

TABLE OF CONTENTS

List of Acronyms	i
Acknowledgements	ii
Executive Summary	iii
1. INTRODUCTION	1
1.1. Background	1
1.1.1. Clean Water Act Section 208	1
1.1.2. History of sewer service and management agency designations in Pima County	1
1.1.3. The need to update the PAG 208 Plan	2
1.1.4. Use of the 208 Plan	5
1.2. Required Elements in an Areawide Water Quality Management Plan	5
1.2.1. Federal requirements	5
1.2.2. State requirements	6
1.3. Purpose and Scope of this update	6
2. SUMMARY OF ORIGINAL 208 PLAN, AMENDMENTS AND POLICIES	8
2.1. Overview of the original 208 Plan	8
2.2. Point sources identified in the original 208 Plan and amendments	8
2.3. Recommendations and policies in the original 208 Plan and amendments	16
3. PLANNING AREA DESCRIPTION	21
3.1. Natural setting	21
3.1.1. Planning area and watershed boundaries	21
3.1.2. Climate	22
3.1.3. Geology	23
3.1.4. Hydrology	23
3.1.5. Biology	26
3.2. Population	28
3.3. Local governments	29
3.4. Land use / ownership	29
3.5. Water resources	30
3.5.1. Groundwater	30
3.5.2. CAP water	31
3.5.3. Treated wastewater	35
3.5.4. Surface water	38
3.5.5. Stormwater runoff	42
3.6. Water quality	43
3.6.1. Groundwater quality	43
3.6.2. CAP water quality	46
3.6.3. Treated wastewater quality	48
3.6.4. Surface water quality	51
3.6.5. Stormwater runoff water quality	54

4. AGENCY and AREA DESIGNATIONS	58
4.1 Designated planning agency and planning area	58
4.2. Designated management agencies and management areas	58
4.3. Non-DMA service areas	59
4.3.1. Adonis	60
4.3.2. Ajo Improvement Company	60
4.3.3. Arizona State Prison.....	60
4.3.4. Lukeville	60
4.3.5. Marana High School.....	60
4.3.6. Milagro Subdivision	60
4.3.7. MTC.....	61
4.3.8. Organ Pipe Cactus National Monument.....	61
4.3.9. Saguaro Ranch Guest Ranch	61
4.3.10. Sahuarita High School Wetlands	61
4.3.11. University of Arizona Science and Technology Park	61
4.3.12. U. S. Forest Service – Palisades Ranger Station	61
5. EXISTING WASTEWATER TREATMENT FACILITIES AND OTHER POINT SOURCE NPDES DISCHARGES	79
5.1. Drainage areas and sub-basins	79
5.2. Methods for delineating current service areas and estimating service area population ...	79
5.3. Public wastewater treatment facilities in the metropolitan area.....	83
5.3.1. Roger Road Wastewater Treatment Facility	84
5.3.2. Ina Road Water Pollution Control Facility.....	85
5.3.3. Randolph Park Wastewater Reclamation Facility	88
5.4. Public wastewater treatment facilities outside the metropolitan area.....	89
5.4.1. Marana Wastewater Treatment Facility.....	90
5.4.2. Avra Valley Wastewater Treatment Facility.....	92
5.4.3. Green Valley Wastewater Treatment Plant.....	93
5.4.4. Corona De Tucson Wastewater Treatment Facility.....	95
5.4.5. Mount Lemmon Wastewater Treatment Facility	97
5.4.6. Arivaca Junction Wastewater Treatment Facility	98
5.4.7. Rillito Vista Wastewater Treatment Facility	99
5.4.8. Arizona-Sonora Desert Museum Wastewater Treatment Plant	101
5.4.9. Pima County Fairgrounds Wastewater Treatment Facility	101
5.4.10. Sahuarita Wastewater Treatment Plant.....	102
5.5. Non-public wastewater treatment facilities	104
5.6. Other point sources	104
5.7. Municipal stormwater NPDES discharges.....	106
5.8. Existing discharges and WWTFs that are not consistent with the 208 Plan.....	106
5.9. On-site wastewater treatment systems	107
5.10. Wastewater reclamation facilities and effluent reuse sites.....	107

