Double plant capacity & replace antiquated trunk sewers	Expansion of treatment plant (1)	Expanding treatment capacity; agreement with MSD	201 Facility Plan	Extension of sewer lines and upgrade facility	To treat effl. from lower Dard. & Spenc. Creek watersheds	Extension & replacement of current system
What capacity will new facilities have?	ID	1 mgd or 1.5 mgd	ID	2 or 3 mgd (1)	Additional .55 mgd	ID	ID	New centralized plan (1)	ID
What is estimated cost of new facilities?	$15,000,000	1 mgd - $1,000,000 1.5 mgd - $2,500,000	$2,000,000	$ 750,000 - 2 mgd $1,250,000 - 3 mgd	ID	ID	$10,000,000 (1)	ID	$1,000,000 (1)
How will these facilities be financed?	Grants/Revenue bonds	Collector lines, $600,000 Grants	Grants	EPA Grant	Grants/Bonds	Grants/Bonds	Grants/Bonds	Grants	Grants/Bonds

(1) = Survey
(2) = Financial Statements
(3) = EWGCC, Team Four calculations
(4) = Special Inquiry
(5) = In response to profile in Interim M/I Report
ID = Insufficient Data
NA = Not Applicable
* = Includes funds for water works and sanitary sewer system

**Estimated debt service, no bond revenues spent to date.

***Budgeted for 9/1/76-8/31/77.

[x] No financial statements available.

TABLE 14 (Cont.)

FINANCIAL PROFILES OF SURVEYED WASTEWATER TREATMENT AGENCIES

CHARACTERISTIC	WASHINGTON	WENTZVILLE	HERCULANEUM SEWER DISTRICT	LAKE ADELLE	ST. CHARLES REGIONAL SEWER DISTRICT	MSD	FEE-FEE	IMPERIAL	VALLEY SEWAGE
GENERAL									
Type of System - e.g.: Sewer District / Municipality / Private System	Municipality	Municipality	Sewer District	Sewer District	Not Yet Functioning	Sewer District	Private	Private System	Private
For Municipal System - Are service area boundaries coterminious with municipal lines	No (1)	Yes (1)	NA	NA		NA	NA	NA	NA
1976 Population of Service Area	8,700 serviced 9,000 (1)	5,000 (1)	2,500 (1)	280 (1)		1,397,991 ser- 1,423,981 viced (1)	132,650 (1)	1,202 (1)	2,625 serviced 6,250 (1)
Estimated 1996 Population of Service Area	12,500 (1)	11,000 (1)	3,500 (1)	300 ('81) (1)		1,460,012 (1)	384,000 (1)	6,750 ('81) (1)	ID
Number of Households in Service Area - (1976)	2,800 serviced 2,868 (1)	1,204 (1)	550 (1)	70 (1)		261,024 ser- 267,898 viced (1)	40,580 (1)	325 (1)	1,500 (1)
Size of System - 1976 Capacity in million gallons/day	2.25 mgd (1)	.347 mgd (1)	.3 mgd (1)	3 mgd (1)		443.5 mgd	15.5 mgd (1)	1.75 mgd (1)	
Actual utilization of system in million gallons/day	41.8% .94 mgd (1)	105% .364 mgd (1)	80% .24 mgd (1)	23% .69 mgd (1)		57% 2528 mgd	98% 15.1 mgd (1)	10% .175 mgd (1)	65% (5)
CAPITAL FUNDING									
Assessed Property Valuation of Service Area	$18,610,384 (1)	ID	$8,000,000 (1)	$100,000 (1)		ID	ID	ID	$59,700 (5)
Statutory debt limit: General Obligation bonds	$ 3,722,076 (1)	ID	ID	$ 25,000 (1)		$115,788,000 (1)	NA	NA	NA
Long-term bonded indebtedness for WQM: General Obligation	$ 610,000 (1)	$ 322,000* (2)	---- (1)	---- (1)		$ 48,549,000 (1)	NA	NA	NA
Long-term bonded indebtedness for WQM: Loans or Revenue bonds	---- (1)	$ 43,000* (2)	$ 256,000 (1)	$ 10,000 (1)		ID	$2,186,500 (1)	$300,000 (1)	$47,818 (2)
Remaining debt capacity: General Obligation bonds	$ 2,736,637 (1)	ID	ID	---- (1)		$ 67,239,000 (3)	NA	NA	NA
Annual debt service: (principal + interest per year) for WQM General Obligation	$ 68,230 (2)	$ 37,814* (2)	---- (1)	---- (1)		$ 4,844,000 (1)	NA	NA	NA
Annual debt service: Revenue bonds for WQM	---- (2)	$ 8,196* (2)	$ 24,821 (1)	$ 1,070 (1)		$ 550,000 (1)	$ 525,832 (1)	$ 36,000 (3)	$ 5,700 (3
Debt per person for WQM: (total long-term indebtedness / total population)	$70.11 (3)	$73.00* (3)	$102.40 (3)	$35.71 (3)		$34.73 (3)	$16.48 (3)	$249.58	$18.22
REVENUE SOURCES									
Revenues from 1976 Property tax levy for WQM	$ 73,548 (2)	$ 66,517* (2)	---- (1)	---- (1)		$ 2,856,000 (1)	NA	NA	NA
1976 Property Tax Assessment for WQM	40¢/$100 A.V. (4)	67¢/$100 A.V. (4)	---- (1)	---- (1)		20¢/$100 A.V. (4)	NA	NA	NA
Revenues from Connection (tap-in) Fees	---- (1)	ID	$ 4,000 (1)	$ 350 (1)		$ 52,000 (1)	$1,200,000 (1)	$ 75,000 (1)	$ 1,250 (1
Total Users Fees 1976 (See Appendix for actual user charges, rates)	$ 48,123 (2)	$ 24,710 (2)	$ 39,000 (1)	$ 5,800 (1)		$ 11,875,000 (1)	$2,750,000 (5)	$ 40,000 (1)	$62,100 (1
Special Assessment Charges (amount per customer)	---- (1)	---- (1)	---- (1)	---- (1)		---- (1)	---- (1)	---- (1)	----
Total Revenues Collected (1976 from all sources)	$ 95,876 (2)	$ 108,424* (2)	$ 43,000 (1)	$ 6,150 (1)		$ 17,182,000 (1)	$3,950,000 (3)	$115,000 (1)	$68,950 (1
COST DISTRIBUTION									
Cost of Operations (1976)	$ 97,871 (2)	$ 98,520* (2)	$ 33,400 (1)	$ 6,498 (2)		$ 16,273,802 (1)	$1,663,000** (1)	$100,000 (1)	$55,389 (1
Total Debt Service + Cost of Operations	$ 166,101 (3)	$ 144,530 (3)	$ 58,221 (3)	$ 7,568 (3)		$ 21,667,802 (3)	$2,188,832 (3)	$136,000 (3)	$61,089 (3
Annual cost per person: Total debt service + operation costs / population	$19.09	$29.91 (3)	$ 23.29	$27.03 (3)		$15.50 (3)	$16.50 (3)	$113.14	$23.27 (3
FUTURE PLANS									
What type of expansion or improvements are planned?	Secondary sewage treatment	New treatment plant (1)	Extend service area 201 phase II new facility	Expanded trunk lines		System Improvements	Consolidation with MSD or construction of new facility	New plant to replace 3 existing; line extensions	None - possible with drawal from busines
What capacity will new facilities have?	1.8 mgd	1.1 mgd (1)	ID	----		ID	ID	Same	
What is estimated cost of new facilities?	$ 1,500,000	$1,000,000 (1)	$1,000,000	----		$236,000,000	$6,000,000	$500,000	
How will these facilities be financed?	Grants	Grants	Grants	Revenues		Grants, Revenues	Bank Loan	User charges & Loans	

**Estimate

(1) = Survey
(2) = Financial Statements
(3) = EWGCC, Team Four calculations
(4) = Special Inquiry
(5) = In response to profile in Interim M/I Report
ID = Insufficient Data
NA = Not Applicable
* = Includes funds for water works and sanitary sewer system

must operate at a less efficient scale and thereby incur higher operating costs.

3. Public agencies depend upon federal and state grants to reduce the significant capital costs of wastewater treatment facilities.

4. It is economically unfeasible for private sewer companies which are ineligible for government assistance to make the improvements to their systems necessitated by P.L. 92-500.

5. Most agencies are planning expansions and/or improvements to their systems under the assumption that federal and state grants will be available to subsidize their capital costs. Survey responses indicated excessive demand for limited intergovernmental grants.

6. Numerous factors influence the true cost to the consumer of wastewater treatment. Such variables include the level of treatment, operating level of the plant, ability of the agency to obtain grants, capital financing capabilities of the community and administrative efficiency or the operating agency.

7. Funds required for both daily operation and maintenance costs and amortization of debt are being raised through a variety of mechanisms. Agencies differ widely on their utilization of particular fiscal tools.

8. Consumers may pay several different charges for their sewer service including tax levies, service charges, connection fees and special assessments.

Based on these conclusions, three fiscally-related issues of long term significance were identified. First, the survey pointed up the need to obtain assurances from the State of Missouri on the future availability of State aid for wastewater treatment facilities. Second, regional wastewater treatment projects have to be prioritized so that available funds can go to the areas with the most pressing problems. Finally, acquisition of private sewer companies by public agencies is necessary to achieve the national water quality goals mandated by Congress. Efforts have been made throughout subsequent stages of the 208 program to resolve these early financial concerns.

c. Legal Analysis. The third element in the development of a financial conditions data base was a consideration of the constraints imposed by Missouri law on the

financial operations of various management/institutional agencies (Element 9, P. 26-44; Element 13, P. 85-100). The development of effective financing arrangements to implement the 208 plan hinged upon a clear understanding of the current fiscal tools available to and limitation imposed upon wastewater management entities. The designated management agencies must have the legal capability to raise the revenues needed to carry out alternative water quality control programs.

In addition, Section 208(c)(2) of P.L. 92-500 specifies four powers related to financial capability that the management structure must possess: the authority to (1) accept and utilize grants; (2) raise revenues and assess user charges; (3) incur debt; and (4) assure proportional community payments for use of the facilities. Since compliance with both federal requirements and State statutory constraints is essential, Missouri laws were reviewed early in the study to determine the extent of fiscal powers a water quality management agency can utilize. Constitutional amendments and/or legislative changes would have been necessary if local agencies lacked sufficient authority to finance the actions being proposed under the 208 program.

Table 15 summarizes the fiscal tools available to municipalities, sewer districts and private sewer companies operating in Missouri. Each operating entity now possesses sufficient authority to meet the federal criteria for management agencies, although clarification of certain powers may be desirable. The study indicated that the St. Louis Metropolitan Sewer District has the broadest range of revenue-raising, tax assessment and bonding powers. These wide fiscal powers will be of great assistance in implementing the St. Louis 208 Plan.

Estimation of Alternative Costs. Water quality management plans prepared in accordance with Section 208 of P.L. 92-500 must identify "measures necessary to carry out the plan (including financing)" and must also make preliminary determinations of cost-effective treatment systems. Towards this end, cost estimates were prepared, in cooperation with the technical consultants, for over 100 point source alternatives. Given the regional focus of 208 planning, detailed financial planning for each service area is not possible. The development of user charge systems and industrial cost recovery arrangements (see Section 2, P. 34) are functions, rather, of 201 facilities planning studies. The cost estimates developed in the 208 project have been valuable, however, in identifying the most cost-effective configuration of treatment plants, in determining the level

TABLE 15

FINANCIAL POWERS AND CONSTRAINTS OF WASTEWATER MANAGEMENT AGENCIES

Type of Agency	Example	DEBT LIMITATIONS		REVENUE SOURCES				
		General Obligation	Revenue	Ad Valorem Property Tax	User Fees/ Service Charges	Special Assessments	Connection or Tap-in Fees	Public Grants
Municipalities	-Manchester -Pacific -Union -Arnold -Eureka -Wentzville -Washington -St. Charles -St. Peters -O'Fallon (All of above responded to the long form of the 208 Management/ Institutional survey)	Yes ·Total city debt not to exceed total annual income and revenue plus balance. ·2/3 voter approval limit at up to 20% assessed value (a.v.)1) ·Repay all bonds within 20 years. ·6% interest 8% in certain instances. ·Must have annual real property tax to repay.	Yes ·No total limit. ·4/7 maj. approval. ·35 year maximum period. ·6% rate maximum (8% poss.) ·Pay with revenue from sewer system, not taxes.	Yes ·Part of $1.00/ $100 a.v. limit unless earmarked for repayment of a bond issue.	Yes ·Just and equitable charges or rent" to users. ·"May charge higher rate to customers outside city.	Yes ·For special benefit to area or class of residents.	Yes ·As special assessment ·No guidelines.	Yes
Sewer District (Three Alternative Types) ·County Court District (operated by county court)		Yes ·Same limits as municipality	Yes ·Same as municipal	Yes ·Same as municipal	Yes ·Based on amount of water used.	Yes ·May not exceed 1/2% A.V. or .005¢/$100 a.v.	Yes	Yes
·Second Class County District (More autonomous from county court)	·Herculaneum ·Lake Adelle ·Grey Summit (proposed)	Yes ·Same as above	Yes ·Same, but can differ with impact of different users.	Yes Same, to defray annual operating costs.	Yes ·Can differ with different cost of treatment	No	Yes	Yes
·Common Sewer District (oriented to county wide or large watershed coverage)	RSD, St. Charles County	No -	Yes	No	Yes To pay O&M as well as debt service on revenue bonds. ·Charges to be "reasonable". ·Based upon volume of water used may charge residents of municipalities user fees.	No	Yes	Yes Including contributions from county or municipal governments.
St. Louis Metropolitan Sewer District ·Authorized by Missouri Constitution, Specific Powers by Charter	MSD	Yes ·Total debt not to exceed 5% of all taxable property in district. ·Same period, rate and approval limits as municipal	Yes ·Same limits as municipalities.	Yes ·At least sufficient no pay P&I on bonded indebtedness within 20 years. ·Maximum rate @10¢/$100 a.v. ·Rate set annually. ·May pay part of O&M as well.	Yes ·Charged semi-annually May base on: -water use -plumbing fixtures -persons served	Yes ·May use to pay off G.O. Bonds. ·May from subdistricts to pay for improvements in subdistricts.	Yes	Yes
Private Sewer Companies	·Fee Fee ·Imperial	No ·Relies on private commercial borrowing to finance debt.	No	No	Yes ·Can include service contracts w/customers	No	Yes	No
Counties (same powers as Municipalities can be implied)		Yes	Yes	Yes	Yes	Yes	Yes	Yes
State of Missouri		Yes, Up to $150 M, intended to assist local governments in matching federal grants.						

1) A.V. will be used to abbreviate "assessed valuation"
2) O&M is an abbreviation for "Operations & Maintenance"
3) P&I is an abbreviation for "Principal & Interest"

of water quality the region can afford and in indicating the financial impacts that water quality management activities will have on St. Louis residents.

Prior to receiving any cost estimates from the technical consultants, two methodologies were developed for the financial analysis of the point source and nonpoint source alternatives (Element 13, P. 112). These preliminary methodologies indicated that certain basic assumptions would have to be made in order to provide a meaningful analysis of local financial impacts. Assumptions were made regarding the level and availability of federal and state grants, the interest rate on long-term municipal bonds, the length of the amortization period and the fiscal capabilities of the management agency. The steps included in the methodology illustrated the concepts underlying the allocation of costs to residents and governmental bodies while indicating the procedures involved in financial analysis. Through these methodologies, a better understanding was gained of the financial difficulties the region will face in implementing the 208 Plan.

Extensive work by the technical consultants provided the study team with specific cost estimates for each of the service areas. Capital construction cost estimates were developed as well as year 2000 operation and maintenance costs for each new or expanded system. In applying the methodology to each alternative, cost allocations were made to the federal and state government and to service area households.

The broad steps identified in the Phase II methodologies provided the basis for the detailed fiscal evaluations of the point source alternative costs. Certain changes were made in the assumptions of the methodology to comply with federal regulations for cost-effectiveness studies and to agree with more recent management proposals. However, the general procedures used in allocating actual costs were based upon the preliminary methodology.

EPA requires that "present worth analysis" be used in evaluating all water quality projects. Present worth analysis means that future costs for construction and operation and maintenance are all expressed in terms of their current cost as if these expenditures were being made at the present time. Thus, in this analysis, the sum total of the capital investments in plants and pipes that will be made over the next 25 years have been totaled and an annual estimate of all future investments has been calculated. This estimate is based on June, 1977, dollars and does <u>not</u> include any

inflation factor. Likewise, the operation and maintenance cost figures for a year in the life of the system are expressed in June, 1977, dollars. Present worth analysis, in effect, allows local residents to evaluate the future value of these systems by comparing their present worth to other expenses the household currently has.

A more accurate estimate of annual household cost would be possible if operations and maintenance costs could be based on the flows of an interim year of the system's life. Year 2000 operation and maintenance costs represent the level of costs that can be expected when the system is operating at its designed capacity and its most cost efficient level. However, the plants will be operating at somewhat less efficient levels for the intervening years. The year 1990 was selected as more reflective of the average operations and maintenance cost for the system. The engineers calculated the operating and maintenance costs for each service area based on projected 1990 flows. At this point, annual operating and maintenance costs related to commercial and industrial users were separated from residential treatment costs. The financial impacts of each project would now more closely reflect the true costs to residential users. Such detailed cost estimates have been vital in accurately projecting the economic effects of the proposed projects. Table 16 summarizes the methodology for developing household cost estimates.

Elimination of Alternatives and Refinement of Cost Estimates. By this point in the project extensive data had been developed on water quality impacts, management options and issues, and public acceptance and political feasibility of implementing particular point source alternatives (Element 18 Report). Costs for levels one, two and three treatment standards (see Section 2, p. 27) were also available. Local residents could choose the level of water quality they preferred based on how much they wished to pay.

Each of these factors were considered in eliminating those systems considered unlikely to be implemented. In formulating their recommendations, the technical consultants rejected level one alternatives because the effluent quality of these systems would not meet State of Missouri water quality standards. Cost-effectiveness criteria were the basis for elimination of level three alternatives; the improvements in water quality achieved under level three procedures could not be justified by the substantial increases in capital and operating and maintenance costs. Level two treatment was judged to be the most cost-effective alternative, providing the highest water quality possible at the least cost.

TABLE 16
THE HOUSEHOLD COST EQUATION

Capital Costs for Treatment Plans, Sewer Systems, Pump Stations, etc.	+	Capital Costs for Residual Waste Facilities	=	Total Capital Costs				
Total Capital Costs	=	75% Federal Assistance	+	15% State Assistance	+	10% Local Share		
10% Local Share	X	Capital Recovery Factor	=	Annual Debt Service Payment				
Annual Debt Service Payment	+	Annual O&M Residential Treatment	+	Annual O&M Collection System	+	Annual O&M Residual Waste	=	Annual Community Cost
Annual Community Cost	÷	Estimated Number of Households in Service Area	=	Estimated Annual Household Cost				

Recommendations for particular point source alternatives were made for many of the service areas. But the initial review of alternatives also indicated that new configurations of plants should be developed for some service areas. Revised designs and cost estimates were prepared for systems in Jefferson and St. Charles County. In other service areas, the competing water quality cost factors and political considerations were so strong that the consultants did not feel justified at this point in recommending one alternative over another. In later phases of the project, discussions with area residents regarding these alternatives and additional technical information aided the project team in making final recommendations.

The last major refinement of annual cost estimates was the inclusion of capital and operating and maintenance costs related to residual waste facilities. While these costs did not influence the relative costs of different point source alternatives, inclusion of these expenses in the household cost estimates enabled a more accurate evaluation of the financial impacts of the recommended plans.

Estimated annual cost figures were presented at the Phase III workshops for each recommended new or expanded system (Element 24 Reports). The annual cost to each household represents the household's share of the community investment in constructing a wastewater treatment plant and collection system plus payment for the benefits the household receives in having its wastewater treatment by the community facilities. The estimates are useful for comparison purposes and to indicate broad economic impacts of proposed actions. The figures represent a portion of the total estimated 1990 user charge for wastewater treatment. Precise cost estimates and detailed financing plans are not within the scope of the 208 project. The detailed collection and treatment costs of the 201 plans will provide the basis for choosing specific revenue-raising options and cost assessment alternatives.

Recommendations. With approval of the 208 plan, each of the designated management and operating agencies will have to take certain steps toward the implementation of the plan. The function of the 208 plan has been to identify those broad measures that are necessary to carry out a regional water quality plan. Specific programs for financing the local costs of these systems will be formulated during 201 facility planning. Based on the financial evaluation, the following critical issues relating to financing the pollution control recommendations are:

a. The future availability of State grants. Within the next few years, the State is expected to have committed the entire $150 million in water pollution bonds authorized by the voters in 1971. Local communities now depend upon this State aid to subsidize the capital costs of treatment plants and collection systems. Without additional bonds, many of these projects cannot be implemented.

b. The development of the county and regional water quality boards. Coordination, planning and monitoring tasks will be the responsibility of these boards. The boards may be important in mediating between local service areas and influencing priority for government funds.

c. The development of cooperative arrangements among the various operating entities. These contractual arrangements will have fiscal impacts which cannot be ignored, particularly in the lower Meramec where management of the water quality activities is complicated by a two-county service area. As a result, joint capital financing schemes by the St. Louis Metropolitan Sewer District and a Jefferson County agency will have to be worked out. The legal feasibility, public acceptability and costs of such contractual arrangements and assessment methods need to be evaluated during 208 continued planning.

d. The development of detailed implementation schedules. Detailed implementation schedules will be developed through the 201 facilities plan. However, in the next six months, the operating agencies could consider broad plans in designing their long-term implementation schedule. The recommended actions will be implemented over a period of years. The timing of acquisition of existing facilities and the phasing of new construction will determine how much and when additional capital funds must be allocated to investment in waste treatment facilities. As specific plans are produced by the 201 process, more detailed financing arrangements can be developed. In the meantime, management agencies can gain a familiarity with the issues involved and begin to solve the complicated problems of financing the construction and operation of waste treatment systems.

B. Management/Institutional Analysis and Recommendations

Introduction. The management/institutional analysis completed by Gateway led to the selection of the recommended management system and implementation program presented

in this Final Plan. In undertaking the management/institutional analysis, objectives and criteria were developed for the assessment of existing agencies and management alternatives evaluated later in the planning process (Element 9, p. 6).

Four main areas of investigation were undertaken. Local management agency profiles, jurisdictional/watershed profiles, an authority/utilization report, and a research bibliography were prepared for the purpose of reaching some interim conclusions about the current wastewater management system and the potential resources and problems that bear on the 208 strategy implementation. The methodology for undertaking this assignment is shown graphically in Figure 26 and explained below.

Local Management Agency Profiles. The collection and organization of data on individual sewage treatment agencies required the handcrafted development of a series of data collection forms. Because of time and efficiency considerations, it was determined that a sample survey would be utilized (Element 9, Appendix C). The goal of the survey was to fulfill the study's data needs and at the same time give an accurate picture of the variety of water treatment agencies operating in the region. Questionnaire forms were mailed to the appropriate agencies with Gateway making follow-up telephone calls to offer assistance and to encourage the agencies to complete and return the questionnaires. In addition to the survey data, many personal interviews were conducted to obtain more information about the actual day-to-day operations of the key sample agencies.

Jurisdictional/Watershed Profiles. The jurisdictional/watershed profiles (Element 9, p. 45) were prepared by a different method. Regional maps were prepared with stream basins and treatment agency jurisdictions outlined to allow comparison of watersheds to jurisdictional coverage.

Research Bibliography. Another aspect of the data collection system was aimed at providing a view of the "state of the art" of management/institutional planning related to waste water treatment. A bibliographic search was undertaken, a project library established, and a research bibliography compiled (Element 9, Appendix C).

