

Blues
Stinnett
Gorton
Farmer
Martin
Henson
Lane

A G E N D A

Environmental Quality Committee

March 8, 2011

3:00 P.M.

1. Environmental Policy Outreach & Education (1-20)
2. Environmental Policy Energy Management Program (21-34)
3. McConnell Springs Water Quality Report (35-59)
4. Monthly Financials (60-63)
5. Referred to Committee (64)

"Environmental Quality Committee, to which shall be referred matters relating to the Department of Environmental Quality and its divisions, and any related partner agencies."

-Council Rules & Procedures, Section 2.102(1)

Effective January 1, 2011. Adopted by Urban County Council October 14, 2010

Committee Schedule. 3:00 PM except noted

January 18

February 15 (1:00 PM)

March 8

May 10

September 20

November 29

Education and Outreach

Division of Environmental Policy

➤ Mission:

To inform and empower citizens to adopt sustainable practices that protect & enhance water quality, reduce landfill bound waste through increased recycling and composting, and improve the energy efficiency of their homes and businesses.

Successful Mission:

- Requires behavioral changes
- Requires consistent messaging
- Requires persistent messaging

Brand: Live Green Lexington

- Energy efficiency
- Water quality
- Waste reduction/recycling

Behavior Change-Social Marketing

- Research and analyzing data
- Target the market/audience
- Target the message
- Performance measures/evaluation

Water Quality Outreach

- Regulatory requirements
- Water quality data
- Audience research

Survey Background

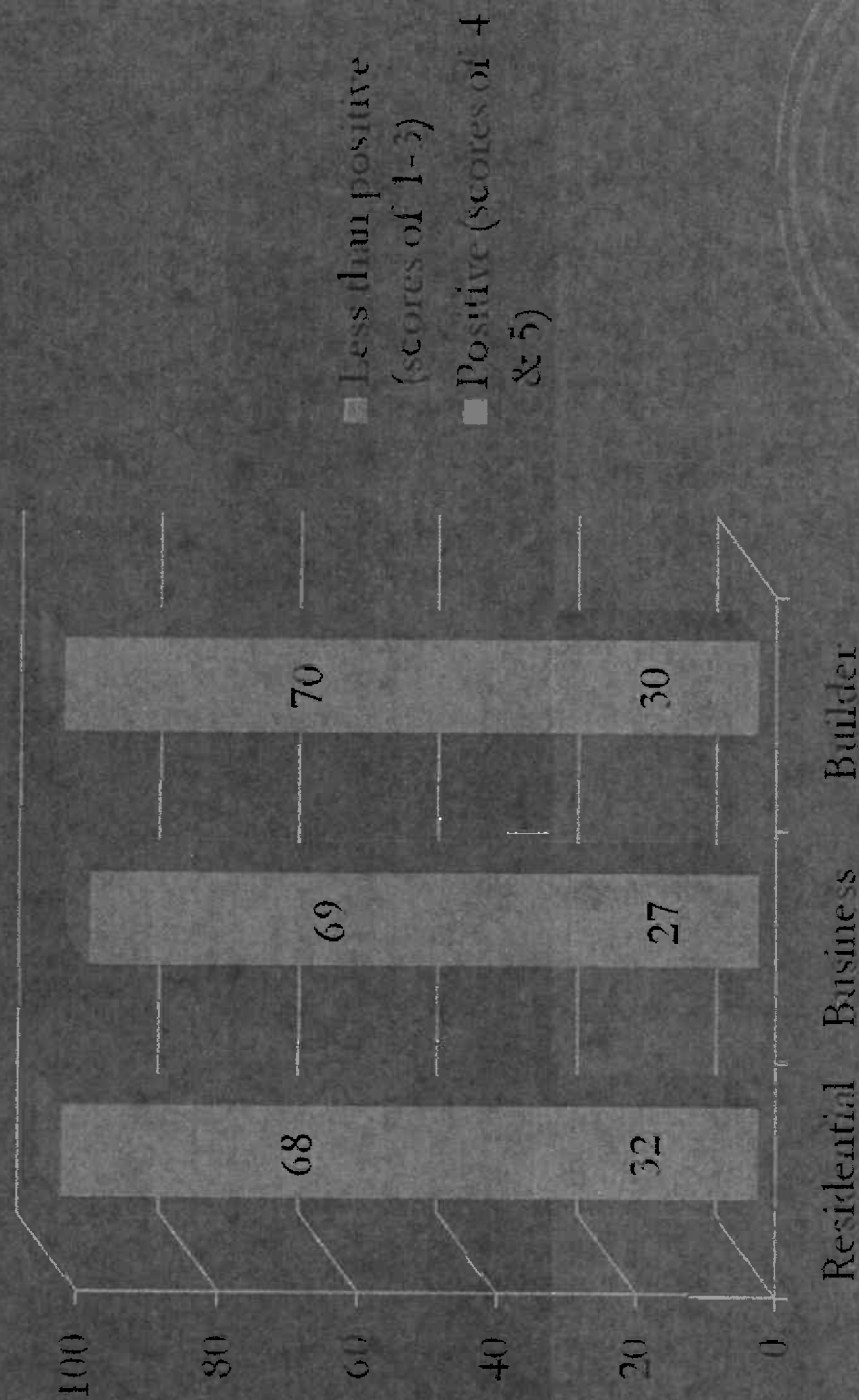
- August, 2009, Tetra Tech and City of Lexington commissioned Preston-Osborne to conduct a baseline study regarding stormwater issues.
- Target audiences:
 - Residential
 - Business
 - Development/builders