6. EXISTING SOLID WASTE MANAGEMENT	109
6.1. Regulations and definitions	109
6.2. Disposal options	109
6.2.1. Landfills and transfer stations.....	109
6.2.2. Biosolids	112
6.2.3. Recycling.....	113
6.2.4. Household hazardous wastes	114
6.3. Emerging issues	115
7. FUTURE CONDITIONS	116
7.1. Land use plans and population projections	116
7.1.1. Regional population projections	116
7.1.2. Local land use and habitat conservation planning	117
7.2. Population and wastewater flow projections in Designated Management Agency (DMA) sewer service areas	120
7.3. 208 Consistency Factors	123
7.4. Discussion of future conditions for individual facilities.....	131
7.4.1. Metropolitan Facilities.....	131
7.4.2. Non-Metropolitan Facilities	132
7.5. New wastewater treatment facilities	133
7.5.1. Southeast side facility.....	133
7.5.2. Tangerine Road / I-10	134
7.5.3. County line	134
7.5.4. Canoa restoration project	134
7.5.5. Sahuarita	134
7.6. Southlands	134
7.7. Non-public facilities	135
8. WATERSHED APPROACH TO WATER QUALITY MANAGEMENT PLANNING	137
8.1. Watershed scale.....	138
8.2. Planning across jurisdictional boundaries	140
8.3. Nine key elements of a watershed plan.....	144
8.4. Initial elements of a watershed-based water quality management plan for the PAG planning area	146
8.4.1 Lower San Pedro.....	146
8.4.2 Upper Santa Cruz.....	148
8.4.3 Rillito.....	151
8.4.4 Lower Santa Cruz.....	152
8.4.5 Brawley Wash	155
8.4.6 Tenmile Wash	156
8.4.7 Rio Sonoyta.....	156

9. PLAN DESCRIPTION AND POLICIES	163
9.1 Definitions.....	163
9.2. Regionalization.....	163
9.3. Private wastewater treatment facilities	164
9.4. Policy on facilities constructed despite lack of conformance with 208 Plan	165
9.5. AZPDES permits for industrial facilities	165
9.6. AZPDES permits for other activities	165
9.6.1. Municipal stormwater discharges	165
9.6.2. Groundwater remediation projects.....	165
9.6.3. Reclaimed water projects	165
9.6.4. Riparian restoration projects.....	166
9.6.5. DeMinimis discharges.....	166
9.7. On-site systems.....	166
9.8. Conversion of septic systems to on-site wastewater treatment facilities.....	166
9.9. Priority waterbodies.....	166
9.10. Reuse of wastewater.....	167
10. PLAN IMPLEMENTATION AND PROCEDURES.....	169
10.1. Designated management agencies	169
10.2. Construction priorities and timelines.....	171
10.3. Integration of wastewater infrastructure planning with other regional planning efforts	171
10.4. Groundwater.....	172
10.5. Biosolids	172
10.6. Financing options	172
10.7. Federal, state and local regulatory and non-regulatory water quality protection programs	173
10.7.1. Clean Water Act.....	173
10.7.2. Aquifer Protection Permit program	174
10.7.3. Regulations governing the reuse of effluent	174
10.7.4. RCRA.....	175
10.7.5. CERCLA	175
10.7.6. WQARF	176
10.7.7. Nonpoint source program	176
10.7.8. Pretreatment.....	176
10.8. Public participation	176
10.9. Title VI and environmental justice.....	177
10.10. Procedures for determining whether a facility or permit is consistent with the 208 Plan.....	177
10.11. Procedures for amending the 208 Plan	178
10.12. Contents of 208 Plan Amendments.....	179
10.13. 208 Plan amendments establishing new designated management agencies	179
10.14. Procedures for 208 consistency reports.....	179

10.15. Contents of 208 Consistency Reports.....	180
10.16. 208 Plan amendment processing fees	181
10.17. Economic, social and environmental impacts of plan.....	181
10.18. Updating this plan.....	181
10.19. Permitting	181
REFERENCES	183

LIST OF APPENDICES

Appendix A. 40 CFR 130.6	194
Appendix B. PAG Regional Council Approval of Resolution 78-12-07	199
Appendix C. ADEQ Checklist for 208 Plan Amendments	203
Appendix D. Sampling Results from ADEQ's 2004 Draft 305b Report	211
Appendix E. State of Arizona Executive Order 70-2 and Governor Williams' Designation Letter	242
Appendix F. Town of Sahuarita 1999 DMA Description.....	246
Appendix G. PAG Outline for 208 Plan Amendments.....	248