Authority/Utilization Report. The fourth aspect of the management/institutional analysis produced a legal authority/utilization report and matrix (Element 9 - p. 31). The matrix shows the required 208 functions and

INTERIM MANAGEMENT FLOW CHART

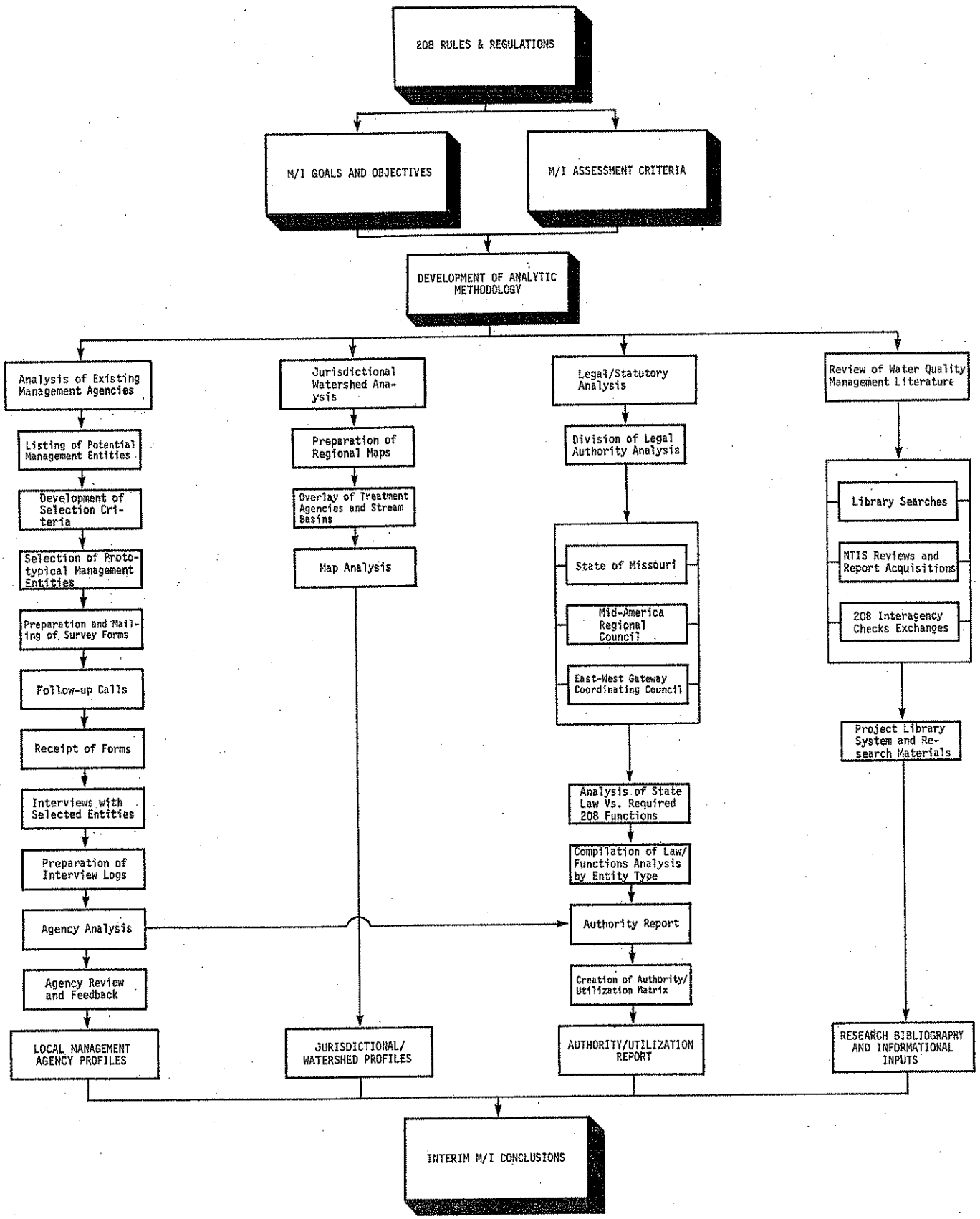

figure 26

the agencies that have the statutory authority to perform these functions. In addition, an analysis was conducted to determine the extent to which required 208 functions were actually being exercised by these entities. This information was helpful not only in understanding the statutory "gray areas," but also in more fully appreciating the relationship between various major actors.

The resulting matrix (Figure 27) demonstrates the difficulty of finding a single agency type that possesses the legal authority or the resources to act as a sole areawide waste treatment management agency. The necessity of creating an optimum combination of private, local, county, regional and state agencies to implement and manage the areawide plan was thus identified.

Development and Evaluation of Alternatives. A most important analytical effort that was built around these initial efforts was the development and evaluation of six major management/institutional alternatives (Element B, Chapter II). These alternatives were evaluated in a number of ways:

a. The alternatives were considered in terms of the management/institutional criteria developed earlier in the study.

b. The alternatives were weighted on the basis of their capacity to be implemented in a phased, incremental manner.

c. The alternatives were tested on the basis of their county-by-county viability.

d. Area citizens and policy-makers evaluated the alternatives in a variety of meetings and regional workshops.

This evaluation process allowed for a narrowing of alternatives and permitted the selected management/institutional options to be measured against the detailed engineering and financing proposals that were evolving. This match-up was absolutely critical to the development of alternatives that are economically viable, politically realistic and technically feasible.

Having completed an evaluation of the existing areawide wastewater management system, it was possible to start exploring alternative systems that could improve this region's ability to implement its adopted 208 plan. Instead

208 MANAGEMENT MATRIX

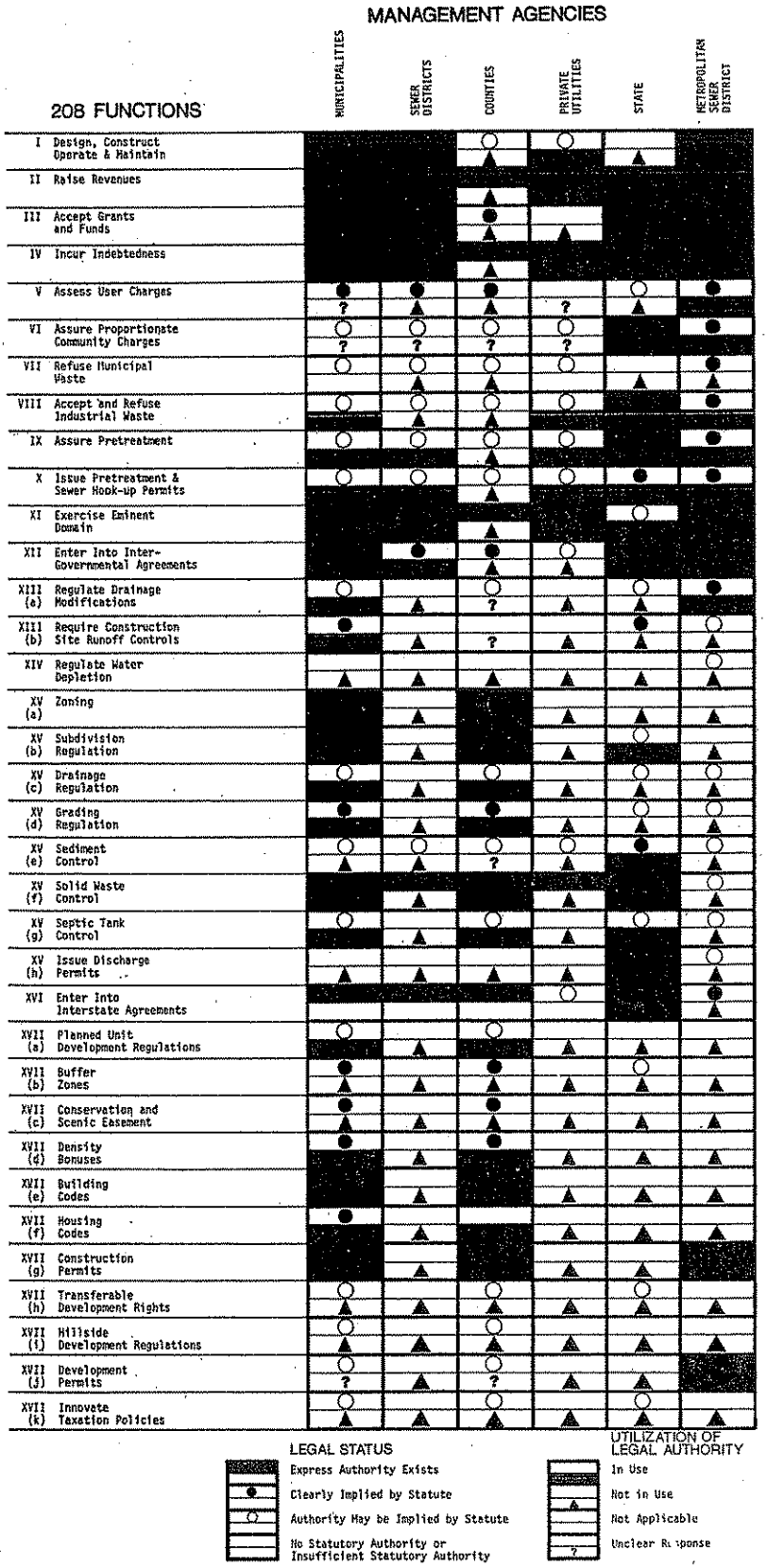

figure 27

of merely working with variations on the present system-shifting powers and responsibilities about from one actor to another--a special research task was undertaken.

An analysis was conducted of the existing institutional arrangements other regions have devised to achieve improved water quality (Element 23, Technical Supplement). This effort evaluated a variety of approaches from different metropolitan areas of the country, ranging from Atlanta to Chicago and Minneapolis. A number of ideas emerged from this review and lead directly to the development of the six broad institutional alternatives.

Ten basic management/regulatory entities were considered as possible actors within these institutional arrangements:

1. Federal Government
2. State of Missouri
3. Bi-State Development Agency
4. East-West Gateway Coordinating Council
5. Sewer Districts
6. Metropolitan Sewer District (MSD)
7. Counties
8. Private Companies
9. Municipalities
10. Soil and Water Conservation Districts.

The alternatives considered were as follows:

I. Present System Continued
II. State Centered Approach
III. Regionalized System (a) MSD
(b) Bi-State
IV. Subregional System
V. Coordinated Public System

a. Present System Continued. It was concluded that to continue the existing system would be to perpetuate an uncoordinated management program, lacking any single agency with the authority and resources needed for true oversight and assessment. Moreover, the mandated water quality goals of P.L. 92-500 would simply not be met.

b. State-Centered Approach. Pursuant to this alternative, the State of Missouri would have moved more vigorously into water quality management, assuming the role of environmental supervisor and coordinator as well as planner for all water quality related factors within this study area.

The State-centered concept, it was concluded, had both political and operational problems. The State, while anxious to participate in water quality management on a broad scale, did desire a more centralized and expanded management role. In fact, because of detailed regional needs, these functions had already been allocated by the State on a more localized basis among various regional planning agencies and local political jurisdictions.

The 208 program area designations themselves evidenced the State's desire in this regard. Thus, it was felt that centralization needed to evolve from the local level and not from the State. Moreover, it was unlikely that a proposed State review of environmental impacts arising from land development would be enacted by the Missouri legislature.

c. Regionalized Systems. Two potential regionalized approaches were considered as the means for centralizing the water quality management responsibilities as well as for securing overall geographic coverage and the best technical competence.

One approach, revolving around an expanded role for the St. Louis Metropolitan Sewer District (MSD) was certainly, in some respects, a logical concept since MSD is today the major wastewater treatment operating agency in the region. MSD, under this concept, would have secured the legal authority to extend its geographic coverage over the entire 208 study area. It was noted, however, that an enlargement of MSD's potential jurisdiction would be very difficult to achieve, requiring an amendment of the Missouri Constitution.

A second approach was based upon activating the Bi-State Development Agency's latent powers (water quality management). Wastewater would have become merely another operating arm of the agency as are transit and port operations.

These concepts cored poorly in terms of feasibility. Neither MSD nor Bi-State indicated any interest in pursuing such options. More importantly, citizens and public officials alike were uniformly opposed to these alternatives.

d. Subregional System. A basic determinant in this alternative was that MSD's basic operational area would be confined, as its Charter now limits it, to St. Louis City/County-the most heavily urbanized sectors of the region. However, any other major treatment would be on a subregional basis using a new sewer district or districts

for the other urbanizing sectors of the region. Alternatively, a single subregional sewer district would have been created to coordinate treatment in all three of the non-MSD counties.

Regional sewer districts created either at the county or tri-county level presented a major issue for resolution. It was agreed that for purposes of coordination and jurisdictional authority over the impact areas, there was some logic to this idea. Yet, serious questions were raised as to whether this concept was truly implementable from an operational or engineering vantage point in Franklin, Jefferson and St. Charles Counties.

e. Coordinated Public System. Of all the alternatives, this concept would be most similar to present practices. Without radically changing the existing system, this alternative would add the consolidation and coordination of responsibilities necessary to meet the challenges of 208. Consolidation would result from a number of changes. First, private sewer corporations would be eliminated from the scenario because their financial status makes them unlikely actors in any future water quality plan. Second, this alternative would create a single program planner, supervisor and coordinator--East-West Gateway.

In the area of point source control and facility operation and management, MSD would basically work within its chartered jurisdiction with a continued effort to involve MSD by contract in other parts of the study area, where such involvement was locally desired. In Jefferson County, St. Charles County, and Franklin County, sewer districts and municipalities would continue to play a significant role in point source treatment and regulation.

While this alternative would foresee a much stronger role for sewer districts in providing service and coordination than such entities currently provide, these districts would be less powerful than the subregional sewer district proposed in Alternative IV. In this coordinated public system, the sewer district would, rather than pre-empting municipal power, attempt to work hand-in-hand with municipal operators to assure the greatest possible coverage and quality of service. In the area of nonpoint source control, this alternative would not be radically different from present practice.

It was felt that this alternative would be the most politically feasible; it would not radically change the existing

functions of either the state, MSD, or municipal operators; it also would not necessarily require the creation of numerous large-scale sewer districts. On the other hand, new sewer districts would, at a minimum, be created to serve currently unserviced areas.

It was determined that this alternative, while in some ways not significantly different from present practices, would, if successfully implemented, provide the region with a strong management/institutional system.

Recommendations. The management/institutional analysis had thus proposed a number of broadly stated alternatives in which responsibility for the key 208 functions had been allocated to various levels of government, with various degrees of centralization or decentralization. Through this evaluative process, project staff and citizens alike recognized that the present management system in the region was inadequate to fulfill the mandate of Federal law. The consensus moreover was that a relatively decentralized system with significant local control would provide the basic framework for the management system that is now recommended as part of this final 208 Plan.

The consensus suggested also that the proposed system would most closely resemble the Corodinated Public System alternative (Figure 28). To translate this alternative into an actual implementation program required overcoming a number of obstacles. As illustrated in Figure 28, the conceptual alternative made no attempt to either group the required 208 functions into a manageable number or to allocate ultimate responsiblity to a particular entity.

III. THE RECOMMENDED ST. LOUIS, MISSOURI, 208 MANAGEMENT SYSTEM

A. Introduction

An important methodological step in moving from an evaluation of alternatives to the proposed 208 management system was to group the eight functions developed earlier in the study into a smaller, more manageable number of "functional groupings." This grouping of functions was pursued for reasons other than mere practicality. The groupings are, in fact, one of the logical cornerstones of the proposed management systems.

SELECTED MANAGEMENT APPROACH: COORDINATED PUBLIC SYSTEM

208 FUNCTIONS	FEDERAL	STATE	BI-STATE	GATEWAY	MSD	SEWER DISTRICTS	COUNTIES	PRIVATE CORPS.	CITIES	SOIL/ WATER DIST.
PROGRAM SUPERVISION AND COORDINATION				*						
PLANNING				*						
STANDARD SETTING	*	*							*	
POINT SOURCE REGULATION		*			*	*			*	
NONPOINT REGULATION				*	*	*	*		*	
PLANT DEVELOPMENT OPERATION AND MAINTENANCE					*	*			*	
FINANCE	*	*			*	*			*	
MONITORING AND ENFORCEMENT		*								

* ASSIGNED RESPONSIBILITY

figure 28

1. Program planning, supervision and coordination. Water pollution control measures should be viewed not only as solutions to local problems, but also as parts of a coordinated strategy to control water pollution throughout the area. Federal law requires that a management system be created to oversee implementation of the 208 Plan and its provisions. This management system must have the power to deal with implementation on a regional basis and yet still be sensitive to the wishes of the counties and their municipalities.

2. Point source regulation and compliance including point source permitting, standard setting, monitoring and enforcement) Legal sanctions are a necessary aspect of a water pollution control program. 208 requires that management agencies have the power to regulate the volume, strength and composition of discharge through permit; monitor this discharge; and enforce the terms of discharge permits if violated. A management agency must also have the power to set standards for insuring a desired level of instream water quality.

3. Treatment Plant development, finance, operation and maintenance. Properly planned, designed, and correctly operated and maintained, sewage treatment plants can be one of the most important mechanisms for controlling water pollution. The federal government and the State of Missouri are well aware of this fact, as evidenced by their combined 90 percent grant funding of new wastewater treatment plants and upgrading and expanding of existing ones.

Section 208 requires that certain agencies be designated to receive these federal and state grants. This is done to insure that these agencies have the financial powers to meet their 10 percent share of the total project cost, and have the expertise to operate the treatment facility and collection system in a proper and efficient manner.

4. Management of Nonpoint Source Controls. 208 requires that there be agencies designated to develop, apply and enforce nonpoint source control measures.

Before turning to the proposed allocation of responsibilities within the four management groupings identified above, the basic philosophy of the proposed coordinated public system should be stated. This philosophy is one of logically dividing 208 responsibilities among three key levels of government at work in the study area--regional, state and local (county/municipal).

It is, thus, proposed that certain 208 management functions need to be handled at the State level, other functions should fall to regional government and a great variety of functions should be dealt with at the local level. We turn first to those functions which should and can be most effectively dealt with at the regional level of government.

B. Program Planning, Supervision, and Coordination

East-West Gateway Coordinating Council is recommended as this area's water quality planner-coordinator. Gateway is the St. Louis Area Council of Governments; its Board of Directors is comprised of elected officials and agency representatives from the State, County and municipal levels and citizens appointed by elected officials. Its area of coverage gives Gateway the ability to address water quality problems on an areawide basis; at the same time, as illustrated by its composition, Gateway can be sensitive to local concerns. Moreover, Gateway is recommended as the 208 Coordinator because its strengths-experience, regional scope, and commitment to 208 planning-override its major weakness-lack of direct enforcement powers.

To insure that the concerns and inputs of local plant operators, planning commissions and sewer district representatives are adequately addressed, development of a two-tiered Water Quality Board to work with Gateway on implementation of the 208 Plan will be an important feature of the management system.

A Regional Water Quality Board will be formed and integrated into the Gateway structure. The Board will be the formal mechanism through which Gateway's planning and supervisory decisions are channelled. The proposed placement of the Board within Gateway hierachy is shown in Figure 29.

The Board should meet monthly and will, with the assistance of Gateway personnel, assure that the 208 program is moving ahead at an acceptable pace, sensitive to local needs, yet consistent with the objectives of the 208 Plan.

The Regional Water Quality Board should, at a minimum, be composed of the following 15 voting members:

Director of Planning, Franklin County
Director of Planning, St. Charles County
Director of Planning, St. Louis County
Director of Planning, Jefferson County (when Planning Commission is established)

Director of Planning, City of St. Louis
2 Representatives--Jefferson County Water Quality Board (CWQB) Municipal and Sewer District Representatives (1 each)
2 Representatives--St. Louis County Water Quality Board Municipal and Sewer District Representatives (1 each)
2 Representatives--Franklin County Water Quality Board Municipal and Sewer District Representatives (1 each)
2 Representatives--St. Charles County Water Quality Board Municipal and Sewer District Representatives (1 each)
2 "At Large" Citizens--appointed by Water Quality Task Force.

The actual composition of the Board will be formalized over the next few months. The 208 Policy Advisory Committee and Water Quality Task Force will assist the Gateway staff in forming the committee and writing its by-laws.

PROPOSED PLACEMENT OF THE WATER QUALITY BOARDS WITHIN GATEWAY

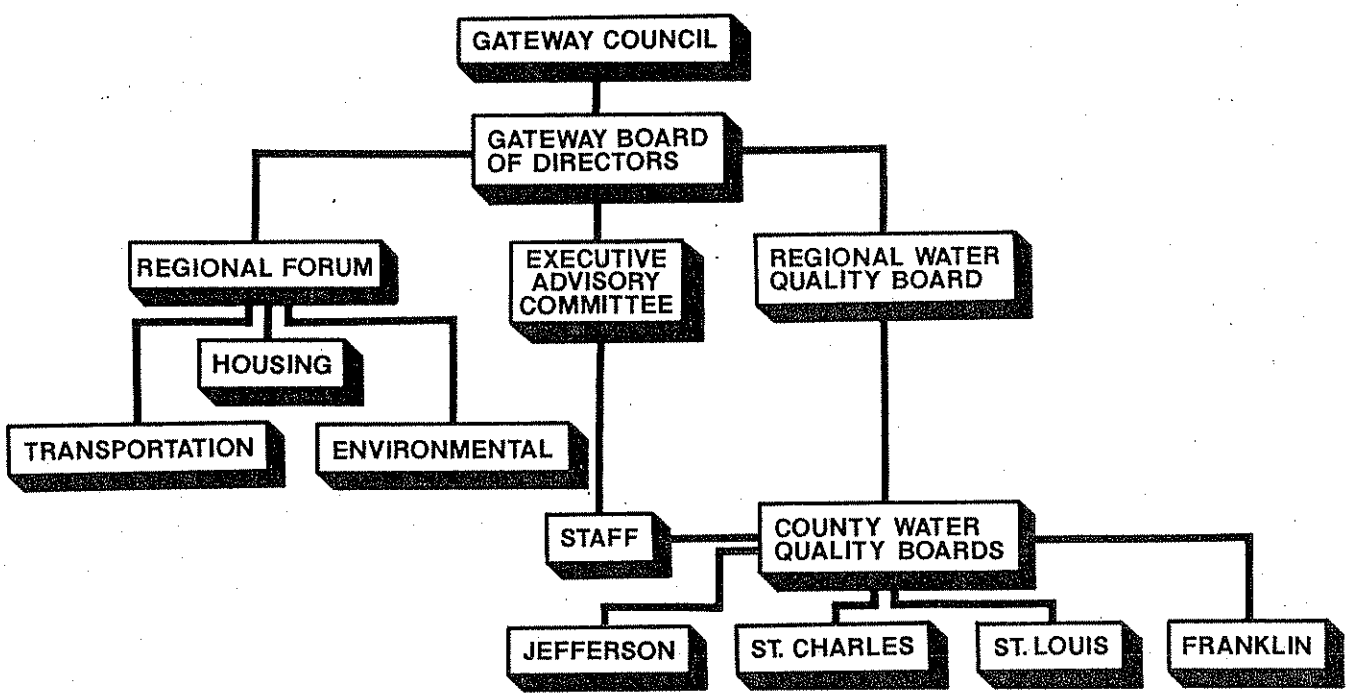

figure 29

The make-up of the Board reflects the degree to which this new entity within Gateway and will be composed of influential, knowledgeable and locally appointed representatives. The key to such representation is the proposed link between this Regional Board and four County Water Quality Boards.

The County Water Quality Boards will be set up in each of the affected Counties in order to attract its key decision-makers and establish the kind of meaningful dialogue that can lead to successful review and implementation of the alternative water quality plans developed for each county.

The County Water Quality Boards will be voluntary bodies set up pursuant to intergovernmental agreements rather than as a result of statutory enactment. The Boards, to be created in St. Charles, Jefferson and Franklin Counties, in addition to joint St. Louis County/City Board, will represent the interests of all levels of government active in wastewater management, including municipalities, sewer districts and county governments. It will be comprised of voting and non-voting members, as shown in Table 17. The actual composition of the County Boards and the necessary intergovernmental agreements will be developed during 208 continued planning.

Notwithstanding their lack of enforcement powers, County Water Quality Boards can be highly meaningful bodies, particularly once successfully integrated through their representatives into the Regional Water Quality Board. These bodies can be the counties' voice at the regional, federal and state levels on the whole range of water quality issues.

The County Water Quality Boards will have, among other things, the following functions:

a. Each of the County Water Quality Boards will be the liaison between the County and Gateway regarding the State of Missouri programs of discharge permitting, standard setting and monitoring. The Board should be notified of new State-issued discharge permits within the County. The Board should have an opportunity to comment on whether granting the discharge permit is consistent with local water quality goals.

TABLE 17
COUNTY WATER QUALITY BOARD

VOTING

1 County Court Judge (in St. Louis County, member of County Council)

2 Prosecuting Attorney (in St. Louis County, County Counselor)

3 County Building Commissioner (in St. Louis County, member of the Public Works Department)

4 County Health Department Director

5 County Director of Planning

6 Representatives of Designated 208 Management Agencies (Municipalities or Sewer Districts)

St. Charles:	Approximately 5 (assume County Court Agency for rural areas)
Franklin:	Approximately 11 (assume County Court Agency for rural areas)
Jefferson:	Approximately 7 (assume County Court Agency for rural areas)
St. Louis:	Approximately 2

7 County Citizen (appointed initially by Gateway 208 Water Quality Task Force)

NON-VOTING

1 Representatives of Additional Operating Agencies (not deisgnated as management agency by 208 Plan)

2 Home Builders Association Representative

3 Soil and Water Conservation District Representative

4 Gateway Representative

5 State DNR Representative (1)

b. The Board will monitor the management changes that are necessary for implementing point source controls. Issues created by the need for expansion of jurisdictional scope, intergovernmental agreement, and new management agencies can be addressed through the expertise and leadership of the Board members.

c. The County Water Quality Boards should meet with municipal and county representatives for the purpose of developing a set of model nonpoint source programs and ordinances that could be adopted countywide.

The creation of a two-tiered Water Quality Board system, as illustrated in Figure 29, will not, of course, overcome Gateway's lack of enforcement powers but should greatly increase the agency's ability to achieve voluntary compliance.