Only 24 % of residents and
27 % of businesses knew the
difference between sanitary and
stormwater sewer systems.

Watersheds

- Do you live in a watershed?
 - 56% do not know
 - 29% said they do not live in a watershed
 - 8% said they live in a watershed, but do not know which one

Figure 6—Performance rating of local government regarding the control of stormwater runoff and drainage
(using a 5-point scale; results do not exclude responses of “don’t know”)

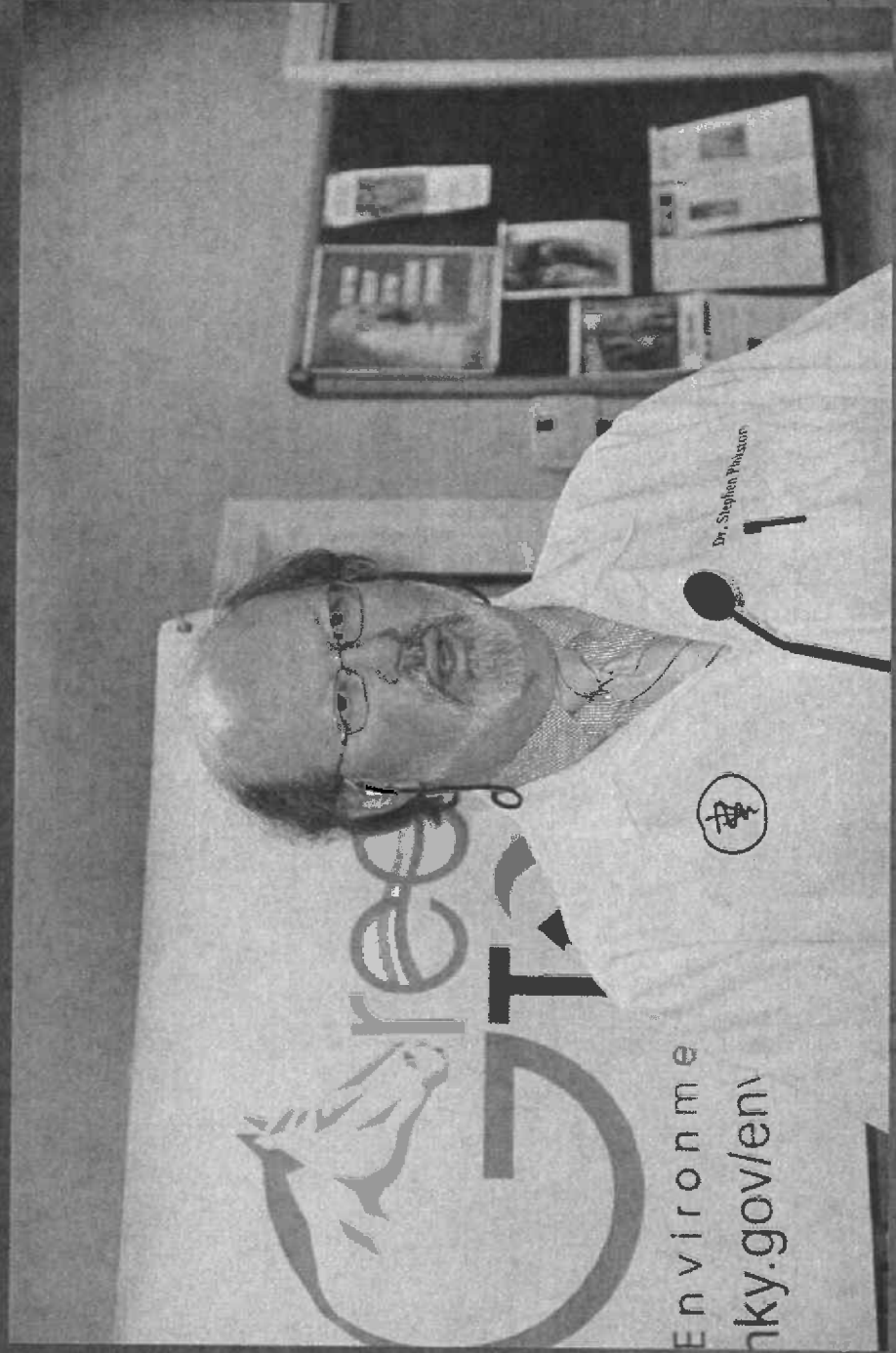


Case study: Water Quality

- Watersheds
- Proper lawn care practices
- Rains barrels, rain gardens
- Pet waste

Pet Waste

➤ News conference:



Pet Waste

- Events: Bark in the Park, Dog Paddle



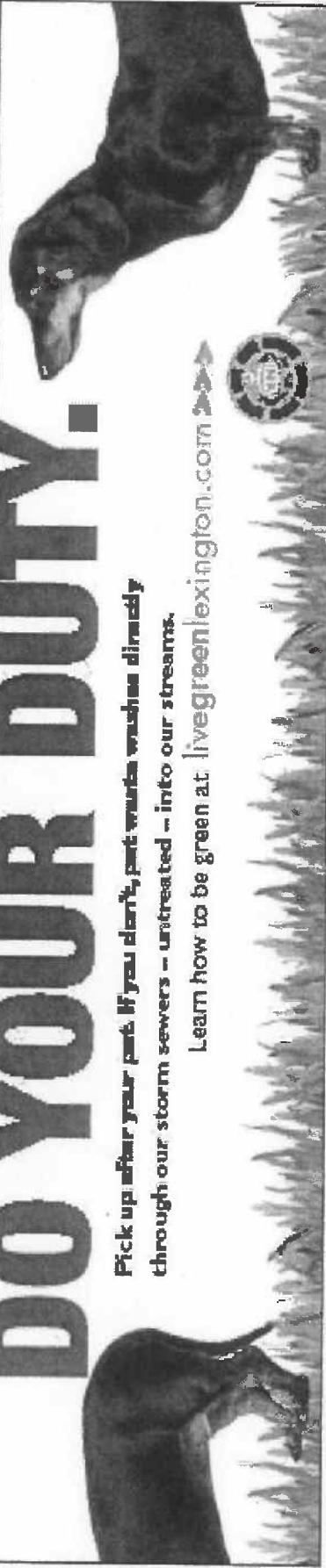
Pet Waste

- Paid advertising: print, radio, TV

DO YOUR DUTY.

Pick up after your pet. If you don't, pet waste washes directly through our storm sewers -- untreated -- into our streams.