LIST OF FIGURES

Figure 1-1. Designated Planning Agencies in Arizona	3
Figure 2-1. Locations of Point Sources (existing, closed and proposed) Previously Identified in the PAG 208 Plan.....	16
Figure 3-1. PAG 208 Planning Area: Political and Watershed Boundaries	22
Figure 3-2. Groundwater Basins in Eastern Pima County	25
Figure 3-3. Major Vegetation Types	26
Figure 3-4. Land Uses in Eastern Pima County in 2002 (PAG, 2003).....	29
Figure 3-5a. Non-Exempt Water Production Wells in Eastern Pima County	32
Figure 3-5b. CAP Water Resources in Eastern Pima County	33
Figure 3-5c. Treated Wastewater Resources in Eastern Pima County	37
Figure 3-5d. Surface Water Resources in Eastern Pima County	41
Figure 3-5e. Stormwater Detention Basins in Eastern Pima County	42
Figure 4-1. PAG 208 Planning Area Boundary.....	62
Figure 4-2. 1999 Sahuarita Designated Management Area	63
Figure 4-3. Town of Sahuarita Town Limits in 2005	64
Figure 4-4. Pima County and Town of Sahuarita Designated Management Areas and Joint Planning Areas.....	65
Figure 4-5. Pima County Designated Management Area (County-Wide) and Non-DMA Service Areas.....	66
Figure 4-6. Adonis Service Area.....	67
Figure 4-7. Ajo Improvement Company Service Area	68
Figure 4-8. Arizona State Prison Service Area	69
Figure 4-9. Lukeville Border Station WWTF Service Area.....	70
Figure 4-10. Marana High School WWTF Service Area	71
Figure 4-11. Milagro Subdivision WWTF Service Area	72
Figure 4-12. MTC Service Area	73
Figure 4-13. Organ Pipe Cactus National Monument Service Area	74
Figure 4-14. Saguaro Ranch Guest Ranch WWTF Service Area.....	75

Figure 4-15. Sahuarita High School Wetlands Service Area	76
Figure 4-16. University of Arizona Science and Technology Park Service Area	77
Figure 4-17. Palisades Ranger Station WWTF Service Area	78
Figure 5-1. Existing Wastewater Treatment Facilities in Pima County	80
Figure 5-2. Major Pima County Sewer Basins	81
Figure 5-3. Public Metropolitan Wastewater Treatment Facilities	85
Figure 5-4. Roger Road WWTP Current (2005) Service Area.....	86
Figure 5-5. Ina Road Water Pollution Control Facility Current (2005) Service Area.....	88
Figure 5-6. Public Non-Metropolitan Wastewater Treatment Facilities.....	90
Figure 5-7. Marana WWTP Current (2002) Service Area.....	91
Figure 5-8. Avra Valley WWTP Current (2005) Service Area.....	93
Figure 5-9. Green Valley WWTP Current (2002) Service Area	94
Figure 5-10. Corona de Tucson WWTF Current (2002) Service Area.....	96
Figure 5-11. Mount Lemmon WWTF Current (2005) Service Area	98
Figure 5-12. Arivaca Junction WWTF Current (2002) Service Area	99
Figure 5-13. Rillito Vista WWTF Current (2002) Service Area	100
Figure 5-14. Arizona-Sonora Desert Museum WWTF Service Area	101
Figure 5-15. Pima County Fairgrounds WWTF Current Service Area.....	102
Figure 5-16. Sahuarita WWTP Current (2005) Service Area.....	103
Figure 5-17. Pima County Animal Control Center	105
Figure 5-18. Reclaimed Water Facilities.....	108
Figure 6-1. Public Landfills and Transfer Stations in Pima County.....	110
Figure 6-2. Combined diversion rates (ADEQ, 1997, 1998, 1999, 2001, 2002)	114
Figure 7-1. Projected 2030 Population in Eastern Pima County	118
Figure 7-2. Traffic Analysis Zones in Pima County.....	119
Figure 7-3. Area Included in Service Area Population Projections for the Roger Road WWTF.....	123
Figure 7-4. Area Included in Service Area Population Projections for the Ina Road Water Pollution Control Facility.....	123

Figure 7-5. Area Included in Service Area Population Projections for the Avra Valley WWTP	124
Figure 7-6. Area Included in Service Area Population Projections for the Corona de Tucson WWTF	124
Figure 7-7. Area Included in Service Area Population Projections for Marana WWTP	125
Figure 7-8a. Area Included in Service Area Population Projections for Green Valley WWTP (excludes Joint Planning Areas)	126
Figure 7-8b. Area Included in Service Area Population Projections for Green Valley WWTP (includes Joint Planning Area)	127
Figure 7-9a. Area Included in Service Area Population Projections for Sahuarita WWTF (excludes Joint Planning Areas)	128
Figure 7-9b. Area Included in Service Area Population Projections for Sahuarita WWTF (includes Joint Planning Areas)	129
Figure 7-10. Southlands Area	136
Figure 8-1. Watersheds in Arizona and Designated Planning Area Boundaries	142
Figure 8-2. Watersheds within PAG's Designated Planning Area	144
Figure 8-3. Lower San Pedro Watershed in Pima County	147
Figure 8-4. Upper Santa Cruz Watershed in Pima County	149
Figure 8-5. Rillito Watershed in Pima County	153
Figure 8-6. Lower Santa Cruz Watershed in Pima County	154
Figure 8-7. Brawley Wash Watershed in Pima County	160
Figure 8-8. Tenmile Wash Watershed in Pima County	161
Figure 8-9. Rio Sonoyta Watershed in Pima County	162
Figure 9-1. Priority Streams in Pima County	168
Figure 10-1. Town of Sahuarita Designated Management Area	170