Other means exist for increasing Gateway's power to implement the Plan's recommendations. One approach would be to have Gateway make more forceful use of its "A-95" review function. As a regional Council of Governments, Gateway is required by federal law (OMB Circular A-95) to review and support or oppose a variety of Federal grant requests. A negative finding by Gateway greatly diminishes the likelihood that the federal granting agency will authorize requested funding. A policy decision to reject "201" treatment facility grant proposals where they are inconsistent with future regional 208 goals would, if given support by EPA, become an important supervision tool for Gateway. Should it be determined, as the 208 program progresses, that Gateway is incapable of coordinating the regional program on a primarily voluntary basis, then it becomes necessary to turn to some other type of regional entity. Barring such a possibility, East-West Gateway Coordinating Council, aided by a Regional Water Quality Board, should be well equipped to handle the 208 planning, supervision and coordination functions and provide the following additional services:

a. Provide technical assistance to local communities. Gateway would help local communities develop the institutional arrangement and intergovernmental agreements that are necessary for implementing local control measures including forming sewer districts. Gateway would help mediate disputes between competing entities by developing solutions amenable to all parties. Gateway will also assist local communities by making sure their applications for grant assistance are based on a plan of study in conformance with the 208 plan.

b. Assess the effectiveness of the Plan's control measures. As the control measures are put into effect--new treatment plants built, existing treatment plants upgraded or expanded, nonpoint source control measures adopted--Gateway would assess the resulting improvements in local and areawide water quality.

c. Update and revise Plan recommendations. By evaluating the effectiveness of the control measures and updating its population projections, Gateway will update the provisions of the Plan: the capacity, area of coverage, and level of treatment of proposed wastewater treatment facilities as well as the effectiveness of implemented nonpoint source controls. Gateway will also make more detailed studies of nonpoint source problems, especially urban stormwater runoff and individual home treatment systems. With the assistance of local governments, Gateway will institute watershed level control programs for control of the above-mentioned sources.

C. Point Source Regulatory and Compliance Functions

It is recommended that the State of Missouri continue to assume responsibility for assuring 208 point source compliance. Both past practices and current attitudes seem clearly to dictate this result.

The State of Missouri is already the dominant actor in point source permitting and standard setting. The State is also clearly responsible for administering the existing monitoring program. The State, in exercising these functions, has in many ways been responding to the mandate imposed upon it by the federal government under P.L. 92-500 and related legislation and regulation. There seems to be no question that responsibility for monitoring, standard setting, and the NPDES program (which is at the heart of point source permitting) mut remain with the State of Missouri.

Enforcement has been included in the grouping of functions delegated to the State. It is important to note that in allocating enforcement responsibilities to the State, the term "enforcement" is being used in a fairly narrow sense, only for point sources. In particular, this means enforcement of NPDES provisions. Enforcement as described here does not refer to nonpoint source regulations, which are more localized in nature and should be dealt with at either a municipal or county level.

Notwithstanding the State's continued role as the region's chief point source regulator, the efforts of the Department of Natural Resources, the Clean Water Commission and other State agencies can be positively influenced through the more active involvement of local agencies and decision-makers.

For example, while future decisions regarding standard setting in the 208 study area are likely to be made by the Clean Water Commission, formalized local input into the standard setting function remains a distinct possibility. As the region's current 208 planners, Gateway has attempted to bring to the Clean Water Commission's attention the attitudes and needs of local residents. State standards have created some controversy in this 208 region and this suggests the importance of these standards to local governmental officials and other interested citizens. The State must remain cognizant of the need for submitting its standards to public scrutiny and input. Local governments and other management agencies involved in implementing the 208 process will have to maintain clear channels to the State so that standards consistent with both local needs and federal requirements can be established. Relatedly, although DNR and the Clean Water Commission have been seeking some voluntary compliance with the State monitoring program, local input into the monitoring process has been fairly limited. Given the objective of a truly comprehensive and thorough monitoring effort, the 208 program for the St. Louis region must encourage a stronger program at the State level since successful implementation of the 208 plan demands the pinpointing of non-conpliance. At the same time, a program of greater involvement from the area's wastewater treatment entities is necessary both to bolster State enforcement efforts and to provide the kind of data that continued 208 planning and research will require. As is detailed in Appendix B, a highly detailed water quality monitoring program has been proposed for the 208 study area. Various types of monitoring efforts are recommended as part of a very comprehensive monitoring program. These efforts include monitoring for point source effluent major streams, urban streams, detailed urban runoff and individual home treatment system effluent (see Figure 30 and Table 18). The proposed program places monitoring for NPDES purposes at the top of its priority list. Yet, as the program emphasizes, data used for enforcement and establishment of standards may be useful for continuing planning as well. To make the most out of the limited funding and staffing that are available from various sources for monitoring purposes, Gateway, as 208 supervisor, must develop a program to coordinate the efforts of the dozen or more entities that currently contribute to the area's water quality data. While the State

RECOMMENDED MONITORING SITES

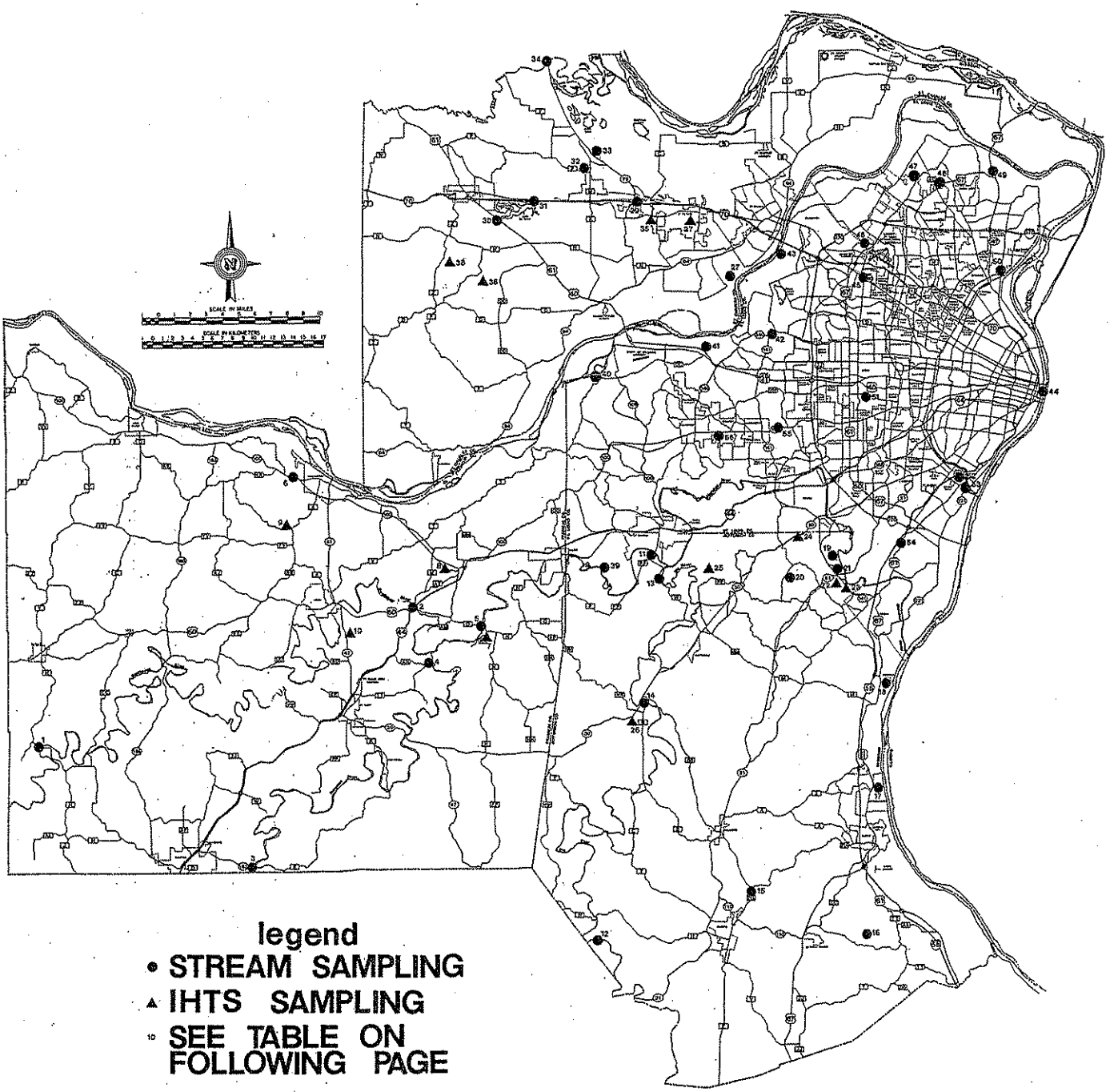

figure 30

TABLE 18

RECOMMENDED WATER QUALITY MONITORING SITES

Monitoring Program Elements (For Description, See Appendix B)

A = Major Stream
B = Urban Stream
C = Detailed Urban Runoff
D = Biota Sampling
E = Significant Individual Home Treatment System Discharge

Site Location Number	Location	Program Element	Type
1	Upper Bourbeuse @ Hwy. H	A	Instream: boundary inflow
2	Bourbeuse @ I-44	A	Instream: Impact of Development & growth
3	Upper Meramec Near Sullivan (Hwy. 185)	A	Instream: Boundary inflow
4	Meramec Above Bourbeuse Near Hwy. AM	A	Instream: Quality Above Impact of Bourbeuse
5	Meramec Near Robertsville @ Hwy. N	A	Instream: Impact of Bourbeuse, Before Pacific
6	St. Johns Creek @ Hwy. 100	A	Instream: Rural Nonpoint & IHTS
7	Robertsville	E	IHTS receiving water
8	Villa Ridge	E	IHTS receiving water
9	Krakow	E	IHTS receiving water
10	South of Union	E	IHTS receiving water
11	Meramec at Eureka @ Hwy. W	A	Instream: Impact of Pacific
12	Big River near DeSoto @ Mammoth Bridge	A	Instream: Boundary inflow
13	Big River @ mouth near Hwy. W	A	Instream: Point Source Impact, Growth
14	Belew Creek @ Mouth Near Hwy. BB	A	Instream: Point Source Impact (208 alternative has discharge to creek)
15	Joachim Creek @ Victoria	A	Instream: Point Source
16	Plattin Creek Near Village of Plattin	A	Instream: Point Source
17	Joachim Creek near Mouth @ Hwy 61-67	A	Instream: Urban Impact, Growth
18	Rock Creek @ Hwy. K	A	Instream: Impact of Growth, Removal of Point Sources
19	Saline Creek @ Hwy. 141	A	Instream: Impact of growth, removal of IHTS
20	Sugar Creek (tributary of Saline) north of Rock Creek	C,E	Instream: Urban, IHTS

TABLE 18
(Continued)

Site Location Number	Location	Program Element	Type
21	Meramec River at Paulina Hills	A,D	Instream: Biota (weekly sampling for Instream)
22	Meramec Meadows Lake (near Dutch Bottom Road @ Hwy. 141)	E	IHTS receiving water
23	Lonedell Terrace, Lonedell Road west of Hwy. 141	E	IHTS receiving water
24	Murphy	E	IHTS receiving water
25	Upper Antire	E	IHTS receiving water
26	Cedar Hills Lakes	E	IHTS receiving water
27	Duckett Creek near Mile 1.0	A	Instream: Urban Development
28	Dardenne Creek @ Hwy. 40-61	A	Instream: Upstream of Developed Area
29	Dardenne Creek @ I-70	A	Instream: Impact of Development
30	Peruque Creek above Lake St. Louis @ Hwy. 40-61	A	Instream: Upstream of Developed Area
31	Peruque Creek below Lake St. Louis @ I-70	A	Instream: Impact of Development
32	Peruque Creek @ Hwy. P	A,D	Instream: Removal of Point Source
33	Peruque Creek and Downstream of O'Fallon	D	Instream: STP Impact
34	Cuivre River @ Hwy. 79	A	Instream: Rural Nonpoint Impact
35	O'Fallon Hills-Drainage Ditch	E	IHTS receiving water
36	Cedar Lake Estates--Receiving Stream	E	IHTS receiving water
37	St. Peters Road--Receiving Stream	E	IHTS receiving water
38	Koch Subdivision--Drainage Ditch	E	IHTS receiving water
39	Fox Creek @ Old Hwy. 66	D	Instream: Rural Nonpoint, Future Development
40	Wild Horse Creek @ Wild Horse Creek Road	A	Instream: Rural Nonpoint
41	Bonhomme Creek @ Hwy. 40	A	Instream: Development
42	Creve Coeur Creek @ Olive Street Road	A	Instream: Urban and Rural Impact on Lake
43	Creve Coeur Creek @ I-70	A	Instream: Impact of Development
44	Mississippi River at Eads Bridge	A	Instream: Long-term Quality Change
45	Coldwater Creek Tributary, south of St. Charles Rock Road, St. Ann	C	Urban, Urban Runoff: High Density, Single Family Residential

TABLE 18
(Continued)

Site Location Number	Location	Program Element	Type
46	Coldwater Creek Tributary, Hazelwood, north of Lambert Airport	C	Urban, Urban Runoff: Commercial, light industrial
47	Coldwater Creek Tributary, northwest of Coldwater School, St. Ferdinand	C	Urban, Urban Runoff: Developing Area
48	Coldwater Creek @ Old Halls Ferry Road	B	Urban: Urban Instream Impact
49	Coldwater Creek @ Hwy. 67	B	Urban: Urban Instream Impact, Point Source
50	Maline Creek @ Goodfellow Road	B	Urban: Urban Instream Impact
51	Deer Creek in Warson Woods	C	Urban, Urban Runoff: Residential
52	Gravois Creek above Confluence with River Des Peres	C	Urban, Urban Runoff: Developed area
53	River Des Peres @ Broadway	C	Urban, Urban Runoff: Combined sewer overflow and impact of MSD, control combined sewer overflow
54	Mattese Creek @ I-55	C	Urban, Urban Runoff: Residential and commercial
55	Grand Glaize Creek @ Manchester Road	C	Urban, Urban Runoff: Single family residential
56	Fishpot Creek @ Ballwin Road	C	Urban, Urban Runoff: Impact of change from urban undeveloped to residential

(through DNR, the Department of Conservation and the Geological Survey) can greatly assist Gateway in this coordinating effort, the cooperation of other monitoring entities such as the Corps of Engineers, MSD, the U.S. Geological Survey, EPA, various private laboratories and universities (both state and private) is also required. Developing a coordinated monitoring program should be a critical continued 208 planning assignment for Gateway, undertaken with the assistance of its newly formed Regional Water Quality Board.

Using the management/institutional criteria developed in the early stages of this project, the decision to promote the State of Missouri as the prime point source regulatory body seems quite appropriate. The State has the clear and sufficient legal authority needed to carry out these functions. The State has adequate financial powers to fund these efforts although the availability of funding is always a question mark. In addition, the State certainly has sufficient geographic authority to administer these functions.

In the area of staffing, the State must, on its own initiative, seek the staff additions that an expanded 208 regulatory role requires. For example, the Clean Water Commission must work with the Attorney General's office to assure that the latter hire more attorneys to assist in prosecuting water quality violations.

D. Plant, Finance, Development, Operation and Maintenance

The funding, development, operation and maintenance of sewage treatment facilities have been the responsibilities of municipal governments, sewer districts, and private treatment companies. Given citizen opinion as well as strong practical and political considerations, there is little reason to suggest a major shift in these responsibilities except as relates to private utilities. Allocation of management responsibilities related to plant operation must begin by excluding private sewer companies from consideration. The inability of these private utilities to receive State and Federal financial assistance prevents such bodies from assuring the continued high quality, low-cost treatment service that federal law and local citizens demand. Municipalities and sewer districts will, therfore, be strongly encouraged to continue their acquisition of private utilities.

The strengths of both the municipal and district approaches to plant operation are significant. Both municipalities and sewer districts have the clear and sufficient legal authority necessary to operate treatment plants. Both entities have available the adequate and flexible financial powers needed to raise the local share required for matching Federal and state facilities grant programs. Staffing is an issue that varies from system to system. Yet, the overall quality or supply of existing operators does not seem an insurmountable obstacle. In political and practical terms, sewer districts and municipalities have the track record and local support necessary to continue to play a major role in excercising plant operational functions. Both systems are, in addition, readily accessible to the public and answerable to citizen complaints and suggestions.

It is unreasonable to suggest that one or the other approach is preferable within the 208 study area. Rather, the type of management entity designation will vary from county to county and from watershed to watershed. In St. Louis County the district approach will dominate because of MSD. In St. Charles County, water quality and cost-effectiveness suggest the long-range information of a countywide district, although some municipal systems will continue to function as collection agencies, even if most of the County is serviced by such a major district. New sewer districts operating in the Counties are also necessary in Franklin and Jefferson Counties. These districts will share responsiblity with existing municipal systems.

There is thus no set regional formula for describing how sewer districts and municipalities should respond to the future responsibilities imposed by the plant design and operation function. Yet, once it is accepted that both entities will play a role, albeit varied, in each County, the 208 plan can attempt to define the level of coordination necessary to assure a high level of wastewater treatment.

The 208 Plan seeks to establish the degree of coordination necessary to assure a high level of quality in wastewater treatment. It will not be enough simply to encourage sewer districts and municipal systems to work together. Rather, the County Water Quality Boards created in each county will generally oversee the activities of treatment plant operators. The County Board, when coupled with the existing operational strengths of the municipalities and sewer districts, will provide each county with an effective management system for assuring successful point source treatment.

E. Nonpoint Regulation

The development of a nonpoint source control program that both satisfies the mandates of 208 and is implementable is perhaps the most difficult task of the 208 program. There are a number of factors which greatly complicate development of adequate solutions to the problems of nonpoint source regulation.

There is a multiplicity of entities currently involved in some form of nonpoint regulation. The greatest split in authority over nonpoint source regulation exists between various county and municipal governments. Through incorporation, municipalities have generally immunized themselves from county land use controls and their related nonpoint source controls; various municipalities conduct their own regulatory programs and exclude county government controls. County governments conversely are limited in their jurisdictional scope when dealing within incorporated areas.

The State of Missouri also has a role in nonpoint regulation, specifically relating to individual home treatment systems in subdivisions. Sewer districts and soil and water conservation districts are other entities that have, in varying degrees, an advisory role in nonpoint regulation. The allocation of responsibilities is even broader when one considers the various bodies within either municipal or county government that become involved in nonpoint regulation. These include building commissions, health departments, planning and zoning commissions, and departments of public works.

This many-actored, uncoordinated system makes it difficult to determine how nonpoint source control authority should be delegated and what role, if any, each of the entities described above should ideally play in a 208 nonpoint strategy. The situation is further complicated by the fact that nonpoint source programs can involve significant costs, not only for the governmental body that seeks to enforce such programs, but also for those on whom the ordinance is imposed. Thus, neither county nor municipal government is likely to adopt such regulations unless (1) a clear-cut problem in need of a response has been identified; (2) the proposed regulation responds directly to that problem in a cost-effective manner; and (3) the county or municipality can be assured that it will not be acting alone when it adopts a regulation of this kind.

Two overriding concerns thus dominate this analysis. First, the 208 program must assure communities that nonpoint source

regulations actually do need to be adopted, and second, the program must attempt to assure that regulations are, to the fullest extent possible, being consistently applied in problem areas throughout each county. It is this latter concern that the proposed nonpoint source management system must respond to.

Under the recommended nonpoint source program, primary responsibility for developing and enforcing nonpoint controls will continue to be shared by municipal and county governments within their respective jurisdiction. Since it is highly unlikely from either a legal or political standpoint that jurisdictional boundaries can be reached for nonpoint source purposes, municipal governments will have to be content with retaining responsibility for adopting those regulations that can improve water quality in their own communities while county governments remain responsible solely for unincorporated areas. This does not mean that present nonpoint source practices should necessarily continue without change. Many of the municipal and county governments have not developed the type of mechanisms necessary to alleviate the water pollution that arises from urban runoff, inadequately built and maintained home treatment systems, and other forms of nonpoint source pollution. Rather than involve new enforcement entities in this process, it is proposed that municipalities and county governments be given the legal authority and technical assistance to adopt effective local programs. For example, the second class counties in the study area (Jefferson, St. Charles, Franklin) faces a major obstacle in simply attempting to impose nonpoint controls within their own unincorporated areas. The Attorney General of Missouri must clarify the extent to which second class county governments can impose nonpoint source controls under existing legislation. Legislative change to remedy this particular statutory shortcoming will bear a fair chance of passage so long as it does not infringe upon municipal land use autonomy. This kind of strategy change is in fact a critical recommendation of this 208 program.

Sewer districts could greatly assist municipal and county governments in developing and enforcing nonpoint source controls. However, again, statutory and practical burdens exist. The Metropolitan Sewer District, with its expansive powers to deal with stormwater on a county-wide basis, is the best equipped of any existing sewer district in the study area to take on nonpoint source responsibilities. However, in certain key respects, MSD is atypical. MSD draws its sewer district powers from a special charter and not from the Missouri statutes. The MSD charter is much broader than the State statutes that authorize the creation of other

sewer districts. As a result, MSD's involvement in nonpoint source controls seems far more clearly authorized than does, for example, St. Charles County's Regional Sewer Districts (RSD). RSD was created pursuant to so called "common sewer district" legislation which is the most generous of any available sewer district legislation in terms of the district powers it authorizes. Yet RSD seems clearly lacking in even the indirect authority needed to take on NPS controls linked to land use management. Relatedly, "second class county" and "county court" sewer districts set up in Jefferson County and St. Charles County suffer from the same inability to become legally involved in controlling land use.

Because of legal and political constraints, only MSD, among existing sewer districts, has served even as a nonpoint source technical advisor. Such constraints would make ill-advised a recommendation that any sewer district play an expanded role. However, the link between point and nonpoint source pollution is sufficiently strong that all sewer districts should at least be consulted on nonpoint source decision-making.

The obvious drawback in this management system for nonpoint source controls is that it requires a much stronger degree of coordination among municipalities, county governments and the various districts than has heretofore been exhibited in the region. To overcome this drawback, the two-tiered Water Quality Board has been proposed as the vital coordinating mechanism the 208 nonpoint source control recommendation. The Water Quality Board would have these nonpoint source responsibilities:

1. The Board will meet with municipal and county representatives for the purpose of developing a set of model nonpoint source programs and ordinances that could be adopted universally throughout the county. Assuming in turn that representatives from the County Water Quality Board will be able to effectively influence decision-making on the Regional Water Quality Board, adoption of region-wide model ordinances could be a feasible objective.

2. The Boards will also serve as the forum in which municipalities and county governments will receive formal comment and review on proposed nonpoint programs from sewer districts and soil and water conservation districts.

3. The County Boards will also work with Gateway and the Regional Board in developing erosion control plans, criteria, and ordinances for urban stormwater management. The Boards will be involved in ongoing evaluation of the region's nonpoint problems including future monitoring efforts geared toward determining the contribution of nonpoint sources to overall stream quality. A continued study of environmentally sensitive areas or "hot spots" in the region will assist in identifying those watersheds most in need of nonpoint source controls.

Having the State of Missouri become more involved in land use controls relating to nonpoint source pollution raises severe legal and political problems. The State has generally been limited by law to a "hands-off" policy regarding local or county land use regulations. While the State, under the 208 program, would seem to have the added authority needed to develop nonpoint source controls and to require their imposition at the local level, the likelihood of such an occurrence is minimal. The State of Missouri has given indication that it is not interested in local nonpoint source control; in fact, the State seems very much disposed toward having the nonpoint source programs established and implemented strictly at the local level. If, however, future study, implementation difficulties, and citizen interests suggests that a more forceful and aggressive program is justified, then a State-mandated nonpoint source management system may have to be reconsidered.

IV. POINT SOURCE CONTROL RECOMMENDATIONS: MANAGEMENT ISSUES AND IMPLEMENTATION OPTIONS

A. Issues and Options

Introduction. In Section 2 of this report, point source control recommendations for the St. Louis 208 region were presented. These recommendations were selected from a group of alternatives developed early in the 208 program (Element 10, Element 20, Element 24).

For the most part, the process of eliminating certain alternatives and making recommendations revolved around four major analytical criteria: 1) water quality effectiveness; 2) cost, 3) management/institutional considerations; and 4) environmental assessment. More specifically, a set of alternative measures for addressing an area's point source problems were developed and the following questions were asked: What level of water quality can be achieved with the various alternatives?

What will the overall cost of the alternatives be? What will the per household cost be? What is the political feasibility of each alternative? Will each of the alternatives be publically acceptable? Is there a management entity available to take on the responsibility of implementing the various alternatives? What is the environmental impact of the various alternatives?

While the above list of questions does not represent the total consideration that was applied to each alternative, it does suggest the breadth of issues that were considered in arriving at a single recommended technical solution for each major service area.

The purpose of this section of the report is to focus on the management issues and implementation options that arise as a result of the selection of a particular recommendation and to advance a recommended implementation strategy. This analysis will be pursued on a county-by-county basis with a summary discussion detailing the problems that the region as a whole must confront in implementing the recommendations presented in this report.

Alternative Institutional Solutions. The point source control recommendations invariably dictate one of three different kinds of institutional situations in which a management solution must be finalized. These three situations might be termed: expansion, creation, or consolidation. More fully developed, the alternative institutional situations are as follows:

a. Expansion of Service Area. Many of the recommendations inevitably will result in the expansion of an existing public wastewater treatment system's service area. In other words, the recommendation will suggest that an existing public system (usually a municipal system) serve an area larger than it is currently serving. The problem inherent in an expansion of this kind is that there is geneally a very good reason why a particular system is currently serving a given area. For example, a municipal system will normally be serving those who live within the incorporated boundaries of that municipality. Alternatively, a treatment plant operated by a sewer district will be serving those people who chose to be within the original boundaries set up for the service district. Notwithstanding this situation, a municipality or sewer district may be more than anxious to serve a larger area, assuming such expansion is economically and politically feasible. Opposition may come, however, from those who are currently not within the service boundaries

and who may, depending upon the means used by the management agency, fight expansion. Assuming that expansion of an existing public system is the overriding institutional situation in which a management alternative must be developed, four alternative approaches should be considered.