Learn how to be green at: livegreenlexington.com



Waste Reduction-Recycling

- 2010 Preston-Osborne Survey
- Behavior change: to increase recycling
 - Reduce transportation, landfill costs
 - Increase recycling revenue
 - Support regional economy

Figure 16—Self-described Recycling Habits
of Fayette County Households

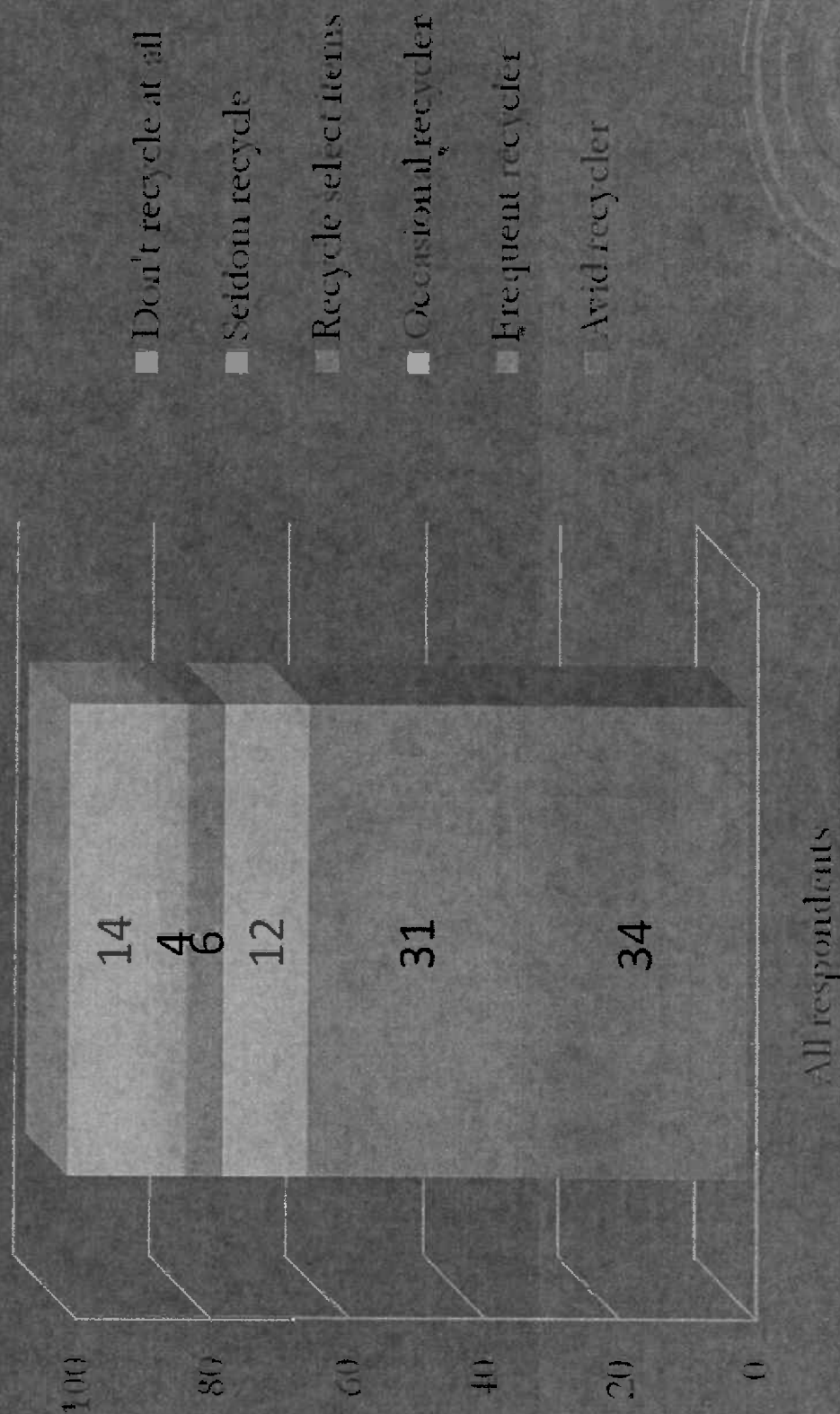


Figure 17—Why People Don't Recycle More
(responses listed by at least 4 percent of all respondents)