LIST OF TABLES

Table 2-1.	Point Sources Identified in the June 1978 PAG Areawide Wastewater Management Plan	9
Table 2-2.	Amendments and Updates to the PAG 208 Plan, and Other Related Regional Council Actions, 1978 – 2003.....	10
Table 2-3.	Point Sources Identified in Amendments and Updates to the PAG 208 Plan Since 1978.....	12
Table 3-1.	Endangered and Threatened Species in Pima County	27
Table 3-2.	Population Growth in Pima County – 1980 to 2000	28
Table 3-3.	2003 Water Resources in Eastern Pima County	30
Table 3-4.	Central Arizona Project Contracts in the Tucson AMA.....	31
Table 3-5.	Permitted USFs and GSFs Using CAP Water in the TAMA.....	34
Table 3-6.	Effluent Use in Pima County	35
Table 3-7.	Cumulative Effluent Recharge Volumes in Tucson AMA USFs, December 2003..	36
Table 3-8.	Annual Effluent Rights to Wastewater Discharged from Tucson Metropolitan Wastewater Treatment Plants	38
Table 3-9.	Local Effluent Entitlements in 2003.....	38
Table 3-10.	Perennial Streams in Pima County	38
Table 3-11.	Intermittent Streams in Pima County.....	39
Table 3-12.	Concentrations of Selected Constituents In Tucson-Area Groundwater, 2003-2004	43
Table 3-13.	Upper Santa Cruz Basin Groundwater Quality Data Summary.....	43
Table 3-14.	WQARF Sites in Pima County.....	45
Table 3-15.	Summary of Water Quality for Untreated CAP Water at the Clearwater Site, October 1997-April 2000 (Tucson Water, 2000b)	46
Table 3-16.	Pima Mine Road Recharge Project Source Water Quality Monitoring Results	47
Table 3-17.	Roger Road Wastewater Treatment Facility Discharge Monitoring Report, 2000..	48
Table 3-18.	Ina Road Water Pollution Control Facility Discharge Monitoring Report, 2000	49
Table 3-19.	Quarterly Priority Pollutant Organic Compounds Detected in Effluent from Ina Road WPCF, 2000	49

Table 3-20. Quarterly Priority Pollutant Organic Compounds Detected in Effluent from Roger Road WWTF, 2000	49
Table 3-21. Priority Pollutant- Metals, Quarterly Sampling for 2000	50
Table 3-22. Tucson Water Reclaim System Water Quality, January – July 2001	51
Table 3-23. Analytical Results for Reclaimed Water Quality	51
Table 3-24. Average Values, Water Quality Data for Selected Streams in Pima County, September 1998-June 2000.....	53
Table 3-25. Historical and Current Impaired Waters in Pima County	54
Table 3-26. FY 2003-2004 Monitoring Results for City of Tucson Stormwater	54
Table 3-27. FY 1999-2000 Monitoring Results for Pima County Stormwater.....	56
Table 3-28. 1989 Stormwater Quality Data for the Santa Cruz River at Congress Street Bridge	57
Table 3-29. 1986-1992 Stormwater Quality Data for Tanque Verde Creek at Sabino Canyon Road	57
Table 3-30. 1986-1993 Stormwater Quality Data for Rillito Creek at Dodge Boulevard	57
Table 6-1. Disposal Tonnage per Landfill, 1996 – 2002.....	111
Table 6-2. Historical Volumes of Land Applied Biosolids	112
Table 6-3. Recycled Material Weights (tons) in Pima County	113
Table 6-4. Household Hazardous Waste Program Historical Waste Streams.....	114
Table 7-1. Projected Population Growth in Eastern Pima County*	117
Table 7-2. Projections of Total Population for Service Areas of DMA Wastewater Treatment Facilities.	120
Table 7-3. Projections of Sewered Population for Service Areas of DMA Wastewater Treatment Facilities.	121
Table 7-4. Flow Projections for Service Areas of DMA Wastewater Treatment Facilities.	122
Table 7-5. Future Capacities for Non-Public Facilities	135
Table 8-1. Features of the Watersheds in PAG’s Designated Planning Area	157
Table 9-1. Priority Waterbodies in Pima County.....	167