1. Annexation--option is for the existing agency to annex the area in which it is to expand its service. Annexaation procedures for municipalities are clearly set out in Missouri statutes and, although some differences exist in procedural rules (depending upon the classification of the municipality involved) a fairly straightforward procedure can be followed.

   Annexation is of course a significant step both from the perspective of a local government as well as those who are about to be annexed. Annexation cannot simply be pursued for the sole purpose of expanding sewage treatment service areas; if successfully implemented, it requires a municipality to provide a broad range of services to annexed areas and subjects previously unincorporated areas to municipal taxes and other responsibilities. Thus, there are a number of considerations that enter into an annexation decision and procedural steps such as elections that must be dealt with.

   Annexation makes sense from a municipal standpoint if local government is otherwise convinced that such a step is in the city's best interest. Certainly once an annexation has been accomplished, it is far easier for a municipality to provide sewer service since it has both control over and a vested interest in its expansion area. However, if a municipality feels that it cannot justify annexation or alternatively decides that opposition from its own citizens or from those in the unincorporated area is too great to surmount, then an alternative approach has to be sought.

   If a recommendation calls for the expansion of a sewer district service area, state statutes also set out a procedure for accomplishing this objective. It should be noted that a recent lawsuit regarding the Glaize Creek Sewer District in Jefferson County raised some serious legal questions about second class county sewer district annexation provisions and this issue must be resolved before sewer districts become too actively involved in annexation programs.

2. Service Contract--An alternative for expanding service area without annexation is to use service contracts. Sewer districts and municipalities have the legal authority to service areas that are not within their incorporated boundaries if a service contract has been entered into. Since state statutes specifically authorize municipalities to charge an increased service fee to unincorporated areas outside municipal boundaries, extended service of this kind may prove economical to existing municipal systems. In situations in which annexation is opposed by either the public entity or outlying service areas, such a contractual alternative should be considered.

   The disadvantage in this approach is that unincorporated areas, despite being served by municipal systems, will remain subject to the overall control of county government. The municipality, therefore, is left without any say regarding the development of that area which it has agreed to serve. Continued division of responsibility and potential conflict are both negative features of the service approach.

3. Form Sewer District in Expansion Area--The third alternative, given this particular institutional situation is to encourage an unincorporated, unserviced area to create a sewer district which would in turn sign a service agreement with an existing municipal system. The advantage in this approach is that the municipal system could sign a single service agreement with the district rather than having to deal individually with each homeowner desiring service.

4. Form Sewer District for Total Service Area--The fourth alternative would be to form a new sewer district in a proposed expansion area and designate this new district as the management agency for both the existing service area as well as the expansion area. In other words, a new sewer district would be formed to serve both areas and responsibility for collection and treatment would be transferred from the municipality to the sewer district. This was the pattern followed by the Metropolitan Sewer District in its initial development and recent annexation program.

   Implementing this approach on a small scale can present difficulties. A municipality may see no reason for turning over responsibility for operation of its own plant to a newly formed sewer district. Thus, such an approach would only be likely where a municipality

can be convinced that, from the economic and political standpoint, it will gain from such a step by relieving the City of the burden of operating a sewage treatment plant.

b. Creation of a New Management Entity. A second major institutional category in which management solutions must be developed involves those areas in which a new treatment system is proposed and yet no management agency currently exists within that service area to assume the responsibility involved. In these situations, three alternative management solutions should be considered:

1. Annexation of Service Contract--Rather than try to develop a new management agency to take on treatment system responsibilities, a service area can look to a neighboring municipality or sewer district to service that area pursuant to contracts or annexation. If this option is unavailable because there either is no neighboring management entity or no interest in this kind of arrangement, a new management agency must be designated.

2. Incorporation--A new agency might either be a proposed new sewer district or a proposed new municipality. Encouraging a community to incorporate to gain the statutory powers necessary to develop and operate a treatment system is viable only in those areas in which a fairly strong sense of community already exists and where other reasons for incorporation are also a factor. The obligations and the responsibilities that befall a local government as well as its citizens in a case of incorporation are substantial and may not be justifiable if the only purpose for such action is to accommodate a sewage treatment alternative.

3. Form Sewer District--The more likely approach is to form a sewer district. It is a management entity specifically authorized under Missouri law as a special service district and thus better suited toward providing a framework for the provision of a single service such as sewage treatment.

In addition to MSD, every kind of sewer district authorized under Missouri law has been created somewhere in the St. Louis 208 region. A "common sewer district" has been authorized by the voters in St. Charles County (although RSD remains a nonfunctioning entity at this time). "Second class county sewer districts" have been formed in Jefferson County and St. Charles County. Although sewer districts are an extremely important part of the 208 implementation program, the difficulty of getting such a district into

functioning order must be emphasized. The process requires dedicated leadership and patience; a number of time-consuming procedural steps must be taken to create such a district and get it to the point where it can, in fact, assume management responsibilities. A particular difficulty of a new sewer district is raising its local share of funding costs to match grants from the federal and state governments.

An added problem in unincorporated communities is the lack of an existing governing body to spearhead the process of sewer district creation. As noted above, there are many steps that must be taken before such a district can come into being. Among these steps is the selection of the type of district to be created as well as the election or appointment of the district's leadership body. Yet these points in the process cannot be reached without the initiative of some existing governmental entity. Federal 208 policy, in fact, requires that the responsibility for creating newly proposed management agencies rest with existing management agencies. In other words, the responsibility for merely initiating the sewer district process must rest with an existing governmental entity. Such a designation thus precludes unincorporated areas from accepting current wastewater management responsibilities.

As of yet, undeveloped sewer districts cannot be given the responsibility for implementing a point source program. In such instances, the 208 program turns to the various County Courts who have the legal authority to create localized sewer districts. Where the County has been named the designated management agency for a particular watershed, the responsibilities imposed on the County Court are twofold: either directly create a so-called "county court sewer district" or, alternatively, be responsible for organizing local citizens so they in turn can set up their own district.

The course of action to be taken by the County Courts will and should vary within different geographic areas. A consistent County objective should, of course, be a desire to satisfy citizen concerns regarding local decision-making and to achieve improved water quality. The allocation of responsibility to the County in such instances should be viewed as an interim designation with final designation for 201 funding purposes shifting to the appropriate local sewer district once that agency has come into existence.

c. Consolidation of Existing Systems. The third institutional situation particular to the 208 point source recommendations is where consolidation of existing treatment systems into a new, larger system appears advisable. This institutional category suggests that a large scale service area, perhaps county-wide in nature, is required from a water quality and fiscal standpoint. It, therefore, demands from a management perspective the consolidation of existing sewer districts and/or municipal systems. There are two management approaches to solving this type of institutional situation:

1. Regional Collection and Treatment--In the first approach, existing systems are phased out of operation and replaced with a large scale system serving all previously serviced areas. All operational and management responsibilities are turned over to a single entity which would most likely be a new sewer district.

   The obvious difficulty to this approach is gaining the support of those municipalities or small sewer districts whose plants will be put out of operation and whose control over sewer service may seem diminished by transfer of control to a large scale district. An acceptable political arrangement for this kind of situation does seem negotiable and reasonable under existing sewer district legislation, assuming municipalities and other small districts can be convinced of the viability of this approach and particularly the long-term financial and environmental benefits to local residents.

   The proposed creation of large scale or county-wide districts is the most difficult from a political and management perspective and is the most difficult to generalize about. Phasing, for example, may be one means of ultimately establishing a large scale sewer district through the incremental combination of existing systems.

2. Regional Treatment; Local Collection--A second approach would limit the role of the large scale sewer district to that of a treatment agency, leaving collection systems under local control. The large scale district, through intergovernmental agreements, would coordinate activities within the total service area.

In the following sections of this memorandum the various technical alternatives for each of the four counties is considered in terms of the institutional situation described

above. An effort is made to identify the situation into which each technical alternative fits and in some cases to describe which of the management solutions to that situation seem preferable. In a number of cases the management alternative cannot be identified at this time. However, the options available to a community should be narrow and limited enough so that a clear course of action can be determined and steps in that direction begun.

B. County-Specific Management Recommendations

Franklin County. The point source recommendations for Franklin County create six specific institutional situations dictating expansion of an existing public wastewater treatment system service area beyond current jurisdictional limits. These institutional situations are noted below to gether with a designation of a single management entity to be given responsibility for implementing a management solution within the recommended treatment service areas.

a. Expansion of Service Area (see Figure 15, P. 42).

Service Area	Designated Management Agency
St. Clair	St. Clair
New Haven	New Haven
Union	Union
Gerald	Gerald
Washington	Washington
Pacific	Pacific

St. Clair:

It is recommended that a new facility be constructed northwest of the City of St. Clair. This recommendation is consistent with the city's own 201 Facilities Plan. Expansion of the service area as proposed will include Parkway Village and thus leave St. Clair with the option of either annexing the proposed expansion area or entering into a service contract. This report makes no specific proposal regarding the best means for the City to accomplish this expansion; this should be a local decision with the County Water Quality Board and Gateway available for technical assistance.

New Haven:

It has been proposed that the existing tributary system accommodating flows from the City of New Haven be expanded not only to handle the increased flow generated by the City of New Haven, but also certain surrounding areas. The City of New Haven is designated as the management agency and given the option of either annexing or entering into a service contract with the expansion area.

Union:

The recommendation for Union would provide service for outlying unincorporated areas surrounding the City and upgrade and expand the existing lagoon to treat all anticipated flows. The City has, in the past, expressed interest in annexation of the proposed expansion area and this management solution would be perfectly acceptable from a 208 management perspective.

Gerald:

The proposal for the City of Gerald would combine all the city's flow as well as an expansion area and treat it at a new lagoon. Service contracts would appear to be the best way for the City of Gerald to accommodate this aspect of its management responsibilities.

Washington:

The technical proposal for the City of Washington would extend the municipal sewer system to serve unincorporated areas to the southwest and northwest of the City. This proposal is consistent with Washington's own 201 Facilities Plan and the City seems clearly ammenable to annexing this area or negotiating service contracts if the former alternative does not prove practical.

Pacific:

The recommendation for Pacific calls for the enlarging and upgrading of the existing Pacific sewer system and construction of a new treatment facility. The expansion would include both Pacific and the Gray Summit community as well as the surrounding unincorporated area in Labadie Creek Watershed.

As the 208 project has evolved, the community of Gray Summit has looked to the City of Pacific to assist it as well as the rest of Brush Creek watershed in combating water quality

problems. The recommendation will support Gray Summit and the proposed Brush Creek Sewer District in their efforts to work with the City of Pacific toward a water quality solution. The 208 program supports that effort. Although the City of Pacific has in the past expressed some unwillingness to expand its service area to take in these neighboring communities, there seems little justification for such a rejection. The 208 program designates the City of Pacific as the management agency responsible for implementation of the point source control.

It should be noted that significant expansion of the Pacific system as recommended herein will not totally relieve the Labadie area of management responsibilities. A new plant may, in fact, have to be built and a sewer district formed to spearhead that effort. An "unsewered" alternative for Labadie should also be considered. Yet, as will be noted below, the responsibilities of this new district will be significantly less severe because of the shift in responsibilities to the City of Pacific.

b. Creation of a New Management Entity.

Service Areas (See Figure 15, P.42)	Designated Management Agency
Berger	Berger
Leslie	Leslie
Pin Oak	Franklin Co. (Interim)
Stanton	Franklin Co. (Interim)
Beaufort	Franklin Co. (Interim)
Robertsville/Lake Serene	Franklin Co. (Interim)
Labadie	Franklin Co. (Interim)

The above recommendations present similar institutional situations. In each area, the 208 plan calls for new wastewater facilities in areas that currently have no centralized sewer systems and have relied on individual home treatment systems, lagoons, or small package plants. In each service area there is an identifiable community with a small population. There is one significant factor, however, which distinguishes certain of these communities. While some have remained unincorporated, others have established themselves as incorporated governmental entities and as towns, villages or fourth class municipalities have established local governments. For the purposes of the 208 program, this distinguishing feature is critical in designating a responsibile management agency. As noted earlier, federal policy requires the 208 plan to designate only those management agencies that currently have the legal authority to exercise the functions

assigned to it. Thus, management responsibility for implementing the point source proposals for unincorporated Pin Oak, Stanton, Beaufort, Robertsville/Lake Serene and Labadie is designated to Franklin County.

Where Franklin County has been named the designated management agency for a particular watershed, the responsibilities imposed on the County Court are as follows: either directly create a so-called "county court sewer district" or be responsible for organizing local citizens so that they in turn can set up their own district with locally elected representatives serving on a sewer district's Board of Trustees. The course of action to be taken by the County Courts will and should vary within different geographic areas. A consistent County objective should be satisfying citizen concerns regarding local decision-making as well as achieving improved water quality. The allocation of responsibility to the County in such instances should be viewed as an interim designation with final designation for 201 funding purposes shifting to the appropriate local sewer district once that agency has come into existence.

From a management perspective, the clear alternative for incorporated Berger and Leslie seems to be to designate each of the individual communities as the responsible management entity. These two communities may either accept the responsibility and power authorized under Missouri law or seek to form a sewer district to which wastewater management responsibilities might be allocated. Either of these options would appear to be acceptable as long as the choice reflects the desires of the local community.

Particular reference should be made of Labadie because of its relationship to the Pacific recommendation discussed above. As noted in that discussion, the major responsibility for Pacific, Gray Summit and the Brush Creek Watershed has been allocated to the City of Pacific. Nonetheless, the specific proposal for Labadie still requires the construction of a treatment facility to serve Labadie and its surrounding area. Franklin County has been designated to initiate the formation of a sewer district, for the purpose of implementing the Labadie proposal.

c. Consolidation of Existing Systems.

Service Area (See Figure 15, P. 42)	Designated Management Agency
Sullivan/Oak Grove Village	Sullivan

The final type of institutional situation is one in which two treatment systems, each with its own management agency, should be consolidated into one new system. This situation applies to the Sullivan/Oak Grove Village area since both of these communities currently operate treatment facilities. The recommendation calls for developing one treatment plant to serve the entire area.

Because Sullivan is the larger community, the 208 plan designates it as the management agency responsible for implementing the point source recommendation. Sullivan, as part of its designation agreement, will work with Oak Grove Village to make certain it is properly serviced by the proposed treatment facility.

A number of management options could be exercised in this situation. The two communities could form a joint sewer commission (such as that found in Festus/Crystal City) with both communities sharing certain responsibilities. Alternatively, Sullivan might be the sole management agency with a service contract to serve the Oak Grove Village area. To avoid controversy between the two communities, a sewer district might be formed with representatives from both communities. Any of these management options would be acceptable as long as they reflect local decision-making and will help facilitate the construction of the proposed plant. Continued 208 planning, through the Franklin County Water Quality Board, could help the communities arrive at an acceptable solution.

Jefferson County. The point source control recommendations for Jefferson County propose six service areas which dictate expansion of an existing public wastewater treatment system service area beyond its current jurisdictional limits. These institutional situations are noted below together with the designation of a single management entity to be given responsibility for implementing a management solution within that particular service area.

a. Expansion of Service Area.

Service Area (See Figure 16, P. 59)	Designated Management Agency
Festus/Crystal City	Festus
Glaize Creek Watershed	Glaize Creek Sewer District
DeSoto	DeSoto
Olympian Village	Olympian Village
Lower Big River Watershed	Lower Big River S.D.
Hillsboro	Hillsboro

Festus/Crystal City:

The recommendation for Festus/Crystal City calls for expansion of the current service area boundaries to include areas located south of the City of Festus. The existing management option being pursued by these two municipalities is unique in the 208 region and should not be affected by the implementation of this recommendation.

Although both municipalities share in the decision-making of the Festus/Crystal City Sewer Commission, federal requirements have necessitated that only one of the municipalities be designated as the future grant recipient. Festus, because it has applied for and has been the recipient of wastewater treatment grants, is designated as the management agency for the service area. However, the designation agreement signed by Festus should reiterate the municipalities' commitment to the joint sewer commission and toward Crystal City's continuing share in management responsibility.

Although Festus might wish to annex the area included in the expanded service area, political considerations suggest that a service contract arrangement might make more sense. Despite other difficulties in their working relationships, Festus and Crystal City seem to have worked out a solution to wastewater management; Festus must be certain to maintain this relationship as part of its responsibilities as management entity for the area.

Glaize Creek Watershed:

Parts of the Glaize Creek watershed, including the City of Barnhart and surrounding areas, are served by the Glaize Creek Sewer District. The recommendation calls for expanding the service area to the entire watershed. Since the area of proposed expansion is unincorporated, expansion of the Glaize Creek Sewer District is the obvious institutional approach.

Glaize Creek Sewer District is designated as the management agency for the proposed service area and is given the responsibility of extending service to the expanded service area. It should be noted that a recent attempt by the District to expand its service area through annexation has been challenged in court; and until this suit (which disputes the general viability of the annexation powers of a second class county district) is resolved, the District may have trouble carrying out the recommendation.

If it appears that legal problems will prevent the District from expanding an effort should be made to create a new sewer district in the expansion area and have it enter into a service contract with the Glaize Creek Sewer District. To avoid further legal challenges, the District might alternatively seek a service contract with the expansion area and thereby avoid annexation. This option is, however, less desirable and should not be pursued unless the District is convinced that it has no other viable alternative.

DeSoto:

The recommendation for DeSoto calls for extension of the existing service area to include areas north of DeSoto. Annexation and contracting for service are both options DeSoto should pursue.

Olympian Village:

Olympian Village is a small community who's growth potential warrants the development of a new sewage treatment facility to serve both the existing community and its surrounding areas. The most logical management solution is to designate Olympian Village as the management agency and give it the option of either annexing the proposed expansion area or developing some type of service contract. The need for some centralized authority in this type of growth area would suggest that annexation by Olympian Village is the preferred alternative. Some service arrangement would be possible if annexation proves impractical.

Lower Big River/Heads Creek Watershed:

The Lower Big River Sewer District is currently serving the unincorporated lake development of Lake Montowese. The recommendation for this area calls for the construction of a new facility to serve the lower portion of Heads Creek and all of Lake Montowese Watersheds. The Lower Big River Sewer District is designated as the management agency for this recommendation. As the responsible management agency, the district should accept responsibility for expanding its service area to take in the proposed watersheds. Sewer district annexation would appear to be the most logical management option for implementing this proposal.

b. Creation of a New Management Entity.

Service Area (See Figure 16, P. 49)	Designated Management Agency
Selma	Jefferson Co. (Interim)
Cedar Hills	Jefferson Co. (Interim)

These above recommendations present similar institutional situations. In both areas, the 208 plan calls for new wastewater facilities where centralized systems have to date not been relied upon. Within both service areas, there is an identifiable, but unincorporated, community with a small population.

As noted earlier, federal policy requires the 208 plan to designate only those management agencies that currently have the legal authority to exercise the functions assigned to it. Thus, management responsibility for implementing these recommendations is designated to Jefferson County. Where Jefferson County has been named the designated management agency for a particular watershed, the responsibilities imposed on the County Court are as follows: either directly create a so-called "county court sewer district," or be responsible for organizing local citizens so that they in turn can set up their own district with locally elected representatives serving on a sewer district's Board of Trustees. The course of action to be taken by the County Courts will and should vary within different geographic areas.

A consistent County objective should, of course, be the satisfaction of citizen concerns regarding local decision-making and the achievement of improved water quality. The allocation of responsibility to the County in such instances should be viewed as an interim designation with final designation for 201 funding purposes shifting to the appropriate local sewer district once that agency has come into existence.

c. Consolidation of Existing Systems

Service Area (See Figure 16, P. 49)	Designated Management Agency
Lower Meramec (including Rock Creek Watershed)	Jefferson Co. (Interim) Metropolitan Sewer District (St. Louis County portion)
Herculaneum/Pevely	Herculaneum Sewer District

Lower Meramec:

Providing adequate treatment to the Lower Meramec Watershed is one of the most important recommendations of the St. Louis 208 Program. Since the Lower Meramec and its severe water quality problems affect both St. Louis and Jefferson Counties, both counties must be partners in the management solution.

To satisfy initial political concerns, earlier technical proposals suggested that treatment facilities might be developed in both Jefferson County and St. Louis County. It became quite clear, however, that from a technical and economic standpoint, the construction of two facilities would be impractical (Element 20, Element 24). This fact has generally been acknowledged by decision-makers as well as local citizens from Jefferson County. The recommendation, therefore, is to construct a facility in St. Louis County that will serve that County as well as Jefferson County.

The St. Louis Metropolitan Sewer District (MSD) has completed a Step 1 facility plan for this facility and is designated as one of the management entities responsible for implementing the recommendation. This is, however, a unique situation within the 208 study area; it demands that another management agency be designated in Jefferson County to develop the trunk sewer system in that county as an integral part of the total control recommendation.

A Jefferson County/Lower Meramec sewer district is necessary because MSD cannot legally expand its jurisdiction into Jefferson County. This Lower Meramec sewer district would be responsible for developing the trunk sewer system and for contracting with MSD for treatment service.

There are options involved in forming this sewer district. There are three kinds of sewer districts that can be formed under Missouri statute; the one appropriate for the service area should be selected. The City of Arnold is located with the proposed service area and has been aggressively pursuing a program of treatment system consolidation and negotiation with MSD; how Arnold fits into the sewer district must be determined. The Rock Creek Watershed is also included in the service area; its relationship to the overall management structure of the district must, too, be defined.

It is recommended that a high priority of continued 208 planning be a project to address the above-mentioned and implement a sewer district for this area. This project

should be undertaken in conjunction with the County Court and a committee comprised of local decision-makers and citizens.

Herculaneum/Pevely:*

The recommendation for Herculaneum/Pevely is to expand the facility currently operated by the Herculaneum Sewer District to serve Pevely, Sandy Creek Watershed and the Lower Joachim Creek Watershed. The two existing management entities in this area are the Sewer District and the City of Pevely. The Herculaneum Sewer District is recommended as the management agency.

The Sewer District would be required to enter into a service agreement with the City of Pevely and also to expand its boundaries to take in the Sandy Creek Watershed. Although the City of Pevely has expressed opposition to our management recommendation, that municipality has expressed interest in the past in being served by the Herculaneum Sewer District and this option should be implemented as part of the 208 program.

St. Charles County.

a. Expansion of Service Area.

Service Areas (See Figure 17, P. 70)	Designated Management Agency
St. Charles-Missouri River	City of St. Charles
Wentzville	Wentzville
Portage Des Sioux	Portage Des Sioux
Duckett Creek Watershed	Duckett Creek Sewer District

St. Charles-Missouri River

The recommendation for this area is to upgrade the treatment facility to secondary treatment and expand the existing sewer system to include a number of areas outside of the city's jurisdictional boundaries, northeast and southwest of the City.

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*This management recommendation is subject to change based on the recommendation of the Step 1 Facility Planning Study now underway.

It seems quite clear from a management perspective that expansion of the St. Charles system to cover these areas is appropriate and that the City of St. Charles should be designated a management agency for accomplishing this expansion. To accomplish this objective, the city will have to purchase two existing private treatment companies and service a number of subdivisions that have sprung up in unincorporated areas surrounding the city limits. This report makes no specific proposal at this time regarding the best means for the city to accomplish this expansion. Annexation of the unincorporated area may well be the best solution; however, some type of service arrangement between the city and the expansion area is also a viable option.

Wentzville:

A new treatment facility to serve Wentzville and surrounding areas is under construction. This facility, located in the Flint Hill area north of the city, has been designed to serve areas outside of current municipal boundaries. Such an expansion of Wentzville's current service area is consistent with anticipated growth in the area and should logically be accommodated by Wentzville either through the annexation of the neighboring area or through service contracts. The method used by the City in accomplishing this service expansion should be decided locally, with assistance by the St. Charles County Water Quality Board.

Portage Des Sioux:

A new secondary treatment facility is recommended for the area currently served by the town of Portage Des Sioux as well as some fringe areas to the east and west of the town. The town is the logical management agency and has the responsibility for working out an agreement with those fringe areas that will be included in its ultimate service area. The number of additional persons to be served by the expanded service area is not significant and thus service contracts might be fairly easy to facilitate. In addition, the town might be anxious to directly benefit from the increased population in this expanded service area.

Duckett Creek Watershed:

The recommendation is to expand existing sewer system to the entire watershed. The Duckett Creek Sewer District, established and managed by the St. Charles County Court, is designated as the management agency.

b. Creation of a New Management Entity.

Service Area See Figure 17, P. 70)	Designated Management Agency
Augusta	Augusta
New Melle	New Melle
West Alton	St. Charles County (Interim)
Orchard Farm	St. Charles County (Interim)
Matson/Defiance	St. Charles County (Interim)

The above recommendations present similar institutional situations. In each area, the 208 plan calls for new wastewater facilities in areas that currently have no sewer systems and have relied on individual home treatment systems, lagoons, or small package plants. In each service area there is an identifiable community with a small population. There is one significant factor, however, which distinguishes certain of these communities. While some have remained unincorporated, others have established themselves as incorporated governmental entities and, as towns, villages, or fourth class municipalities, have established local governments. For the purpose of the 208 program, this distinguishing feature is critical in designating a responsible management agency. As noted earlier, federal policy requires the 208 plan to designate only those management agencies that currently have the legal authority to exercise the functions assigned to it. This management responsibility for implementing the point source proposals for unincorporated West Alton, Orchard Farm and Matson/Defiance is delegated to St. Charles County.