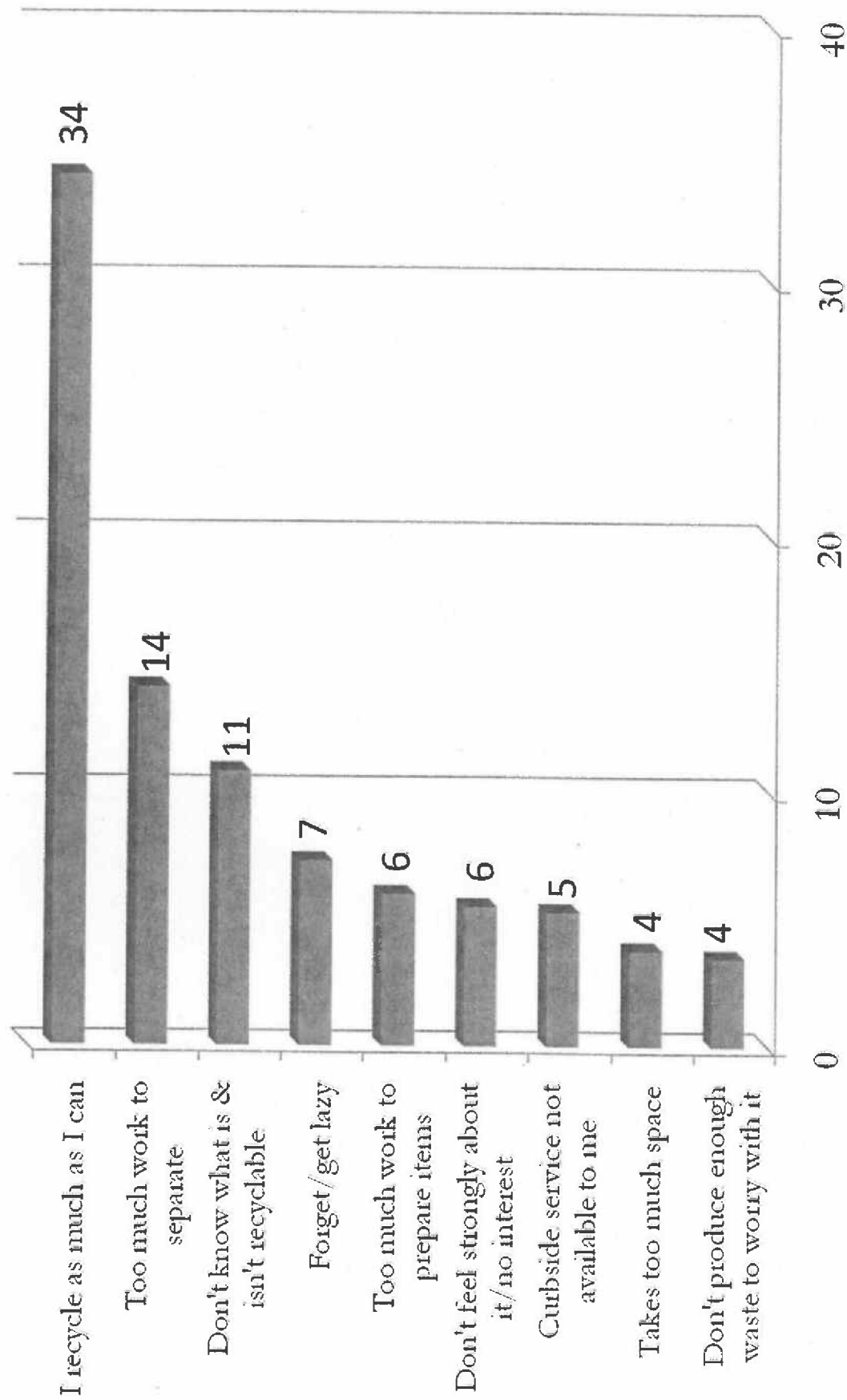
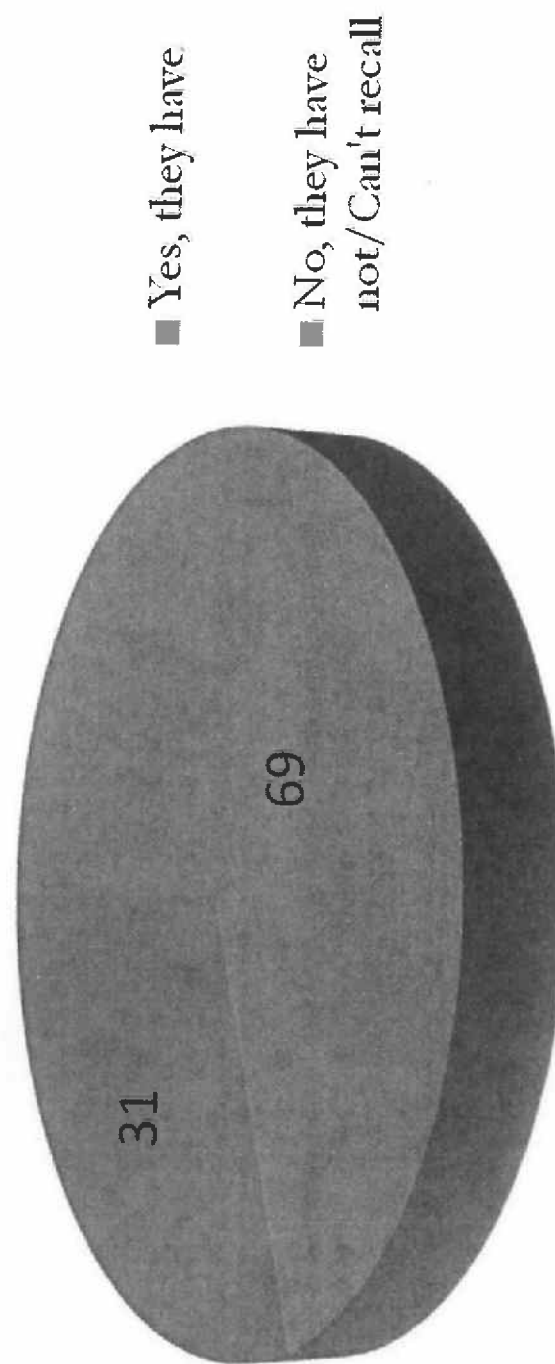