Where St. Charles County has been named the designated management agency for a particular watershed, the responsibilities imposed on the County Court are as follows: either directly create a so-called "county court sewer district," or alternatively be responsible for organizing local citizens so that they in turn can set up their own district with locally elected representatives serving on a sewer district's Board of Trustees. The course of action to be taken by the County Courts will and should vary within different geographic areas. A consistent County objective should be satisfying citizen concerns regarding local decision-making as well as achieving improved water quality. The allocation of responsibility to the County in such instances should be viewed as an interim designation with final designation for 201 funding purposes shifting to the appropriate local sewer district once that agency has come into existence.

The incorporated communities of Augusta and New Melle (the latter is currently in the process of incorporation) have 2 options available in order to accept the management responsibility involved. The community must either use the statutory authority available to it to directly seek funding for developing a treatment facility or set up a sewer district for the sole purpose of point source treatment. Either option would appear to be acceptable; the choice should rest with the local community.

In all these communities, it should be the responsibility of the designated management agency to work with St. Charles County and the Water Quality Boards to implement an improved program for individual home treatment systems as recommended in Section 3 of this plan. This commitment is particularly important since developing central treatment systems in these communities will take a number of years and, more importantly, central treatment systems may be too costly for these communities to afford. Effective individual home treatment system control programs should be developed through continued 208 planning.

c. Consolidation of Existing Systems

Service Area (Figure 17, P. 70)	Designated Management Agency
St. Charles Consolidated System:	Interim Recommendation:
St. Charles-Mississippi River Watershed; St. Peters; O'Fallon; Lake St. Louis; Dardenne Creek Watershed; Weldon Springs Heights	St. Charles County develop overall management system; O'Fallon, St. Peters/Duckett Creek Sewer District, City of St. Charles--eligible for 201 grants for development of interim-facilities and trunk sewers

The most difficult institutional situation that will have to be dealt with in St. Charles County involves this recommendation. In terms of anticipated water quality as well as cost-effectiveness, however, this recommendation is the most desirable of the alternatives that have been considered for this area (Element 20, Element 24 Reports). The

creation of this service area would not only consolidate collection systems and eliminate numerous treatment facilities, but would also provide service to unincorporated areas that are not receiving centralized wastewater treatment at this time. Point source discharges to the streams within this area would be eliminated. Thus, the challenge is to determine a management solution to accompany this recommendation.

Given a situation in which two or more treatment systems, each with its own management agency are to be consolidated into a new system, the management options would appear to be two-fold.

The first option is to designate one of the existing management agencies as the agency responsible for the expanded service area. Since centralized treatment under the recommendation would be at the City of St. Charles-Mississippi River Facility, that city might logically be the designated agency were this option pursued. Yet, it certainly could be argued that the only justification for such a designation is the physical proximity of the centralized plant to the City of St. Charles and that the city is in no other way more qualified than any other existing management agency to take on this responsibility. In addition, this municipal approach does not provide the institutional framework in which a number of other municipalities and the county could work together. The more feasible approach would seem to be the creation of a sewer district which would represent both municipal and county interests.

It is recommended that the expanded St. Charles-Mississippi River Plant be operated by a Common Sewer District. This type of sewer district is specifically authorized under Missouri law and is the most effective mechanism provided by Missouri sewer district legislation for managing wastewater treatment in an institutionally diverse area. This type of district is potentially county-wide in jurisdiction. It can be divided into subdistricts which can include municipalities and other types of sewer districts. The common sewer district is authorized to coordinate subdistrict activity through joint agreements; yet, the district has complete power to fund, own and operate major treatment facilities. The governing body of a common sewer district is a five-person board of trustees appointed by the county court. The district is also required to set up an advisory board comprised of subdistrict representatives who are to work with the district trustees on the matters of construction and operation as well as any future rate structures.

Appointment of the board of trustees by the county court is a potential stumbling block to acceptance of this management concept to the extent that it could limit input from municipalities into district policy decisions. Although it is recommended that the St. Charles County Court be designated as the management agency responsible for implementing the overall management structure, it is quite clear that from a political standpoint, that the composite communities have input into the implementation process. Thus, it is proposed that in order to receive 208 management designation, the St. Charles County Court agrees not only to work towards the creation of a functioning common sewer district to operate the major regional plant, but also to appoint an equitable number of representatives from major municipal subdistricts to positions on the Boards' trustee group.

It could, of course, be suggested that if the proposed management solution calls for common sewer district control, then the logical management entity should be St. Charles' existing common sewer district--RSD. RSD may ultimately prove to be the organization that controls the expanded St. Charles Mississippi River Plant. Because this entity has already received voter approval, it has a major advantage over any new common sewer district that might be initiated. On the other hand, because of its failure to receive public financial support, RSD has been dormant for a number of years and as such, may not be a viable management agency from the public's point of view.

Helping to develop an overall management structure for this service area should be the first task of the St. Charles County Water Quality Board. Working through Gateway, the Board can assist in a project which would select the appropriate management structure (a new common sewer district; RSD; other arrangements) and implement it and resolve the difficult implementation issues inherent to this recommendation. These issues include the control of local collection systems, rate structure, phasing of current wastewater projects and financing. 208 continued planning grants could be made available for this project.

St. Louis City/County

The Metropolitan Sewer District has jurisdiction over all point source control recommendations other than Eureka/Times Beach. Eureka is currently completing Step 1 of a Facility Plan and should begin to formalize an agreement to service Times Beach.

V. NONPOINT SOURCE CONTROL RECOMMENDATIONS: MANAGEMENT ISSUES AND IMPLEMENTATION OPTIONS

A. Nonpoint Source Control Recommendations

In section 3 of this report, recommendations are made for two major categories of nonpoint problems: individual home treatment systems and urban stormwater runoff. For each category, comprehensive programs have been developed for the five counties within the 208 region. Although many of the same programs are recommended for each county, certain significant differences do exist. More importantly, certain strategies which are strongly recommended for one county are de-emphasized in others. As explained in Section 3, an effort has been made to match problem solving programs with significant localized problems; a nonpoint source control program has been developed which can be both regional in its approach and localized in terms of application.

The following discussion attempts to evaluate the proposed nonpoint source programs, discuss their implications, and suggest alternative means for implementing the controls in each major area within the 208 region.

1) Individual Home Treatment System Controls: Management Recommendations. An extremely important part of the overall program for dealing with nonpoint sources of water pollution relates to future control over individual home treatment systems. The improper location, installation and operation of such systems have caused water quality problems throughout the St. Louis 208 region, especially in urbanizing areas.

Section 3 of this report details a program which addresses IHTS control. First, measures are proposed to insure that systems are properly located, designed and installed; second, recommendations are made to insure proper operation and maintenance of systems; third, provisions are made for properly disposing of IHTS residue; and fourth, special controls are recommended for problem sites.

The recommendations presented in this Plan do not vary significantly from county to county. What does vary are the issues faced in implementing the recommendations in each county. To address these county specific issues (which are also described briefly in Section 3), the newly formed County Water Quality Boards need to examine the program that has been developed, carefully evaluate its strengths and weaknesses, and fine-tune the program wherever it appears appropriate.

The program as set out will have an impact on land development and the housing market in each county. Therefore, organizations like the Home Builders Association should have input into the process of developing the localized IHTS programs. At the same time, entities that are likely to be allocated new and/or expanded responsibilities, for example, the county building departments, should be encouraged to participate in program design especially on issues related to increased costs and staffing demands that will arise as a result of the more comprehensive IHTS controls envisioned in the 208 Plan. The IHTS program will demand not only an administrative plan of action but also some ordinance changes to put the program into effect. Model ordinances to assist local action will be required. Concurrent with this effort, the Regional Water Quality Board and Gateway staff should also be evaluating how to fund the development of this new and comprehensive program.

More specific management recommendations for the four areas of IHTS control areas follows:

--Insure proper location, design, and installation of new systems.

a. Lot Size. The new IHTS program to be adopted in each of the counties would increase the minimum lot size permitted for a discharging IHTS in each county to one IHTS per 2 acre lot. Such lot size requirements will have the effect of perpetuating a pattern of large lots in rural areas where septic tanks and other systems are expected to be part of future development proposals.

This type of lot size regulation, if incorporated into various applicable local building and development codes, may, in some cases, conflict with current land use policies and zoning codes. Alternatively, adopting recommendations would, in effect, impose land use restrictions where no zoning or other development regulations currently exist. Thus, the lot size regulation proposed will effect growth and development patterns. It will encourage a very low population density in those areas that are dependent upon individual home treatment systems. While such a policy may, because of water quality concerns, make sense from a technical standpoint, those communities that are to adopt the proposed increased acreage requirements will need to be cognizant of the impact of such action and make provisions to deal with the associated impacts of their decision.

b. Inspection and Tests. It is recommended that an inspection of any proposed IHTS site be conducted by a

Registered Professional Engineer (or trained technician) and that this inspector undertake the tasks outlined in Section 3, P. 106 of this report. Requiring this kind of pre-installation inspection will set higher standards than those currently used. Although each of the counties within the study area have been involved in some degree of site inspection, the frequency and quality of these inspections is not consistent. Some inspections are mandated while others are strictly voluntary.

To make this recommendation on inspections effective, specific changes in existing local building codes relating to individual home treatment systems will have to be adopted. In addition, the increase in local management expenses will have to be absorbed if this important component of the IHTS program is to be put into effect. It has been suggested that the responsibility and expense of hiring a Registered Professional Engineer should fall on the individual land developer. County or municipal building departments could assist in this process, at least to the extent of providing a list of Professional Engineers who are available to perform this service, although the inspection cost would still fall upon the developer. A third alternative would be to augment the staff currently available to local building departments so that a Professional Engineer could be employed directly by the department for this purpose and the cost would be defrayed by developer application fees.

c. Site Design Review. An increase in the professional engineering capabilities of the various building departments or public works departments is in any case a significant part of this overall IHTS proposal. It has been recommended that as part of a building application, a developer not only provides as discussed above for site inspection, but also an engineering design of the proposed individual home treatment system. It was suggested further that this design plan, the details of which are presented in Section 3 of this report, be submitted to the County Building Department or Public Works Department for review by a Professional Engineer.

This proposed engineering design plan would be a new element of individual home treatment system control throughout the St. Louis 208 region and may be opposed by developers because of increased costs and time involved in preparing site plans of this kind. However, it appears that this extra burden can be justified from a broader public standpoint given the goal of improved regional water quality that can be obtained if this system is implemented.

Improved site inspection and submission of engineering design plans prior to issuance of a building permit will allow public agencies to far more carefully evaluate the granting of future building permits. Section 3 of this report illustrates the kinds of responses that will be possible once building departments are given the level of information that will be obtained from professionally prepared and thorough site plans. For example, this report details the kinds of IHTS that should be approved given various kinds of soil permeability. Clearly, building departments throughout the region must be willing to undertake the technical review and negotiation with developers that this regulation system envisions.

This approach does not seem unreasonable. Each of the counties has, to varying degrees, already attempted to limit new individual home treatment systems in a manner that best serves public health considerations. Thus, this call for a stronger program should not surprise the building departments or developers in the region. It is merely a refinement of a system they know.

d. Installation. The proposed comprehensive program for individual treatment systems does go a number of steps beyond the initial granting of a building permit, discussed above. It is recognized throughout the region that many of the problems associated with individual home treatment systems are the result of improper installation. The proposed program suggests two methods of dealing with installation. The preferred method would be to include in the modified building codes a requirement not only that a Registered Professional Engineer design septic tanks, but also that the same engineer be responsible for supervising the installation of the system. In a number of areas, contractors and private individuals have been allowed to install individual home treatment systems and that practice has lead to numerous problems. If it is felt that this practice should be allowed to continue without supervision of a Professional Engineer, then it is alternatively proposed that a licensing program be developed for private installers. This latter approach is probably more cumbersome and expensive since the building department may have to be responsible for conducting the licensing program and the results of such an effort may still not prove highly satisfactory. On the other hand, the cost of such a program may be less than that required by any increase in professional engineers on the Building Commission staff.

If, in considering this program, a County Water Quality Board would propose a licensing system, then it has been further suggested that the Board also consider linking the licensing program to a performance bond requirement. This bonding requirement would be adopted as part of the building code amendment. The performance bond program would be addressed to the possibility of inconsistent installation, not withstanding improved licensing techniques. Thus, an individual home treatment system user would be required to post a performance bond to assure that improper installation of the system would be remedied by the homeowner subject to the possible loss of the bond amount.

Regardless of whether the system turns to professional engineers (hired by developers or staffed by the Building Commission), the proposed IHTS program would require that there be a post-installation inspection by the County Building Department or Public Works Department to determine consistency with the earlier submitted engineering design plan. The design plan would be particularly critical to this step, since it would allow the department a means of comparing system requirements with actual installation techniques.

The County Water Quality Board must see to it that to the fullest extent possible, whatever approach is selected for use in the County be adopted as universally as possible. Since the Board's suggestion will be voluntary in nature, there is certainly some risk that some communities may adopt a different approach from others and that this inconsistency will engender conflict between various programs and communities.

e. Maintenance. The problems associated with individual home treatment systems will continue to persist as they have in the past unless proper maintenance of installed systems can be guaranteed. To respond to this issue, a new operating permit system is proposed for all individual home treatment systems. This is an extremely important part of the comprehensive program. Permits would be required for all existing systems as well as those installed in the future. Thus, a newly installed system that had been approved as part of the building permit process would, at the same time, receive an operating permit. Pre-existing systems could only receive an operating permit following an inspection and system operating approval.

The inspection program proposed may present an extremely severe staffing problem to some locales. Yet, absent such an inspection program, the operating permit system could not

overcome the problems of existing systems. An additional implementation obstacle relating to in-place systems is that the measures required to make a system properly operational might require alterations that were extremely costly or could not be realistically accomplished. For example, an increase in acreage to achieve an adequate lot size may not be possible given surrounding development that has occurred since a building permit was initially issued. Thus, some degree of discretion and compromise may be necessary before issuing an operating permit to an in-place system. Nevertheless, even with compromises, an individual system maintenance will improve following the site inspections and issuance of conditional and final permits.

The proposed system envisions operating permits which would expire every two to three years. Re-inspection would be required at expiration. This step would not be as overwhelming as the initial catch-up inspections on existing units, since operating permits would be issued on a phased termination basis, allowing systems to be incrementally inspected for permit renewal. The proposed maintenance program would leave considerable flexibility to local enforcement agencies in determining the extent to which maintenance and repairs will be required for individual systems. It is clear, however, there is a minimum--the owner must be forced to keep the system operational.

The public agency involved in supervision of the IHTS regulatory program must have specific legal tools available to it to enforce its maintenance requirements. A number of alternatives exist. However, change in existing building codes will be necessary to establish the authority needed to undertake this regulatory program. One alternative for those areas that presently have occupancy permit programs is to link the IHTS operation permit to the homeowner's occupancy permit. Thus, the home inspection prior to issuance of an occpancy permit would include an evaluation of the treatment system. The operation permit would be obtained as part of this process. Assumedly the pressure imposed by the linkage to the occuancy permit program would compel bringing treatment system into working order. Yet, the link-up of occupancy and operational permits is not likely to compel areas to adopt occupancy permits unless other forces move a community in that direction. A drawback of this approach is that it alone would have little impact on an owner of an individual home treatment system until such time as he chooses to sell his property. Other approaches, however, can fill that void.

A basic measure would provide that the Building Commission have the power to levy fines on those who refuse to keep their systems in operating order. But, the fine system will only work if the Prosecuting Attorney and courts back up complaints.

A third tool that has been suggested for these cases where homeowners refuse to make repairs is that the County or municipality service inoperable systems and then bill the owner. This is not a very practical approach, since the recalcitrant owner may refuse to pay the bill and thus create the burden of placing a lien on the property. But it should be considered as a last resort.

The best regulatory system would empower a variety of actions depending upon the severity and nature of the problem. The use of operating permits is especially promising but must be linked with other tools discussed above.

f) Septage Haulers. The proposed program for dealing with individual home treatment systems must go beyond regulating maintenance and operation. It must be recognized that part of the water quality problem caused by individual home treatment systems arises from the fact that the residue from these systems must eventually be pumped out and disposed of if the system is to be maintained. Septage haulers are employed for this job. In the past, their unregulated actions have led to serious water quality problems. Illegal discharge of septage into local streams, for example, has been known to take place. This facet of IHTS operations must be improved either by arterial existing licensing programs for haulers or developing licensing programs. In addition, the provision of adequate residual waste facilities, as discussed in Section 4, must be assured.

It is, therefore, proposed that a new septage hauler license program be developed. The requirements for obtaining a license are contained in Section 3 of this report and should be evaluated by the County Water Quality Board before such a program is put into effect. Unlike other portions of the nonpoint program which will require a great deal of cooperation among municipalities and counties, this program should be carried on primarily by County governments with working aggrements on particular parts of the program at the local level. The responsibility would most probably again fall upon the county building departments. The St. Louis County program is a useful basic model. Haulers are presently licensed by the County and required to dispose of septage in one or two approved locations in St. Louis County and City.

This program, however, is not as stringent as those proposed in this report since it does not require sufficient record-keeping to cross-check the amounts of septage collected and disposed by each hauler.

The proposed control system raises certain practical problems that are inherent in the 208 regulatory program. Increased staffing will be necessary to keep the records that are necessary to make this program effective. Enforcement will be a problem regardless of adequate staffing, since septage haulers may still find illegal dumping cheaper or easier than hauling to accepted locations. Suggestions for inducing haulers to properly dispose of septage include the reduction of disposal fees at treatment plants and a shifting of the burden of paying disposal fees to treatment system owners rather than to the hauler. The Residual Waste section of this report contains further discussions of these issues.

g). Summary. Citizens throughout the 208 region have consistently identified individual home treatment systems as a visible source of water pollution. Thus, it appears that the citizenry may be willing to accept an increase in cost that may arise from more elaborate controls. It may well be that developers, who will be asked to abosrb much of the additional cost of such a program initially, will be able to pass such costs on to future homeowners without considerable resistance. Administrative costs of a greatly strengthened program of this kind will have to be absorbed by the public through an increase in taxes or some other kind of assessment. This may be an unpopular approach for any local government to take. On the other hand, it must be recognized that the individual home treatment systems are in some areas an alternative to centralized treatment. Those who are dependent upon septic tanks must recognize that what they are using is an alternative to the cost of supporting a central sewer system. In other words, a properly run individual home treatment system will create administrative costs that must be absorbed in just the same way as a centralized system creates public costs that must be absorbed.

This program also raises a number of questions about the ability of public enforcement to accept the increased staffing and administrative responsibilities that the program dictates. Most responsibility as discussed above is allocated at the building commission level, and it is not clear whether building commissions both at the county and municipal level are ready to take on this responsibility without additional funding. It may well be that the building commissions can gain technical support and perhaps even funding

support from existing or evolving sewer districts. Certainly a cooperative effort involving the Water Quality Board, sewer districts, the counties and especially all various building commissions plus the public at large will be essential to developing a program for individual home treatment systems that can produce the desired results on a cost-effective and politically acceptable basis.

2) Urban Stormwater Runoff Controls: Management Recommendations

Urban runoff also has been identified as a critical nonpoint source problem within each of the 208 area counties. Fecal coliform and phosphates, which are both serious nonpoint source problems, are very much linked to urban runoff, particularly in those areas that have been subject to considerable development. To the extent that, in some areas such as Franklin County, significant urbanization is yet to be realized, current nonpoint problems tend to be more closely linked to agricultural rather than urban runoff. In contrast, for St. Louis County and the City of St. Louis, the link between urban runoff and nonpoint problems is extremely critical. A number of devices are proposed to reduce the negative impact of urban runoff.

a. Control of Construction Site Runoff. The recommendations for the control of construction site runoff seeks to limit the amount of sediments washing off construction sites to no more than 5 tons per acre per year. The burden for meeting such an objective would again rest on land developers throughout the 208 region. It is proposed that such controls be implemented on a county-wide basis in each of the major counties in the study area.

To achieve such an objective again requires turning to the various County Water Quality Boards as the mechanism for achieving county-wide agreement on the development of a new erosion control ordinance. Since county-wide strategies can only be implemented where both county governments and municipal governments agree on implementation techniques, the various County Water Quality Boards could be the best forum in which the proposals for erosion control set out in this report would be evaluated and a model ordinance containing such proposals be developed. While the Water Quality Board might wish to follow the lead of this final plan in identifying certain watersheds in which erosion control would be most important, the overall importance of county-wide coverage cannot be overemphasized.

The model erosion control ordinance would ideally be adopted throughout the County and would contain a basic regulatory process. The key to this process would seem logically to be the building permit. The building departments both within county and municipal government would require that developers submit "Erosion Control Plans" as part of the building permit application process. These plans would be required to contain information regarding on-site detention as well as erosion control. The plans would, therefore, deal with both structural and nonstructural controls relating to the development site.

The final plan has identified a number of tasks which will fall to an agency with administrative responsibility in this area. For example, the agency must have the legal capability to set the required performance standards, linking the standards to the size of acreage involved. In addition, this agency, or perhaps agencies, need to be able to have the expertise to review erosion control plans, inspect sites for development, grant permits where compliance has been achieved, and enforce the erosion control through penalties where necessary.

Each of the counties has, to some extent, been involved in erosion control planning in the past, and thus an improved program such as propsed herein does not represent a radical step. On the other hand, the increased standards that have been proposed in this plan will make it tougher for developers to use their property without responding to water quality issues. This will, in turn, make the job of enforcement more difficult and will require a rethinking of agency responsibilities in this area. It is proposed that in each of the counties, the building department be the chief administrative entity, since it appears to have the expertise required to handle this particular construction-related program. On the other hand, in each of the counties, a stronger link needs to be established between the planning departments and the building commission in order to assure the planning commissions the right to review construction plans and determine that the required and appropriate erosion control measures are being implemented.

Obviously, certain local circumstances will again come into play in implementing this program. This program again points out the need for a Jefferson County Planning Commission as well as a Soil Conservation District. MSD will again play an important role in St. Louis County because of its existing status, and evolving sewer districts in other counties

will need to be looked to for input into this area. In dealing with on-site detention as well as erosion control, enforcement mechanisms will need to be strengthened and this will require a greater involvement from the various Prosecuting Attorneys' offices.

It must also be recognized that an increase in construction costs will evolve as a result of tougher erosion controls. This increase will be passed onto consumers, who should, in turn, be made aware of the reasons for the increase in costs due to water quality demands.

b. On-Site Detention of Urban Runoff. The proposed on-site detention program is unique among the recommendations for dealing with urban stormwater runoff in that the detention program puts primary emphasis on structural control measures. Nonpoint controls are generally nonstructural in nature. In other words, they rarely call for the actual construction of physical control devices. However, the on-site detention program puts considerable stress on the construction of runoff control facilities such as detention ponds. Because of the structural aspects of the on-site detention program, some overriding implementation problems must be recognized at the outset. Most importantly, the structural nature of this program will impose some significant costs related to the design and construction of the runoff control systems. The lack of federal or state funds to pay for these structures will greatly impair the ability of local communities to implement this approach. Even if private developers bear a substantial part of the financial burden, they will surely pass these costs onto purchasers which will have a significant financial and growth impact. Since additional costs will also be incurred after construction in the operation and maintenance of the runoff control system, the lack of funding sources is even more of a problem. Thus, it appears that an overriding recommendation of the nonpoint program is that the future 208 coordinator--East-West Gateway and the Regional Water Quality Board--investigate with the State DNR and U.S. EPA the future possibilities for public funding to assist in the construction of on-site stormwater runoff facilities.

A second overriding concern is that the system for on-site detention proposed for each of the counties in the study area is modeled to a great extent on the system that currently is serving the City of St. Louis and St. Louis County. The specific proposal for improving on-site detention in St. Louis County looks very much to the Metropolitan Sewer District (MSD) to be the single agency to develop, construct

and operate urban stormwater control facilities. While the future of MSD regarding such stormwater control facilities is uncertain, the presence of MSD alone makes viable the recommended single stormwater coordinator approach. For a number of reasons, a comparable situation outside of St. Louis County seems highly unlikely, and thus a significantly less coordinated stormwater system may have to be made acceptable.

The obvious first step in implementing the proposed urban runoff control program applies as much to the development of on-site detention facilities as to any of the other aspects of the runoff program. One of the very first assignments that will befall both the Regional Water Quality Board as well as the Boards set up in the individual counties is the task of evaluating urban runoff. This evaluation will require developing urban basin stormwater runoff plans as outlined in the technical portions of this report. The nature of these plans suggests, at least in part, why an on-site detention program can only be effectively implemented if put together by an organization like a County Water Quality Board. These control plans could be developed through continued 208 planning funds.

The proposed urban runoff plans are premised on the idea that more stringent controls and more extensive stormwater facilities need to be developed in certain urban watersheds, which require such intensive efforts because of anticipated growth. Since these watersheds (as described in Section 3 of this report) cut across existing jurisdictional lines, taking in both incorporated and unincorporated portions of each of the four major counties, the planning for such watersheds requires a joint effort of county and municipal planners. The development of these plans will also require a level of engineering expertise that, if not available at the County level, can be supplemented through assistance from Gateway and the Regional Water Quality Board. In fact, it may be preferable to have the 208 coordinator prepare a model runoff control plan based upon the level of detail presented in the engineering portions of this report. This effort at drafting a model plan would tend to illustrate the type of detail and effort that would be required to provide information suggested in this report, such as soil type, potential for erosion, existing land uses, and extensive mapping of the watershed before and after expected development. The plan must also deal with questions of location, size, and costs of proposed permanent runoff control facilities and begin to tackle the development of specific guidelines to be used by developers to insure development consistent with the watershed runoff plan. Gateway and the Regional Water Quality Board, in developing a model urban basin runoff control plan, should also spell out alternatives for financing the

operation and maintenance costs to be incurred in the runoff plan. This model plan could then be used by each of the County Water Quality Boards to illustrate the kind of effort that would be required of them.

The likelihood that a County Water Quality Board can successfully draft runoff control plans is greatly affected by the proposed impact of these plans once completed. In other words, it must be clear from the outset whether these plans are merely advisory. If, alternatively, they are to be enforced, who will see to their effectuation? It has been recommended elsewhere in this report that the outputs of the County Water Quality Board be advisory in nature. This recommendation would apply to the urban watershed runoff control plans as well. Yet this does not mean that both local municipalities and County government should not attempt to put the force of law behind the plans that are developed. It is recommended, that the County Water Quality Boards perhaps with the assistance of the Regional Water Quality Board, develop model ordinances that will incorporate the stormwater runoff control plan concept by requiring developers to comply with applicable urban basin plans. The outline of such a model ordinance is presented in the Element 21 Reports, Appendix A.

This ordinance would initially recognize that drainage plans have been and are being prepared for various areas and would detail the kinds of stormwater runoff facilities that are required as part of the development of all environmentally critical areas. It is proposed that the result of this effort be a stormwater runoff control ordinance tailored for use in each county and adopted by the County Council or County Court within each county, as well as by those individual municipalities where a new stormwater ordinance would be required because of existing runoff problems. There seems to be no question that ordinances will have to be adopted and enforced if the detail set out in the urban basin runoff plans, including specific design criteria, is to be complied with.

Assuming that the criteria and runoff plans as incorporated into the ordinance are as detailed as those currently set out in St. Louis County's Stormwater Detention Design Criteria, the impact on land developers throughout the region may be significant. Developers or redevelopers throughout the region must be made responsible for the control of stormwater runoff from their respective sites. Since this requirement will have an impact not only on the way in which land is used both before and during construction but also on the necessity for detention facilities, urban runoff control will be a

major factor to be considered in any future development program. Added costs, time and effort may well be resisted by developers unless local government can make such controls mandatory where they are essential.

While developers should be responsible ultimately for reducing runoff from their sites, the final responsibility for design and operation of stormwater facilities may logically rest with a single public body. It clearly would be advantageous to have an organization like MSD continue to play a significant role in the development of urban stormwater control facilities. Centralization of such authority in an entity that has significant powers, such as eminent domain to acquire land where needed for stormwater facility purposes, has some clear advantages. Such centralization would also be likely to reduce operational and maintenance costs, provide a single source for the competent staff required to operate stormwater control facilities, and basically tie together a large-scale stormwater control system. For these reasons, it is recommended that MSD play a major role in stormwater facility planning and operation. Outside of St. Louis County, 208 funds should be used to develop a stormwater management system in conjunction with the County Water Quality Boards.

Outside of the City of St. Louis and St. Louis County, much of the on-site detention program will be a new item, requiring considerable selling to local residents and land developers. St. Louis County fortunately does offer a good local model upon which efforts in Franklin, St. Charles, and Jefferson Counties can be developed. Moreover, it is hoped that the kind of detail provided in the model design criteria and guidelines presented in this report will help the Regional as well as County Water Quality Boards in developing an appropriate program for analyzing stormwater runoff events and then designing the necessary treatment facilities.

It may prove extremely difficult for sewer districts or any other public entity outside of St. Louis County to take on the kind of sweeping responsibility that has been recommended for the Metropolitan Sewer District. Legal obstacles will have to be overcome as well as some very practical hurdles before sewer districts can achieve the kind of role that MSD currently plays. However, even if the on-site detention programs in the less urbanized areas merely move in the direction of urban basin runoff plans and implementing ordinances, then these areas will have taken major steps toward improving their posture on urban runoff.

Clearly, the on-site detention program will be of greatest significance to St. Louis County with its continuing patterns of rapid development. At the same time, St. Louis County has been the only part of the general study area which has made a serious effort at trying to legislate in response to the urban runoff problem. As a result, the proposed on-site detention program for St. Louis County is basically an expansion and improvement of present practices. Thus, while in other counties a new stormwater runoff ordinance would be required, mere modification of the existing St. Louis County ordinance will help deal with problems in the unincorporated portions of the County. In municipal areas, there are the models already being offered by the Cities of Creve Coeur and Olivette. All municipalities should be encouraged to adopt some variation of these controls. Because the stormwater runoff program is already fairly well developed in St. Louis County, the County Building Department and Public Works Department are clearly going to be major actors in this process. The St. Louis County Planning and Zoning Commission and the Homebuilders Association will also need to have some impact on the further development of urban basin plans and design criteria.

The major shift in this process will be the emphasis on bringing these parties together through a County Water Quality Board. This approach should, among other things, enable those parties that have already developed stormwater controls to influence and encourage similar planning and legislative efforts in various other municipalities. A similar process will need to be followed in Franklin, Jefferson and St. Charles Counties. In these areas, the key actors are less easy to identify. Certainly, the County Courts and County Building Departments as well as Planning Departments (where they currently exist) will be important members of the County Water Quality Boards and will need to provide much of the input into the development of urban basin plans. Additionally, the Soil Conservation Service (SCS), which should play a role in design of runoff plans in St. Louis County, should play an even larger technical role in St. Charles and Franklin Counties. Unfortunately, the lack of an SCS entity in Jefferson County creates a void that should be filled as part of the effort to counter nonpoint pollution in that county.

C. Urban Cleanliness Programs

Improved Streetsweeping Techniques. The objective of the proposed vacuum streetsweeping program is to reduce sewer overflows by removing leaves from the streets and preventing them from entering storm sewers, thereby

lowering the maintenance and treatment costs of point source facilities. Additionally, in some areas such as St. Charles County, streetsweeping can be seen as a partial alternative to the development of structural controls to deal with stormwater. The key to successful implementation of the streetsweeping program in those counties where it has been recommended is not the development of a regulatory program but rather a commitment by local governments to adopt some of the specific proposals contained in this report. The reason for this is that the real burden in streetsweeping must be on the public sector in terms of the degree to which streets are swept, and the kind of machinery that is used in implementing a program of this kind. The proposed street-sweeping program calls for the use of more efficient sweepers and increased cleaning sweepers being put into service over the next five to ten years. It should be noted that street-sweeping has only been recommended as an important program in two of the major areas within the greater St. Louis 208 region. The reason for excluding such a recommendation from Jefferson and Franklin Counties is simply one of cost-effectiveness.

In St. Louis County and St. Charles County, the burden should again fall on the County Water Quality Boards to review the specific recommendations regarding streetsweeping set out in this report, and to encourage that these recommended alternatives be pursued as widely as reasonable. Streetsweeping does not appear to be the kind of program that can be regulated by ordinance. It seems highly unlikely that streetsweeping programs will be increased or improved in the manner set out unless local governments can be convinced of the cost-effectiveness of such a program.

The information that has been produced as a result of the 208 study should be sufficient to justify such a response, particularly because of the important benefits that street-sweeping can have in terms of reducing operating and maintenance costs associated with the operation of point source treatment facilities.

It might be added that while this report has not recommended a streetsweeping program for Jefferson County, the City of Arnold, in particular, should give further consideration to the specific streetsweeping recommendations and strongly consider adopting many of the set proposals. While anticipated growth in other parts of Jefferson County and Franklin County does not currently justify a streetsweeping program, the City of Arnold and its surrounding area are subject to the kind of growth pressures that may, in the short-range, justify a more advanced streetsweeping approach.

Private Parking Lot Maintenance. The purpose of this program is to complement the improved streetsweeping program recommended above. The program has only been recommended for serious consideration in St. Louis City and County and St. Charles County, given the more urbanized nature of these two counties. The goals here would primarily be to assure that critical areas received the type of maintenance that is essential and that maintenance controls be applied as consistently as possible with an eye toward water quality as well as urban aesthetics. To implement this program, either new ordinances dealing with private parking lot maintenance need to be established or, more likely, provisions in building codes need to be modified in order to strengthen the requirements that are imposed upon those responsible for major shopping center parking lots. Here again, the various County Water Quality Boards could serve as the forum for identifying those areas most in need of improved parking lot maintenance and establishing the type of ordinance modifications needed to put an improved maintenance program into effect. The Boards could then work to see that these ordinances are implemented where needed. Since the changes in regulation would most likely fall under the building code, the building commissioner and staff at either municipal or county level would be responsible for enforcement of private parking lot maintenance. Unquestionably, this is a difficult assignment and will be difficult to police. It will, therefore, be an important implementation step to educate the public and lot owners of the significant water quality advantages that can be achieved through a reduction of urban runoff from parking lots.

Leaf Collection and Disposal. The purpose of this program is to reduce the amount of material entering storm sewage systems. This reduction will limit the load of pollutants and lower operation and maintenance costs for storm sewers, catch basins, and treatment plants. Implementation of this program basically requires that those local communities in St. Louis County who do not provide this service be convinced to initiate such programs as soon as possible. An even stronger job of soliciting community action is necessary in St. Charles County where no municipalities currently provide collection services. It is clear that the present growth rate in St. Charles County requires that this program be implemented as soon as possible. Comparable programs for Jefferson and Franklin Counties have not been highlighted because of the less urban nature of these two areas. These programs should, however, be considered as perhaps future improvement programs. There is little regulatory action required to implement and improve the leaf collection program. The responsibility must rest

on local governments with minimal assistance from local residents. As part of its overall nonpoint control program, the St. Louis County and St. Charles County Water Quality Boards should promote a model leaf collection program and encourage municipalities and County governments (St. Charles County in particular) to adopt programs of this kind. The minimal increase in costs associated with the program can be absorbed with little fiscal impact upon local residents.

Catch Basin Maintenance. The Plan advocates this program only in St. Louis County because outside of the combined sewer area, the number of catch basins is considered to be negligible. Responsibility for implementing the more effective catch basin program outlined in this report would seem to fall on the Metropolitan Sewer District. The past efforts of MSD in this regard suggest that this responsibility can be clearly allocated to that entity. The most significant implementation problem that must be acknowledged is that there may be a marked increase in maintenance costs which could, in turn, result in a service change increase being passed on from MSD to those served throughout the City of St. Louis and St. Louis County. This increase may be difficult to sell to the public unless the importance of an improved catch basin maintenance program can be publically established.

D. County-Specific Nonpoint Recommendations

Franklin County. It is recommended that Franklin County's nonpoint source control program primarily emphasize an improved system for dealing with individual home treatment systems, both new and existing. Of secondary importance is a program of on-site detention of urban runoff used together with a program to control construction site runoff. Other control programs such as streetsweeping and catch basin maintenance, are not justifiable anywhere within Franklin County given the current level of development and cost-effectiveness. If Franklin County can successfully tackle its most visible problem--individual home treatment systems--and reduce through onsite dentention and erosion control programs the impact of urban runoff that will be experienced as the county continues to grow, it will have made great strides toward combating nonpoint pollution.

a. Individual Home Treatment Systems

1. Franklin County Water Quality Board should consider individual home treatment system proposals and develop a recommended model program for IHTS control throughout Franklin County.

2. Franklin County Planning Department and Building Department must play major roles in development of model IHTS programming because the generally rural and unincorporated nature of Franklin County places major responsibility at the County level. The County Court should consider forming sewer districts for the purpose of managing individual treatment systems.

3. Franklin County Building Code should be modified to require site inspections by a Registered Engineer.

4. A Professional Engineer should be added to the staff of the Franklin County Building Department.

5. Franklin County must gain voter approval for a Health Department to assist in the IHTS program.

6. The Building Department must also consider the addition of an extra staff member to be responsible for the IHTS operation permit program, including initial and periodic inspection to assure proper maintenance and operation.

7. The Building Department must gain increased support from the Prosecuting Attorney in the area of enforcement of fines so that the Department will generally have the "teeth" required to assure effective operations.

8. The Building Department must play a more active role in the county licensing of septage haulers.

b. On-Site Detention/Construction Site Runoff. The Franklin County Planning Department should be involved in the development of urban watershed stormwater runoff plans in the areas outlined in Section 3 of this report. If a Franklin County Water Quality Board can be set up quickly, it might be possible for this responsibility to be turned over to the Board itself with primary input coming from the County Planning Department staff. The advantage of the second approach is that it would clearly involve the major Franklin County municipalities in drafting these plans. This is important to developing an initial sense of cohesion in this effort. In any case, the potential contribution of

the Franklin County Planning Department must be emphasized since its past track record suggests both the interest and capability needed to take on this particular assignment.

Once the urban basin stormwater plans have been drafted, the Franklin County Water Quality Board will need to turn to drafting a model stormwater ordinance dealing primarily with the construction of on-site detention facilities and limitations on development sites related to erosion control. The Board must then work toward achieving a voluntary agreement between the County and various municipalities to adopt the model ordinance as proposed. The possible inability of the Franklin County Court to adopt this type of ordinance because of its second class county status will need to be clarified so that a means of putting this type of program into effect can be established. An opinion has been requested from the Missouri Attorney General on this point (see Appendix F). A means to do the job may be through the County Building Code. It appears that much of the substance of a stormwater control ordinance could be incorporated into modifications of the Building Code and this would, hopefully, produce the desired results without straining the powers of the County Court to adopt a new ordinance of this kind. If this step is taken, the major responsibility for controlling and enforcing the erosion and on-site detention programs will be the County Building Department. A key step in the implementation process would then be a reevaluation of the Building Department's current staff and funding. The likely result is that the Department will have to be increased in size and professional breadth in order to take on these expanded responsibilities.

To bolster the strength of the Building Department, a more formal tie between it and the County Planning Department should be established to assure that the Planning Department will review all of the site plans prepared by developers in accordance with the new requirements of the erosion control program.

Jefferson County. Emphasis in the implementation program must be on individual home treatment systems and on on-site detention/construction site runoff control. Other urban runoff techniques such as streetsweeping, leaf collection, etc. should be de-emphasized.

a. Individual Home Treatment Systems

1. A concentrated effort must be made to reinstitute Jefferson County Planning Department. Emphasis should be on promoting the importance of such a department to future water quality and sewer service in the County.

2. Concurrent with the effort to reinstitute County Planning Department, a Jefferson County Water Quality Board should be established with major assistance from Gateway planners until County Planning Department has been created.

3. Jefferson County Water Quality Board should consider individual home treatment system proposals and develop a recommended model program for IHTS control in Jefferson County.

4. Jefferson County Planning Department and Building Department must play major roles in development of model IHTS programming because the generally rural and unincorporated nature of Jefferson County places major responsibility at County level.

5. Jefferson County Building Code should be modified to require site inspections by a Registered Engineer.

6. A Professional Engineer should be added to the staff of the Jefferson County Building Department.

7. The Building Department must also consider the addition of an extra staff member to be responsible for the IHTS operation permit program, including initial and periodic inspection to assure proper maintenance and operation.

8. The Building Department must gain increased support from the Prosecuting Attorney in the area of enforcement of fines so that the Department will generally have the "teeth" required to assure effective operations.

9. The Building Department must play a more active role in the licensing of septage haulers.

b. <u>On-Site Detention/Construction Site Runoff</u>.

1. Jefferson County Water Quality Board should develop urban basin stormwater runoff plans, including identification of particularly critical areas.

2. The County Water Quality Board should spearhead a drive to create Soil Conservation Service representation in Jefferson County to help assist the Board in the development of erosion control techniques and other nonpoint source controls.

3. The Water Quality Board should adopt a model erosion control ordinance. The Board should attempt to have the ordinance adopted by agreements at the municipal level and recommend similar adoption by Jefferson County Court either through ordinance or (if this option is statutorily unavailable) through Building Code amendments.

4. Size and professional expertise of Jefferson County Building Departments should be increased.

5. Assuming County Planning Department has been created, a formal link between it and County Building Department should be developed to assure that Planning Department will review all site plans prepared by developers in accordance with new erosion control program.

St. Charles County. As in Franklin and Jefferson Counties, individual home treatment system control programs and on-site detention/erosion control are the most important aspects of a comprehensive nonpoint source control program. However, the County's current rate of urban growth and significant potential for future growth require that certain best management practices for dealing with urban runoff also be pursued. These include streetsweeping, private parking lot maintenance and leaf collection disposal.

a. Individual Home Treatment Systems

1. Creation of St. Charles County Water Quality Board is critical since municipalities play an extremely important role in the County. They must be represented in nonpoint source control decision-making and the Board will provide the most logical forum.

2. St. Charles County Water Quality Board should consider individual home treatment system proposals and develop a recommended model program for IHTS control in St. Charles County.

3. St. Charles County Planning Department and Building Department must play major roles in development of model IHTS programming because the generally rural and unincorporated nature of St. Charles County places major responsibility at County level.

4. St. Charles County Building Code should be modified to require site inspections by a Registered Engineer.

5. A Professional Engineer should be added to the staff of the St. Charles County Building Department.

6. The Building Department must also consider the addition of an extra staff member to be responsible for the IHTS operation permit program, including initial and periodic inspection to assure proper maintenance and operation.

7. The Building Department must gain increased support from the Prosecuting Attorney in the area of enforcement of fines so that the Department will generally have the "teeth" to assure effective operations.

8. The Building Department must play a more active role in the licensing of septage haulers.

b. On-Site Detention/Construction Site Runoff.

1. St. Charles County Water Quality Board should draft urban basin stormwater plans together with model ordinances.

2. The Board must move toward adoption of inter-governmental agreements to assure that controls at County and municipal level are as comparable as possible to avoid conflict.

3. At county level, changes in development control may have to be adopted through amendment of Building Code because of limitations imposed upon St. Charles County Court.

4. Staff of Building Department must be expanded in size and professional expertise.

5. There should be a stronger link between the County Building and Planning Departments.

c. Streetsweeping

1. Streetsweeping in certain parts of St. Charles County can be seen as an alternative to the development of structural controls to deal with stormwater. This point should be emphasized in the effort to encourage local governments to adopt more advanced streetsweeping programs.

2. The St. Charles County Water Quality Board should include, as an important goal of its initial program, achieving the cooperation of St. Charles County's major municipalities in adopting streetsweeping recommendations.

3. Streetsweeping is not the kind of program that can be regulated by ordinance.

d. Private Parking Lot Maintenance

1. The St. Charles County Water Quality Board must serve as the forum for identifying those areas most in need of improved parking lot maintenance.

2. The Board must establish the type of ordinance modifications needed to put an improved maintenance program into effect.

3. County Water Quality Board must determine whether improvement of private parking lot maintenance will best be achieved by modification of existing building codes or by new ordinances. It appears that the building code modification approach would be preferable.

e. Leaf Collection and Disposal

1. No municipalities in St. Charles County currently provides leaf collection service.

2. It is most critical that municipalities adopt leaf collection programs and that the St. Charles County Water Quality Board attempt to achieve optimum use of these kinds of programs.

St. Louis City/County. The nonpoint source program recommended for St. Louis City/County is clearly the most comprehensive being recommended anywhere in the St. Louis 208 region. St. Louis City and County require controls ranging from the most rurally oriented controls--individual home treatment system controls--to those controls mostly associated with high density urban development, including streetsweeping and leaf collection. St. Louis City and County area, on the other hand, is the most advanced in the region in terms of currently dealing with nonpoint source problems. Many solutions, therefore, can result from modifications of existing programs rather than the development of totally new programs.

a. Individual Home Treatment Systems

1. The initial responsibility again rests with the newly formed St. Louis County Water Quality Board. The Board needs to have active participation from the Metropolitan Sewer District, the Home Builders Association, St. Louis County Public Works Department, and various major

municipalities if realistic urban stormwater runoff control plans are to be developed.

2. St. Louis County Water Quality Board should consider individual home treatment system proposals and develop a recommended model program for IHTS control in St. Louis County.

3. St. Louis County Planning Department and Building Department must play major roles in development of model IHTS programming because the generally rural and unincorporated nature of St. Louis County places major responsibility at County level.

4. St. Louis County Building Code should be modified to require site inspections by Registered Engineer.

5. A Professional Engineer should be added to the staff of the St. Louis County Building Department.

7. The Building Department must also consider the addition of an extra staff member to be responsible for the IHTS operation permit program, including initial and periodic inspection to assure proper maintenance and operation.

8. The Building Department must gain increased support from the Prosecuting Attorney in the area of enforcement of fines so that the Department will generally have the "teeth" required to assure effective operations.

9. The Building Department must play a more active role in the licensing of septage haulers.

b. On-Site Detention/Construction Site Runoff

1. Input from MSD in terms of its own stormwater plans is particularly critical to the development of any future stormwater planning done by the Water Quality Board.

2. To the fullest extent possible, the Water Quality Board should encourage MSD to be the single agency responsible for developing, constructing and operating urban stormwater control facilities.

3. St. Louis County's Stormwater Detention Design Criteria should be re-evaluated in terms of the specific proposals set out in the 208 Plan and modification made where appropriate by the St. Louis County Water Quality Board. The Board should then attempt to have these criteria

adopted in a number of munnicipalities which do not have the stringent stormwater controls at this time.

4. Local erosion and stormwater control ordinances such as adopted in the City of Creve Coeur should also be evaluated as local programs that may serve as model control ordinances.

5. St. Louis County is not limited in its statutory ability to adopt ordinances as are the other counties. It is a charter county and thus can adopt the kind of detailed controls proposed in the plan.

6. MSD should continue to assist St. Louis County in reviewing site plans for their impact on stormwater runoff.

7. The active St. Louis County Soil Conservation Service should also be looked to for considerable assistance on the County Water Quality Board in the drafting of improved ordinances.

c. Streetsweeping, Private Parking Lot Maintenance, Leaf Collection. Same points here as in the discussion of St. Charles County. Note, however, that at both the County and municipal levels St. Louis County is already involved in some of these programs to a greater extent than is St. Charles County and, thus, again local models are more readily available and modification may be preferable to the development of new programs.

VI. PLAN IMPLEMENTATION AND SCHEDULING

Introduction. The 208 recommendations are the blueprint for controlling water pollution in the St. Louis area through the Year 2000. The controls were not developed to be ends in themselves; they were designed to fit together, as part of an areawide wastewater management strategy. If only parts of the Plan are put into effect, water quality problems will still exist in area streams; the goals of the Clean Water Act will not be reached in the St. Louis area.

Insuring that the pollution control recommendations are implemented in a timely manner will require a coordinated effort from all agencies involved in water quality management. The State of Missouri must provide the funds necessary to match Federal grants; lack of grants will delay necessary improvements. East-West Gateway, as 208 coordinator-planner, must have the money from Federal and local

sources to establish an ongoing water quality management program, to help communities through technical assistance and update the Plan through monitoring to reflect changing conditions. Gateway must be able to staff the Regional Water Quality Board, helping it make informed policy decisions.

County and local government, too, have important roles in 208 Plan implementation. They must provide initiative in dealing with local water quality problems. Local communities carry many 208 responsibilities: they are responsible for developing local pollution control plans through the facility planning process; developing the necessary institutional agreements to service areas outside their current boundaries of jurisdictions; and raising revenues to finance, operate and maintain their treatment systems. To help local communities meet their responsibilities, the County Water Quality Board should be formed immediately. The Boards should assign priorities to the problems within their county; develop a schedule for advancing solutions; and work with the management agencies involved.

Finally, the citizens of the St. Louis area have a major role to play in implementing the 208 Plan. They are the clients for whom the 208 Plan was developed; they reap the benefits from clean water. Citizen participation during formulation of the 208 Plan helped develop a plan sensitive to local concerns. Citizens should have a continued, and more vigorous role during Plan implementation--working on the Water Quality Boards; lobbying for continued grant programs; and informing their neighbors of the water quality management program.

This section of the 208 Plan approaches the critical issue of implementation responsibilities and scheduling from a number of separate but interrelated vantage points. First, it presents a broad evaluation of implementation priorities based on regional needs and requirements. Second, it identifies the major responsibilities of key 208 management agencies and in accompanying tables, proposes a detailed short-range schedule for undertaking these responsibilities. Recognizing the critical need for major development and expansion, a separate point source control timetable is then presented for each of the counties in the study area. In a fourth analytical section, an in-depth chart is presented in which the four major categories of 208 management responsibility are used as the basis for a long-range implementation schedule. Finally, the concluding section of the Plan Implementation Section presents proposals for specific state legislative measures that are critical to the implementation of the St. Louis 208 Program.

A. Priorities for Implementing 208 Control Measures

The following control measures contained in the Water Quality Management Plan for the St. Louis region are listed in an order of priority based on regional needs and requirements. These priorities reflect studies conducted during the course of the 208 Program in which problems were identified and criteria for establishing priorities were agreed upon. Detailed analysis of this material was presented in the Element 20.c Report. Based upon this work the following priorities were established.

a. First Priority

1. Develop a continuing planning program to effectively analyze regional and local water quality problems.

2. Control the proliferation of future small sewerage systems.

3. Develop regional or subregional sewage systems to eliminate many of the existing point sources. Regional and subregional systems should be developed for the following areas:

   a. The Lower Meramec Watershed below Keifer Creek.

   b. The St. Charles Watershed, particularly in Dardenne Creek and Peruque Creek.

   c. Creve Coeur and Fee Fee Creek.

   d. The smaller population centers, such as Gray Summit, Festus, Crystal City, Cedar Hills, Herculaneum, Pacific, Union and Washington.

4. Provide effluent disinfection for all point sources in accordance with the policies of the Clean Water Commission.

5. Develop effective septic tank controls which include adequate disposal of septage for each of the four counties.

b. Second Priority

1. Ensure proper operation and maintenance of all point source controls including the proper disposal of sludge and monitoring of effluent quality.

2. Establish construction priorities for the various wastewater treatment facilities.

3. Monitor the Plan's progress in accomplishing its objectives.

c. Third Priority

1. Encourage point sources to discharge into major rivers such as the Missouri or Mississippi River to avoid discharge into small streams which may not be able to assimilate the effluents.

2. Adopt ordinances for controlling sediment from new development both during and after construction.

3. Develop a program to control the disposal of hazardous or toxic waste.

4. Develop and adopt controls for adequate disposal of residual waste such as sludges from sewage and water treatment plants.

d. Fourth Priority

1. Integrate agricultural controls developed by the State of Missouri into the St. Louis 208 management program.

2. Modify existing urban house-cleaning activities, such as streetsweeping, refuse collection, etc., to reduce pollutant discharges to the streams.

3 Modify the existing instream water quality monitoring program by increasing the number of sampling stations, the frequency of sampling, and parameters measured.

e. Fifth Priority

1. Develop phosphate criteria needed to adequately control aquatic growth in the area's streams, such as the Lower Meramec and its small tributary streams. These criteria should also include a wasteload allocation for phosphorus for the various sources, such as point sources, urban runoff, and agricultural sources.

2. Identify and develop best management practices for the general control of urban runoff and other nonpoint sources from both existing and future development. It should be recognized that many of the previous issues

or problems would result in the development of best management practices. The intention here is to develop a general and broad base set of best management practices.

3. Develop a program to protect and improve the St. Louis combined sewage/stormwater collection system.

f. Sixth Priority

1. Develop specific criteria for the location of residual waste disposal sites.

2. Develop specific nonpoint source structural controls for the protection of lakes and streams, such as Lake St. Louis, Creve Coeur Lake, and Gravois Creek.

3. Request federal wasteload allocations for the major metropolitan areas on the multi-state basis for the Missouri and Mississippi Rivers.

4. Develop secondary treatment systems for the two large primary plants presently serving the City of St. Louis.

5. Develop controls for reducing the combined sewer overflows from the St. Louis metropolitan area.

6. Develop specific phosphate controls (construction of phosphate removal systems or the elemination of phosphate detergents) to control or eliminate aquatic growth in the Meramec River and its smaller tributaries.

g. Seventh Priority

1. Develop a general metropolitan or a regional urban runoff mechanical treatment system.

B. Management Agency Responsibilities

The 208 Plan has identified a number of key entities who will have major responsibilities in implementing the specifics of the areawide wastewater management program. These key entities are East-West Gateway Coordinating Council (208 Coordinator-Planner), the State of Missouri, a newly formed Regional Water Quality Board, individual County Water Quality Boards set up for the first time in Franklin, Jefferson and St. Charles Counties, as well as St. Louis City/County. Additional key entities are a variety of municipalities, sewer districts and county governments designated as wastewater treatment operators. Earlier in this Final Plan, the respective roles of each of these entities have been described.

It is important that each of these entities understands the key steps that must be pursued both in the short- and long-term in order to effectuate the 208 Plan.

In the six months/one year following the approval of the 208 plan by the Environmental Protection Agency and the Governor of the State of Missouri, the two dominant figures in 208 implementation will have to be the State of Missouri and Gateway. Although both entities will continue to play extremely significant roles throughout the course of 208 implementation, their respective responsibilities will be particularly substantial in the start-up phase of the 208 implementation program.

1. State of Missouri. The State has a number of major responsibilities that must be pursued in the first year of 208 implementation. These responsibilities, in Table 19, are in order of priority:

1. The State must ask Missouri voters as soon as possible for approval of another major sale of bonds for the purpose of supplementing the existing Water Pollution Control Fund. This fund has been the source of State matching grants for wastewater facility construction. All indications are that the existing funds are insufficient to provide the matching State grants needed to effectuate the technical proposals recommended in the St. Louis 208 Program. Prompt action by the State will serve as a strong indicator of the State's support of the 208 Plan and will assure communities of the fiscal support needed to put major facility improvements into effect.

2. The State's own ongoing 208 study, particularly as it relates to agricultural nonpoint source controls, must be closely coordinated with the nonpoint source findings and recommendations of the St. Louis 208 study. This effort should be part of a broader ongoing working relationship that must develop between the State and Gateway.

3. The State must work with the Attorney General's Office in lobbying the State Legislature for the budgetary allocations needed to increase the staffing available to the Attorney General's Office for dealing with water pollution problems. DNR needs additional attorneys who can work with the State's environmental agencies to assure increased enforcement of NPDES violations and related water quality problems. The chairman of the State's Clean Water Commission has expressed clear support for this effort and this kind of support needs to be translated into immediate action.

TABLE 19

STATE OF MISSOURI IMPLEMENTATION RESPONSIBILITIES

RESPONSIBILITIES	JUNE, 1978	JANUARY, 1979	JUNE, 1979	CONTINUING
Seek approval of bond sales to supplement existing Water Pollution Control Fund	●———	———●		
Coordinate State 208 study and implementation plan with St. Louis 208 plan.	●———	———	———	———→
Lobby State Legislature for allocations to increase staff of the office of the Attorney General	●———	———	———●	
Department of Natural Resources and Division of Environmental Quality should review, staff capabilities in light of ongoing 208 responsibilities	●———	———●		
Develop policy statement and program for relating future 201 planning to 208 plan.	●———	———●		

4. DNR needs to review its current staff capabilities to assure that it has adequate personnel to administer the NPDES program as well as play an increased role in monitoring. Additional staffing appears to be necessary.

5. The State needs to develop a policy statement and program on the relationship between future 201 construction grants and 208 final plan recommendations. The State must make extremely clear what action it will take against any designated management agency which fails to carry out the responsibilities agreed to in the management designation statements signed by the agency and Gateway. The State should make clear in such a written statement that it will oppose the granting of any State wastewater management funds to an entity that is not living up to its responsibilities as set out and agreed to as part of the final 208 Plan. Absent such a statement and a willingness to act assertively in cases of noncompliance, the management statements will hardly be binding since Gateway, as the 208 coordinator, has itself no direct enforcement capabilities.

2. East-West Gateway. As the St. Louis 208 planner and coordinator, Gateway will have numerous responsibilities. Its success in assuming these responsibilities will greatly determine the effectiveness of the St. Louis 208 program. Among the most critical assignments, shown in Table 20, facing Gateway are the following:

1. Gateway must be the spokesman for the St. Louis 208 region. As such, it must continually push the State of Missouri to move in the various directions outlined above. The relationship of Gateway and the State is particularly critical because of the State's "back-up" enforcement powers. East-West Gateway must use the 208 plan as a proposed agenda for itself and the State.

2. A very important item for Gateway in its dealings with the State will be to resolve any differences regarding the Clean Water Commission's priority system for 201 grants. Gateway needs to make the State aware of the priorities set by the final 208 Plan particularly where they may differ with current Clean Water Commission projections.

TABLE 20

EAST-WEST GATEWAY
IMPLEMENTATION RESPONSIBILITIES

RESPONSIBILITIES	JUNE, 1978	JANUARY, 1979	JUNE, 1979	CONTINUING
Develop a funded continued planning program	●	●		
Speak for the St. Louis 208 Region in dealing with State	●	→	→	→
Resolve 201 priority policy with Clean Water Commission	●	●		
Provide technical assistance to Regional and County Water Quality Boards	●	→	→	→
Undertake ongoing special planning studies	●	→	→	→
Establish functioning county and Regional Water Quality Boards	●	●		
Work with designated management agencies to resolve service area and inter-governmental agreement problems	●	●		
Continue efforts to keep public informed and to maintain public participation	●	→	→	→

3. Gateway must detail out a continued planning program in which it identifies its specific responsibilities and determines the type of staffing and funding needs that will be associated with fulfilling these responsibilities. Gateway must develop a kind of 208 "scope of services" for itself. This effort will not only allow it to set its own priorities and needs, but also, through self-evaluation, to develop a program upon which Gateway can justify continued funding. Continued Gateway involvement can be a reality only if new funding sources can be tapped. To do ongoing planning and management Gateway will be looking beyond the federal government since EPA will fund at best no more than 85 percent of the costs involved. The necessity of looking to the state and/or local governments for funding assistance makes it even more imperative that a thoughtful and well-documented continuing planning proposal. This effort must be completed promptly yet thoughtfully.

4. Aside from general operating expenses, Gateway will need to obtain the funding required to staff the Regional Water Quality Board as well as provide technical assistance to the various County Water Quality Boards. Funding to allow Gateway to work actively with the Regional and County Boards is particularly critical since, at least for an interim period, the Boards themselves will have no visible means of fiscal support. Gateway will also need funding to help undertake a number of special study efforts. For example, one such study should focus in on the monitoring process and determine in detail the types of water quality monitoring that need to be done and to allocate responsibilities for assuming these monitoring tasks. Relatedly, a special study should be done utilizing both monitoring techniques as well as the water quality model to determine in greatly increased detail the contribution of nonpoint sources to water quality problems in the St. Louis 208 region. Finally, the issue of private sewer acquisition should be subject to extensive study so that Gateway and the Regional Water Quality Board can assist those municipalities and sewer districts that are and will be involved in purchases.

5. The Water Quality Board concept is critical to the successful implementation of the management/institutional program of the 208 region. East-West Gateway must take the responsibility for initiating this program both at the regional and county levels. This will require that Gateway commit staff to the task of setting up these

various boards. Gateway has developed considerable credibility as well as numerous contacts throughout the two and one-half year planning process and these, Gateway's strengths, will have to be brought to bear in bringing together from each county those people who will sit on the four County Water Quality Boards. Since the Regional Water Quality Board will draw its membership in part from representatives sent to it by the County Boards, the success of the latter will be critical to the start-up of the Regional Board. A concurrent effort nonetheless must be made by Gateway to get the Regional Water Quality Board off the ground, particularly in establishing a place for the Board within the overall Gateway organizational hierarchy.

6. Gateway will need to work with various designated management agencies in the next six months to resolve any problems regarding proposed service areas and inter-governmental agreements needed to initiate point source planning or construction efforts. This process has already progressed to a great extent as a result of Gateway's two-phased "bridge-building" process. However, this program needs to continue with particular emphasis in those areas in which difficult institutional solutions need to be developed (e.g., St. Charles County, Lower Meramec, and Pacific-Labadie area in Frankin County). The A-95 process, which has always been an extremely important Gateway function, will be even more critical in the future in the area of 201 facility plan approval. A-95 is one of the few real mechanisms available to Gateway to help gain compliance with the 208 Plan. Gateway must carefully evaluate, with input from the State and particularly from EPA, the degree to which the A-95 process can be used as a kind of enforcement device. Certainly Gateway must carefully review 201 facility plans and deny its approval to any plan which does not conform to the policies of the 208 Plan. EPA's support for Gateway A-95 decision-making is essential to its effectiveness.

8. A critical ongoing function of East-West Gateway must be continued through public participation in water quality programs. While citizen-at-large memberships on the Regional and County Water Quality Boards are a step in this direction, Gateway will need to continue its efforts at informing the public about the 208 implementation program. Maximum public support for these efforts is critical.

It should be emphasized that each of the critical Gateway functions noted above is to be initiated as part of the final plan development process and then actively pursued in the first six months following the adoption of the final 208 Plan. A number of the functions will, of course, continue throughout the implementation of the 208 program, and Gateway's direct responsibility for exercising some of these functions may vary as time goes on. For example, as has been previously noted, Gateway will be working very closely with newly formed County Water Quality Boards and a new Regional Water Quality Board. Responsibilities initially allocated to Gateway staff can, in the future, be shared with the County and Regional Boards once the latter has become viable. For this reason, it is even more important that Gateway move quickly to set up the Board system. It is proposed that East-West Gateway use January 1, 1979, as the absolute deadline for functioning County and Regional Water Quality Boards. While it is true that only local officials can guarantee the ultimate success or failure of the Boards, there is no question that the impetus for starting these new entities must come from Gateway. Although the process of instituting the County and Regional Boards should be pursued concurrently the primary emphasis should be on establishing the County Boards since they will, in turn, select representatives to serve on the Regional Board.

3. County Water Quality Boards. The responsibilities of the County Water Quality Boards, shown in Table 21, are in order of priority:

1. The first task for a County Water Quality Board is to set itself up as a viable entity. This requires achieving the kind of comprehensive representation which would include county, municipal and sewer district officials as well as a number of other representatives. Once a willingness to participate in such an organization can be achieved, local governmental agreements must be made in which the various representative entity will agree to support to the fullest extent program policies of the County Water Quality Board as well as the Regional Board. Because the Board is seen as a voluntary designation, the need for inter-governmental agreement is even more critical. Decisions will have to be made regarding the final voting/non-voting status of representatives, the possibility of some funding being contributed by each representative organization to support at least in small part the activities of the Board, the chairmanship of the organization and a wide range of other organizational issues.

TABLE 21

COUNTY WATER QUALITY BOARD
IMPLEMENTATION RESPONSIBILITIES

RESPONSIBILITIES	JUNE, 1978	JANUARY, 1979	JUNE, 1979	CONTINUING
Establish itself as viable representative entity	●———	———●		
Serve as forum for resolution of institutional problems.		●———	———	———→
Study nonpoint control measures proposed in final plan in order to devise model ordinances		●———	———●	
Examine monitoring program to determine proper role of local government		●———	———●	
Elect representatives to the Regional Water Quality Board	●———	———●		
Provide input to Gateway planning and implementation studies		●———	———	———→

2. The County Water Quality Board must serve as a forum for resolving a number of the more difficult institutional situations that will be created as a result of the point source proposals contained in the final 208 plan. For example, the overall technical proposal for dealing with wastewater in St. Charles County will require a great deal of cooperation and negotiation between numerous entities concerned with wastewater management in that county. The St. Charles County Water Quality Board must serve as the forum for bringing these various parties together and resolving the differences that currently exist between potentially competing entities.

   The County Water Quality Boards will also have to serve as the forum for resolving less dramatic institutional dilemmas such as the various arrangements that will have to be developed between currently unserviced unincorporated areas and designated management agencies. In many instances, decisions regarding annexation versus service contracts may well benefit from the guidance that a representative County Board can provide.

3. A critical high priority item for the agenda of each County Water Quality Board is an examination of the nonpoint source control measures proposed in the Final 208 Plan. The Plan calls for the adoption by each County Water Quality Board of model ordinances to be adopted by county and municipal governments. Widespread use of these ordinances will be possible only if the County Board can gain a consensus on the type of model ordinance that will best serve the needs of the county and respond to its particular nonpoint source problems.

4. The County Boards will need to carefully examine the monitoring program proposed in the Plan and help Gateway, the Regional Water Quality Board, and the State of Missouri in determining the proper role of local government in the monitoring process.

5. The handling of residual waste is a problem that can only be adequately dealt with from a county and regional perspective. Neither county governments nor municipal or sewer district entities can respond to the residual waste issue without considerable cooperation and a combined effort. The County Board's position in implementing residual waste alternatives will provide valuable input also to the Regional Water Quality Board and Gateway in terms of the latter's planning decisions regarding region-wide residual waste treatment.

6. The County Water Quality Boards must promptly elect two representatives to serve on the Regional Water Quality Board. These representatives will not only be that county's representatives on the regional body but will, in turn, keep the County Board fully abreast of the activities of Gateway, the State, and the Regional Board. For example, the County Board needs to be continually informed as to the enforcement activities of the State, the priority setting of the Clean Water Commission, the planning and other studies being undertaken by Gateway and a host of other more regionalized wastewater management issues.

7. The County Water Quality Board will have East-West Gateway staff available to it, and the Board should develop its own list of priorities as to studies in which it would play a viable part. In other words, a number of planning and implementation studies that will be undertaken by Gateway should and will require input from local wastewater management representatives. The individual County Boards need to parcel out certain responsibilities in these studies to their own members and, with the assistance of Gateway, assure that regional studies adequately present the concerns of their own representatives.

Unlike the Regional Water Quality Board which will be established within an existing organization--East-West Gateway--the County Water Quality Boards will be more independent and free-floating entities. While this situation will make the County Boards more difficult to establish, their independence, once functioning, should allow for a major local contribution.

4. Regional Water Quality Board. As with the County Water Quality Boards, the Regional Board set up within the East-West Gateway framework must have a list of high priority responsibilities from which it can work once created and functioning. The most critical of these functions, shown in Table 22, would include the following:

1. Perhaps the most critical task for the Regional Water Quality Board is to clearly establish itself within the Gateway hierarchy. Certainly existing divisions within Gateway will be extremely important in developing a place for this new organization. Particularly important will be the relationship between the Environmental Task Force, the 208 Policy Advisory Committee and the Citizens Committee. In particular, the Citizens Committee (Water Quality Task Force) may wish to select representatives from its membership to become the

TABLE 22

REGIONAL WATER QUALITY BOARD
IMPLEMENTATION RESPONSIBILITIES

RESPONSIBILITIES	JUNE, 1978	JANUARY, 1979	JUNE, 1979	CONTINUING
Establish itself within Gateway organizational heirarchy.	●———	———●		
Provide input to Gateway special studies for implementation and planning		●———	———	———→
Function as liaison between County Water Quality Boards and Gateway, and between County Water Quality Boards and the State		●———	———	———→
Serve as "watchdog" as well as working partner of Gateway		●———	———	———→

citizen members on the regional Water Quality Board. Since the Citizens Committee will be phased out in the months following the final plan adoption, the selection of representatives from this group to sit on a Regional Water Quality Board can provide an excellent transitional opportunity for continued citizen input.

2. Once the Board has been established, it must immediately begin to assume some of the responsibilities that will, of necessity, have fallen totally on Gateway staff in the interim prior to the Board's creation. The Regional Water Quality Board must be a working Board willing to work directly with Gateway performing some of the difficult tasks of implementation and future planning work. Thus, the Board will have to make a committee of time and effort on a number of the special studies that Gateway will most likely be undertaking (e.g., related to monitoring, acquisition of private sewer utilities, and model nonpoint source control measures). While Gateway staff will be looked to for providing the majority of technical skills and time commitment, the Board, given its composition, would have the experience and technical knowledge related to wastewater management needed to assure the quality of Gateway's work.

3. The Regional Water Quality Board must establish itself as the liaison between the County Water Quality Boards and East-West Gateway. It might also develop a similar relationship with the State of Missouri. The result of such a successful liaison would ideally allow the State and EPA to deal exclusively with the Regional Water Quality Board and still maintain sufficiently close contact with more localized levels of government.

4. Beyond its role of working partner, the Regional Water Quality Board must be in a sense East-West Gateway's 208 "watchdog," assuring the quality and effectiveness of Gateway's effort as 208 coordinator.

5. **Designated 208 Operating Agencies.** In addition to the responsibilities that will have to be assumed at the state, regional and county levels of government, there will be numerous communities and sewer districts that will, by virtue of signed management designation statements, have agreed to accept considerable responsibility for the successful implementation of the 208 program, particularly as regards the treatment of point sources of water pollution. These designated operating agencies will have accepted responsibility for implementing the detailed technical alternatives that have been proposed as part of the Final

208 Plan. These agencies will have a number of responsibilities which must be prioritized and scheduled. These responsibilities, shown in Table 23, include the following:

1. The designated 208 operating agencies must develop, in the six months following the approval of the 208 plan, an implementation schedule for putting the proposed technical solution for their service into effect. The first step in this process will be to consider methods of funding the proposed alternative, particularly because in some instances, such an evalution will suggest the need to consider non-sewered alternatives and individual home treatment systems as alternatives to the cost of mechanical treatment plants. While this alternative process for smaller service areas is more appropriately a part of the 201 facility planning process, a recognition of this responsibility is essential for an understanding of the responsibilities being accepted by a 208 operating agency.

2. The proposals for dealing with point source pollution in any area will require some kind of institutional change. At the very least, a designated management agency will have to begin to explore how best to service an area larger than its existing service area.

   An investigation of annexation possibilities or service contracting should begin immediately so that a move in the selected institutional direction can be implemented as promptly as possible. This decision will, of course, be tied to the general question of how best to spread the cost of a proposed system when servicing a large area. In more complicated institutional situations, such as in St. Charles County and the Lower Meramec area, efforts to allocate management responsibilities to as yet nonfunctioning sewer districts and other new management entities must begin. Governmental bodies such as the County Court in Jefferson County which have not been involved actively in wastewater management needs to develop strategies for implementing service plans for unincorporated portions of the county which have either existing or proposed management entities on whom responsibility can be placed.

3. Individual operating agencies must commit to and begin working with the County Water Quality Board developed within each jurisdiction. The County Water Quality Boards, as noted earlier, can provide individual communities with technical assistance as well as a public forum in which individual operating problems can be resolved.

TABLE 23

DESIGNATED 208 OPERATING AGENCIES
IMPLEMENTATION RESPONSIBILITIES

RESPONSIBILITIES	JUNE, 1978	JANUARY, 1979	JUNE, 1979	CONTINUING
Develop an implementation schedule for effecting proposed technical solution for the service area	●———	———●		
Investigate institutional alternatives for expanding service areas	●———	———●		
Make commitment to and begin working with appropriate County Water Quality Board	●———	———●		
Make commitment to work with County Water Quality Board to develop model nonpoint source controls	●———	———●		

4. Since there is a clear overlap in governmental responsibility for both point source and nonpoint source control, the designated operating agencies will also need to commit to working with County Water Quality Boards in their efforts to develop model nonpoint source controls.

6. Local Governments. Local governments throughout the St. Louis 208 region should understand that they have responsibilities and 208 priorities that are distinguishable from those responsibilities that might concurrently be placed on these governments because of representation on the Regional and/or County Water Quality Board as 208 operating agnecies. Because much of what the Regional and County Water Quality Boards as well as East-West Gateway do is voluntary in nature, the final step in certain aspects of 208 implementation will rest ultimately upon local government. This fact raises a number of identifiable short-range 208 responsibilities for local governments. These responsibilities, shown in Table 24, are as follows:

1. The commitment of local governments to 208 implementation must go beyond the willingness to sent representatives to the newly established Boards. Local governments must be willing to seriously consider the proposals that will be evolving from the Boards and act upon their recommendations, particularly as relates to nonpoint source controls. Moreover, even a willingness to adopt changes in local legislation to conform to model ordinance proposals will be meaningless unless local enforcement is pursued as well.

2. Local governments should begin now to consider possible means of helping to fund the fforts of the County and Regional Water Quality Boards. Although it seems likely that the great bulk of funding can come from federal sources, the need for matching funds is imperative and needs to be met in some equitable and reasonable way by local communities.

C. Priorities and Schedule for Point Source Improvements

Section 208(b)(2)(B) of the 1972 Clean Water Act requires "the establishment of construction priorities . . . and time schedules for initiation and completion of all treatment works" as an output of the 208 Plan. Table 25 lists the construction priorities for the Plan's point source control recommendations.* It is recommended that all point source control recommendations be implemented by 1985 to meet the

*The 208 ranking of municipal point sources is not intended to supersede the statewide construction priority list but is intended to provide input into the statewide construction grant program. Statewide priorities may differ significantly from a listing based solely on regional goals and objectives.

TABLE 24

LOCAL GOVERNMENT (COUNTY AND MUNICIPAL)
IMPLEMENTATION RESPONSIBILITIES

RESPONSIBILITIES	JUNE, 1978	JANUARY, 1979	JUNE, 1979	CONTINUING
Participate fully in activities of County Water Quality Boards	●———	———	———	———→
Investigate means of helping to fund County and Regional Water Quality Boards	●———	——●		

national water quality goals. Table 26 presents a schedule of the actions necessary to meet the initial operation dates of the controls. Both management actions--forming sewer districts and intergovernmental agreements--and facility planning actions are detailed. The following symbols are used in the Table to illustrate the necessary actions:

☆ Organize Sewer District

□ Expand Service Area

▲ Initiate 201 Facility Planning

● Complete 201 Facility Planning

○ Begin Construction

D. Major Management Functions: Long-Range Scheduling and Allocation

There are four groupings of management functions (described earlier in this Section) which have been allocated to the various government entities designated in this Plan to be part of this region's water quality management system. Each functional grouping includes a set of specific management responsibilities. These responsibilities and the management agencies they have been assigned to are detailed in Table 27.

E. Legislative Priorities and Scheduling

In addition to the other implementation priorities noted above, there are a number of possible changes in Missouri statutes that could substantially improve wastewater management in the State. These changes would, among other things, affect the ability of sewer districts and second class county governments to play an active role as 208 management entities.

1. Increased Powers for Second Class Counties. As indicated in the draft correspondence between the Missouri Department of Natural Resources and the State Attorney General's Office (see Appendix I), there exist serious questions regarding the legal authority of second class counties to adopt and enforce the variety of nonpoint source pollution controls recommended in this 208 plan. Resolving these issues is critical to the plan because three of the major counties in the study area--St. Charles, Jefferson and Franklin--currently operate under second class county legislation. Moreover, it is essential that responsibility for

TABLE 25
CONSTRUCTION PRIORITIES
FOR POINT SOURCE CONTROL RECOMMENDATIONS

Regional Priority	Point Source Control	Beginning Date of Operation	Selection Criteria
1	Lower Meramec	January, 1982	This control permits the development of a regional system which provides for elimination of numerous point sources from the water quality sensitive Lower Meramec River. This regional system would affect the greatest number of people and eliminate the largest sources of any system within the St. Louis 208 area.
2	St. Charles Consolidated System	January, 1984	This control would provide for the development of a regional system in a large portion of St. Charles County. Numerous smaller facilities would be eliminated which presently discharge to Peruque, Belleau, Dardenne, Spencer, Cole, and Sandfort Creeks.
3.	MSD Northwest	January, 1982	This control provides for development of a regional system affecting a significant number of people and point source discharges from smaller creeks in Northwest St. Louis area.
4	Sullivan/Oak Grove	January, 1983	This control provides for a subregional system serving the general Sullivan/Oak Grove area and permits the elimination of several small point sources presently discharging to tributaries of the Borbeuse River.
5	Herculaneum/Pevely	January, 1981	This control provides for a subregional system servicing the greater Herculaneum area and permits elimination of smaller facilities now discharging to Sandy and Joachim Creeks.

TABLE 25
(Continued)

Regional Priority	Point Source Control	Beginning Date of Operation	Selection Criteria
6	Coldwater Creek	January, 1980	This control provides for advanced treatment at the existing expanded plant before discharge to Coldwater Creek.
7	Pacific/Gray Summit	January, 1983	This control would provide for the formation of a subregional system to serve the entire Pacific-Gray Summit area thus eliminating numerous small facilities and discharging to Brush and Labadie Creek Watersheds.
8	DeSoto	January, 1983	This control provides for a subregional system to serve the City of DeSoto and the immediate surrounding area. It also permits the elimination of several smaller facilities located to the north discharging to Fritz and Ball Branch Creeks.
9	Eureka/Times Beach	January, 1982	This control provides for the creation of a subregional system for the greater Eureka/Times Beach area and eliminates several existing smaller facilities now discharging to low flow streams.
10	Union	January, 1982	This control provides for a subregional system serving the greater Union area eliminating several smaller facilities in the surrounding area, now discharging to small tributaries of the Bourbeuse.
11	Festus/Crystal City	January, 1980	This control provides for a subregional system servicing the greater Festus/Crystal City area and permits elimination of several smaller facilities discharging into Plattin Creek. Expansion is currently under construction and should be completed.

TABLE 25
(Continued)

Regional Priority	Point Source Control	Beginning Date of Operation	Selection Criteria
12	Wentzville	January, 1979	Construction is near completion.
13	St. Clair	January, 1980	This control provides for a subregional system to serve the greater St. Clair area permitting the elimination of the existing five city plants and several smaller facilities in the surrounding area. Expansion is currently in Step 3 and should be completed.
14	Lower Big River/Heads Creek	January, 1985	This control would create a subregional system for the general Lake Montowese area including the existing Lower Big River Sewer District Service area. It allows for the elimination of several smaller plants in this general area now discharging to smaller streams.
15	Cedar Hills	January, 1985	This control provides for creation of a subregional system thereby eliminating numerous small facilities in this area along the Big River, and insuring against the proliferation of these types of facilities in the future.
16	Pin Oak Creek	January, 1985	This control would establish a centralized treatment system to eliminate numerous smaller facilities presently in this area discharging to tributaries of Pin Oak Creek. It would also deter the proliferation of smaller facilities in this area in the future.

TABLE 25
(Continued)

Regional Priority	Point Source Control	Beginning Date of Operation	Selection Criteria
17	Stanton	January, 1985	This control provides for the establishment of a community system for the Stanton area which would eliminate several small treatment facilities and numerous septic tanks.
18	Robertsville/Lake Serene	January, 1985	This control provides for the creation of a centralized treatment system which would eliminate numerous small facilities now discharging to Lake Serene, Evergreen Lakes, Winch Creek, and Calvey Creek. It would also control the proliferation of such smaller facilities in the future.
19	Sugar Creek Watershed	January, 1985	This control provides for the formation of a subregional system to serve the entire Sugar Creek Watershed, thereby limiting the proliferation of small treatment plants.
20	Gerald	January, 1985	This control provides for a subregional system for the City of Gerald and surrounding areas. It would eliminate the two existing city facilities and control any future proliferation of smaller facilities in the outlying areas.
21	Olympian Village	January, 1985	This control provides for the formation of a centralized treatment system to control the proliferation of smaller facilities which is now occurring in this area and expected to occur in the future.

TABLE 25
(Continued)

Regional Priority	Point Source Control	Beginning Date of Operation	Selection Criteria
22	Selma	January, 1985	This control provides for the creation of a centralized treatment system for the greater Selma area thereby eliminating several smaller facilities located in Muddy and Plattin Creek watersheds, as well as controlling the proliferation of such facilities in the future in these areas.
23	New Melle	January, 1985	This control provides for the establishment of a community treatment system to eliminate existing and future proliferation of individual septic tank units.
24	Beaufort	January, 1985	This control provides for the formation of a community system thereby eliminating numerous home septic units and one small treatment facility.
25	Martigney Creek	January, 1985	This control would eliminate the Martigney Creek Plant; the watershed would be serviced by MSD's Lemay Facility.
26	Glaize Creek Watershed	January, 1985	This control provides for extension of an existing system into a subregional system theteby eliminating numerous smaller facilities in the Upper Glaize Creek and Eastern Heads Creek Watersheds.
27	Duckett Creek Watershed	January, 1985	This control provides for the extension of an existing subregional system to eliminate several smaller facilities and control the proliferation of future small sewage systems in Duckett Creek Watershed.

TABLE 25
(Continued)

Regional Priority	Point Source Control	Beginning Date of Operation	Selection Criteria
28	Berger	January, 1985	This control provides for the establishment of a community treatment system to eliminate existing and future proliferation of individual septic tank units as well as eliminate a few small treatment systems.
29	New Haven	January, 1985	This control provides for the expansion of an existing subregional system to serve the projected future growth for the greater New Haven area.
30	Augusta	January, 1985	This control provides for the establishment of a community system to eliminate existing and any future proliferation of individual home septic tank systems.
31	West Alton	January, 1985	This control provides for the establishment of a community treatment system to eliminate existing and future proliferation of individual septic tank units.
32	Matson/Defiance	January, 1985	This control permits the formation of a treatment system to provide service to the two closely situated communities thereby eliminating any existing or future septic tank systems in the general area.
33	Labadie	January, 1985	This control provides for the establishment of a community system thereby eliminating numerous individual home septic tank systems as well as several small treatment facilities in the surrounding area.

TABLE 25
(Continued)

Regional Priority	Point Source Control	Beginning Date of Operation	Selection Criteria
34	Portage Des Sioux	January, 1985	This control would provide the necessary treatment system to sufficiently handle all expected future flows from the community of Portage Des Sioux eliminating the existing community septic tank and any individual septic tank systems in operation.
35	Leslie	January, 1985	This control provides for the formation of a community system thereby eliminating numerous home septic tank units now in operation.
36	Orchard Farm	January, 1985	This control provides for the establishment of a community treatment system to eliminate individual home septic tank units now existing in Orchard Farm.
37	Spanish Lake	January, 1982	This control provides for the elimination of a significant point source discharge from Spanish Lake Creek with flows now being treated and discharged to the Mississippi River.
38	Lemay	January, 1985	This control provides for the upgrading of an existing primary facility discharging to the Mississippi River to secondary treatment facility.
39	Bissell Point	January, 1985	This control provides for the upgrading of an existing primary facility discharging to the Mississippi River to a secondary treatment facility.
40	St. Charles-Missouri River	July, 1981	This control provides for the upgrading of an existing primary treatment system discharging to the Missouri River to a secondary treatment facility.

TABLE 25
(Continued)

Regional Priority	Point Source Control	Beginning Date of Operation	Selection Criteria
41	Washington	January, 1979	Construction to be completed in late 1978.

TABLE 26
SCHEDULE FOR POINT SOURCE IMPROVEMENTS

			1978	1979	1980	1981	1982	1983	1984
1. FRANKLIN COUNTY									
PACIFIC/GRAY SUMMIT									
Organize Gray Summit Sewer District	January	1979		☆					
Intergovernmental Agreement	October	1979							
Initiate 201 Facility Planning	June	1980			▲				
Begin Construction	January	1982					○		
BEAUFORT									
Organize Sewer District or Incorporate	January	1981				☆			
Initiate 201 Facility Planning	January	1982					▲		
Begin Construction	January	1984							○
BERGER									
Initiate 201 Facility Planning	January	1982					▲		
Begin Construction	January	1984							○
GERALD									
Formalize projected service area									
Initiate 201 Facilities Planning	January	1978	▲						
Begin Construction	January	1981				○			
LABADIE									
Organize Sewer District or Incorporate	January	1981				☆			
Initiate 201 Facility Planning	January	1982					▲		
									○

TABLE 26
(Continued)

		1978	1979	1980	1981	1982	1983	1984
1. FRANKLIN COUNTY (Continued)								
LESLIE								
Initiate 201 Facility Planning	January 1982					▲		
Begin Construction	January 1984							○
NEW HAVEN								
Initiate 201 Facility Planning	January 1981				▲			
Begin Construction	January 1984							○
PIN OAK								
Organize Sewer District or Incorporate	January 1981				☆			
Initiate 201 Facility Planning	January 1982					▲		
Begin Construction	January 1984							○
ROBERTSVILLE/LAKE SERENE								
Organize Sewer District or Incorporate	January 1981				☆			
Begin 201 Facility Planning	January 1982					▲		
Begin Construction	January 1984							○
STANTON								
Organize Sewer District or Incorporate	January 1981				☆			
Initiate 201 Facility Planning	January 1982					▲		
Begin Construction	January 1984							○

TABLE 26
(Continued)

			1978	1979	1980	1981	1982	1983	1984
1. FRANKLIN COUNTY (Continued)									
SULLIVAN/OAK GROVE VILLAGE									
201 Facility Planning has Started	June	1977	●						
Formal Intercity Agreement	January	1979		□					
Begin Construction	January	1980			○				
ST. CLAIR									
Construction (Step 3) to begin	June	1978	○						
Develop Intercity Agreement with Parkway	June	1979		□					
UNION									
201 Facility Plan (Step 1) Completed	March	1978	●						
Formalize Projected Service Area	January	1979		□					
Begin Construction	January	1981				○			
WASHINGTON									
Construction to be completed	November	1978							
Expanded Service Area	January	1979		□					

TABLE 26
(Continued)

			1978	1979	1980	1981	1982	1983	1984
2. JEFFERSON COUNTY (Continued)									
FESTUS/CRYSTAL CITY									
Complete 201 Facility Planning	October	1978	●						
Begin Construction	October	1979		○					
GLAIZE CREEK WATERSHED									
Expand Service Area	January	1980			□				
Initiate 201 Facility Planning	January	1982					▲		
Begin Construction	January	1984							○
SELMA									
Organize Sewer District or Incorporate	January	1981				☆			
Initiate 201 Facility Planning	January	1982					▲		
Begin Construction	January	1984							○
HERCULANEUM/PEVELY									
Facility Plan Completed	May	1978	●						
Start Construction	January	1980			○				

TABLE 26
(Continued)

		1978	1979	1980	1981	1982	1983	1984
2. JEFFERSON COUNTY (Continued)								
DESOTO								
Initiate 201 Facility Planning	January 1980			▲				
Start construction	January 1982					○		
OLYMPIAN VILLAGE								
Initiate 201 Facility Planning	January 1982					▲		
Begin Construction	January 1984							○
LOWER BIG RIVER/HEADS CREEK								
Expand Sewer District	January 1979							
Initiate 201 Facility Planning	January 1981				▲			
Begin Construction	January, 1983						○	
CEDAR HILLS								
Organize Sewer District	January 1979		☆					
Initiate 201 Facility Planning	January 1981				▲			
Begin Construction	January 1983						○	
4. ST. CHARLES CO. CONSOLIDATED SYSTEM								
Organize Sewer District	October 1979		☆					
Initiate 201 Facility Planning	July 1980			▲				
Start Construction	July 1982					○		

TABLE 26
(Continued)

		1978	1979	1980	1981	1982	1983	1984
3. ST. CHARLES COUNTY (Continued)								
AUGUSTA								
Initiate 201 Facility Planning	January 1982					▲		
Begin Construction	January 1984							○
DUCKETT CREEK WATERSHED								
Initiate 201 Facility Planning	January 1982					▲		
Begin Construction	January 1984							○
MATSON/DEFIANCE								
Organize Sewer District	January 1981				☆			
Initiate 201 Facility Planning	January 1982					▲		
Begin Construction	January 1984							○
NEW MELLE								
Initiate 201 Facility Planning	January 1982					▲		
Begin Construction	January 1984							○
ORCHARD FARM								
Organize Sewer District or Incorporate	January 1981				☆			
Initiate 201 Facility Planning	January 1982					▲		
Begin Construction	January 1984							○
PORTAGE DES SIOUX								
Initiate 201 Facility Planning	January 1978	▲						
Begin Construction	January 1981				○			

TABLE 26
(Continued)

			1978	1979	1980	1981	1982	1983	1984
3. ST. CHARLES COUNTY (Continued)									
ST. CHARLES-MISSOURI RIVER									
Complete 201 Facility Planning	July	1978	◐						
Begin Construction	July	1979		○					
WEST ALTON									
Organize Sewer District or Incorporate	January	1981				☆			
Initiate 201 Facility Planning	January	1982					▲		
Begin Construction	January	1984							○
WENTZVILLE									
Complete Construction	January	1979		●					
4. ST. LOUIS CITY/COUNTY									
LOWER MERAMEC									
Facility Plan Completed	May	1978	◐						
Start Construction	January	1979		○					
EUREKA/TIMES BEACH									
Complete 201 Facility Planning	June	1978	●						
Expand Service Area	October	1978	□						
Start Construction	January	1980			○				
MARTIGNEY CREEK WATERSHED									
Initiate 201 Facility Planning	January	1982					▲		
[illegible]	[illegible]								○

TABLE 26
(Continued)

			1978	1979	1980	1981	1982	1983	1984
4. ST. LOUIS CITY/COUNTY (Continued)									
SUGAR CREEK WATERSHED									
Initiate 201 Facility Planning	January	1982					▲		
Begin Construction	January	1984							○
BISSELL POINT									
Design (Step 2) to be Completed	September	1978	●						
Begin Construction	January	1979		○					
LEMAY									
Construction (Step 3) Started	January	1977	○						
CAULKS CREEK, CREVE COEUR, COWMIRE CREEK (MSD NORTHWEST)									
Initiate 201 Facility Planning	June	1978	▲						
Begin Construction	January	1980			○				
SPANISH LAKE									
Initiate 201 Facility Planning	June	1978	▲						
Begin Construction	July	1980			○				
COLDWATER CREEK WATERSHED									
Initiate 201 Facility Planning	May	1978	▲						
Begin Construction	July	1979			○				

TABLE 27

MAJOR MANAGEMENT FUNCTIONS: LONG-RANGE SCHEDULING AND ALLOCATION

	Responsible Agencies	1978-1979	1979-1984	1984-1994
I. PROGRAM PLANNING, SUPERVISION AND COORDINATION				
1. Develop Continuing Funding	EPA/DNR/Gateway/Counties	←	CONTINUING	→
2. Conduct First-Year Program	Gateway	•		
(2.1) Establish Regional and County Water Quality Boards	Gateway	•		
(2.2) Initiate Update Mechanism	Gateway	•		
3. Provide Annual Plan for Certification	Gateway	←	CONTINUING	→
4. Conduct A-95 Review	Gateway	←	CONTINUING	→
5. Update Data Base and Projections	Gateway	←	CONTINUING	→
6. Review Nonpoint Source Needs	Gateway	←	↗	
7. Conduct Public Participation	Gateway	←	CONTINUING	→
II. TREATMENT PLANT DEVELOPMENT, FINANCING, OPERATION AND MAINTENANCE				
1. Facility Development and Financing				
(1.1) Review Facility Plans for conformance with 208 Plan (A-95)	Gateway	←	CONTINUING	→

TABLE 27

MAJOR MANAGEMENT FUNCTIONS: LONG-RANGE SCHEDULING AND ALLOCATION
(Continued)

	Responsible Agencies	1978-1979	1979-1984	1984-1994
II. (Continued)				
1. (Continued)				
(1.2) Explore Innovative Approaches to Facility Planning for Cost Reduction	Gateway			
(1.3) Continue Facility Planning	Gateway/MSD/Counties		CONTINUING	
(1.4) Construct and Update Facilities	MSD/Counties/Designated Agencies/Gateway		CONTINUING	
1978-1979 1979-1984 1984-1994				
(1.5) Fund Facility Construction	Clean Water Commission/ EPA/DNR/Counties		CONTINUING	
(1.6) Continue Priority list and Federal Funding Process	DNR/EPA		CONTINUING	
(1.7) Assist in Upgrading Local Agency Priority	Gateway			
(1.8) Local Evaluation of Priority Mechanisms/ Execution	Gateway			

TABLE 27

MAJOR MANAGEMENT FUNCTIONS: LONG-RANGE SCHEDULING AND ALLOCATION
(Continued)

	Responsible Agencies	1978-1979	1979-1984	1984-1994
II. (Continued)				
2. Operation and Maintenance				
(2.1) Operate and maintain facilities	Counties/Designated Agencies	←	CONTINUING	→
(2.2) Examine Alternative Approaches to operation and maintenance to achieve cost reduction	Gateway/Water Quality Boards/Counties/Designated Agencies	•	—	→
III. POINT SOURCE REGULATORY AND COMPLIANCE FUNCTIONS				
1. Permitting				
(1.1) Issue NPDES Permits in accordance with Plan	DNR/EPA	←	CONTINUING	→
(1.2) Review NPDES Permits for Compliance with Plan	Gateway	←	CONTINUING	→
(1.3) Evaluate New NPDES Permit Parameters	DNR	←	•	
(1.4) Local Evaluation of New NPDES Permit Parameters	Gateway	←	•	
2. Standard Setting				
(2.1) Continue Standards Evaluation	DNR	←	CONTINUING	→
(2.2) Local input to Standard Setting	Gateway		•	→

TABLE 27

MAJOR MANAGEMENT FUNCTIONS: LONG-RANGE SCHEDULING AND ALLOCATION
(Continued)

	Responsible Agencies	1978-1979	1979-1984	1984-1994
III. (Continued)				
2. (Continued)				
(2.3) Continue Wasteload Allocations in Accordance with 208 Plan	DNR	CONTINUING		
(2.4) Special Studies to Confirm/Modify Allocations	Shared			
(2.5) Local Evaluation of Allocations	Gateway			
3. Monitoring and Enforcement				
(3.1) Continue Existing Primary Monitoring System	DNR			
(3.2) Conduct Joint Monitoring Program	DNR/Gateway/MSD/Counties		CONTINUING	
(3.3) Establish Mechanism for Coordinating Monitoring	DNR/Gateway/MSD/Counties			
(3.4) Conduct Special Monitoring Programs	Gateway/MSD/Counties			
(3.5) Strengthen Enforcement Activities	EPA/DNR/Gateway/Counties/ Attorney General		CONTINUING	
(3.6) Coordinate Local Enforcement Activities	Gateway			
(3.7) Develop Enforcement Procedures for Nonpoint Source Program	DNR/Missouri Attorney General			

TABLE 27

MAJOR MANAGEMENT FUNCTIONS: LONG-RANGE SCHEDULING AND ALLOCATION
(Continued)

	Responsible Agencies	1978-1979	1979-1984	1984-1994
IV. MANAGEMENT OF NONPOINT SOURCE CONTROLS				
1. Develop New or Modified Individual Home Treatment System (IHTS) Ordinances and Programming				
(1.1) Prepare model ordinance and criteria	Gateway/Water Quality Boards	●		
(1.2) Implement new or modify existing ordinances	County and Local Governments	●———	———●	
(1.3) Enforce new or modified ordinance	County and Local Governments/DNR/Attorney General	●———	———	———→
2. Develop New or Modified Urban Runoff Ordinances and Programming				
(2.1) On-site Detention and Erosion Control				
a. Prepare model ordinances & criteria	Gateway/Water Quality Boards	●		
b. Implement new or modify existing ordinances	County and Local Governments	●———	———●	
c. Enforce new or modified ordinance	County and Local Governments/DNR/Attorney General	●———	———	———→

TABLE 27

MAJOR MANAGEMENT FUNCTIONS: LONG-RANGE SCHEDULING AND ALLOCATION
(Continued)

	Responsible Agencies	1978-1979	1979-1984	1984-1994
IV. (Continued)				
2. (Continued)				
(2.2) Urban Cleanliness (Street-sweeping, leaf collection, private parking lot maintenance)				
a. Prepare model ordinance and criteria	Gateway/Water Quality Boards			
b. Implement new or modify existing ordinances	County and Local Governments			
c. Enforce new or modified ordinance	County and Local Governments/DNR/Attorney General			

such controls be allocated to county governments since they are the only local governmental body with any authority over unincorporated areas.

A number of county court judges have expressed the opinion that existing legislation does not allow second class counties to adopt many of the program elements outlined in the attached inquiry. If the Attorney General's Office confirms this opinion, it will be critical to look to the Missouri legislature to specifically amend second class county legislation to authorize the practices recommended in this Final Plan.

2. Clarification/Revision of Sewer District Legislation. A second major area for statutory analysis and change involves sewer districts. A fairly recent Jefferson County Circuit Court decision found unconstitutional the annexation provisions of legislation governing "second class county sewer districts." Because of its emphasis on local control, this type of district has been and will continue to be an attractive management option in newly sewered areas throughout the more rural areas of the region. Yet this judicial decision has cast a cloud upon the applicable legislation. While the decision has not questioned the more important process of district incorporation, it may well encourage future attacks on second class county sewer district legislation. Moreover, this lawsuit has simply highlighted a fact which has become apparent as a result of this 208 study--all of Missouri's sewer district legislation is in need of clarification and substantial reworking. Existing sewer district laws are simply too dated and unresponsive to handle the water quality management demands of 208. It is particularly critical that sewer districts gain the added authority needed to deal adequately with nonpoint source control, nonsewered point source control alternatives and major new funding needs.

3. Additional State Pollution Control Funding. As has been previously suggested in this Final Plan, local governments should immediately initiate the process of gaining from Missouri voters an authorization for supplementing the existing Water Pollution Control Fund. This critical State revenue source, funded through proceeds arising from State bond sales, has been used to match federal grants and local contributions in the development of new and/or expanded treatment facilities. Many of the point source alternatives proposed in this Plan will depend upon the replenishment of the Water Pollution Control Fund. This effort needs to be initiated before the current resources of the Fund have been fully committed. Thus, as was done in 1971, State voters must amend Article III, Section 37(b) of the Missouri Constitution to authorize further State indebtedness for the purpose of water pollution control.

On a separate funding front, the General Assembly needs to make available sufficient funds to meet the request of the Clean Water Commission for additional legal staff in the Attorney General's Office to assist the Commission in its improvement activities.

4. Strengthened State Nonpoint Source Control Legislation. This Final 208 Plan has placed the major responsibilities for nonpoint source control programming and enforcement at the local governmental level. This decision reflects the desire of local counties and municipalities to deal directly with nonpoint control. Major new State involvement in this area was proposed and reflected at a number of points in the study process. Not only did local governments wish to retain autonomy, but also state government itself was not interested in expanding its existing limited role in nonpoint matters. With the assistance of Gateway and the two-tiered Water Quality Board system, local governments in the St. Louis 208 region should be able to adequately implement and enforce proposed nonpoint programs. Should this not occur, however, State government needs the legislative capacity to deal directly with local nonpoint problems. Although this is a lesser priority item than those statutory changes proposed above, a strengthening of Chapter 204 (Water Pollution) of Missouri Statutes is highly recommended.

In particular, this Statutory Section needs to be amended to recognize one concept of "nonpoint" pollution and to at least authorize a potential State role in dealing with construction site runoff and stormwater control, particularly in environmentally sensitive areas. While State involvement of nonpoint source should be viewed primarily as a back-up system, DNR needs to have adequate authority to enforce nonpoint programs when other local efforts have clearly failed.

The 208 studies being done in various parts of the State of Missouri are likely to come to many of the same conclusions regarding legislative priorities. Thus, it is hoped that Statewide support for legislative changes in these areas can be mustered. Gateway, as St. Louis' 208 Coordinator, must, therefore, work not only with the State (the DNR and the Attorney General), but also with other designated 208 coordinators throughout Missouri to achieve these legislative objectives. This effort should begin immediately so that proposed new legislation can be drafted prior to the Fall session of the legislature.