Figure 18—Whether School-Age Children Have Shared a Recycling
Message with Their Parents That They Learned at School



Performance Measures-reaching the community

- MS4 Permit requirements
- Grant programs
- Kentucky PRIDE litter grant
- Adopt-A-Spot
- Great American Cleanup events
- Neighborhood meetings
- Requests for recycling service

Outreach and Education

- Live Green brand-coordinated message
- Research and data
- Mixed media
- Performance measures

Presentation to EQ Committee 3/8/2011

Energy Management

Utility Billing Review

Energy Budgeting

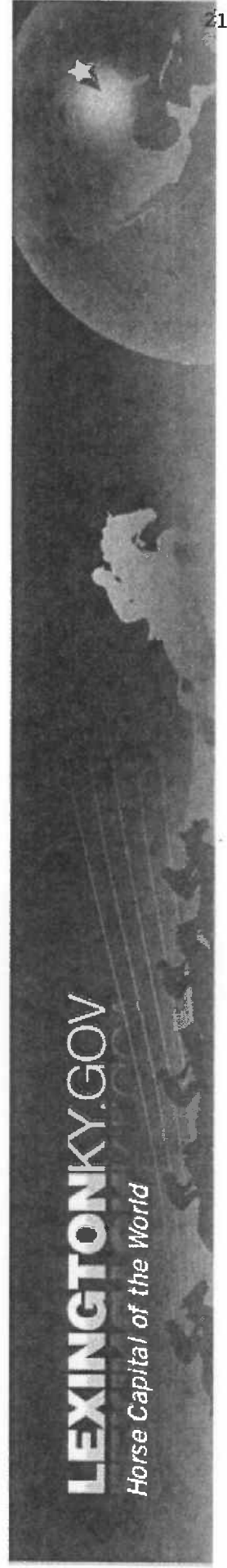
Energy Reporting

Facilities Management

Engineering Consultation

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Utility Billing Review

Quality & Assurance Program

- Automated bill audit
- Identify errors, low usage, and trend deviation

Tariff Review

Fuel purchase agreements

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Energy Budgeting

Baseline Energy Consumption, by

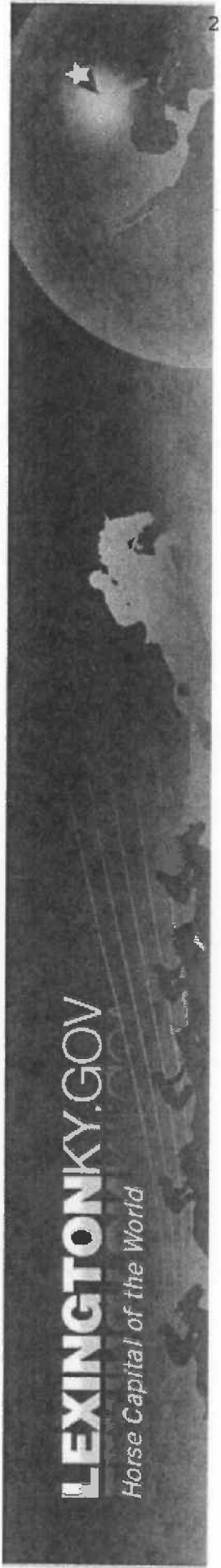
- Commodity, Facility, or Department

Forecast Energy Consumption

- Apply rate increases
- Apply new loads

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Energy Reporting

Associate consumption with property/activity

Track and compare to benchmarks

Document and report to end users

Determine energy savings from

- Operational changes
- Procurement adjustments
- Energy efficiency improvements

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Facilities Management

Energy Audits

- Identify points of end use
- Data logging and analysis
- Improvement recommendations

Operational Guidelines

- Building controls, scheduling and setpoints
- Policies for employees (energy literacy)

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Engineering Consultation

Technical Review

- Building Design
- Energy Modeling
- Equipment Selection

Demand Management

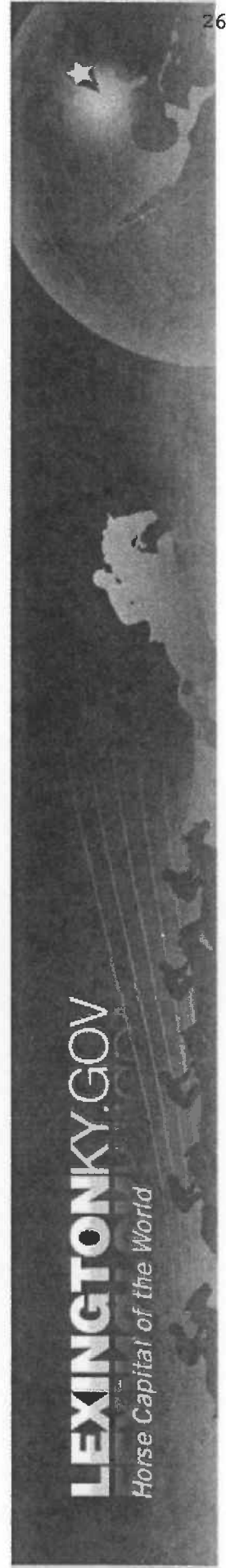
Fuel Options

Renewable Energy

Carbon Reporting

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About Us • Mayor Jim Newberry • American Recovery and Reinvestment Act

Energy Efficiency and Conservation Block Grant

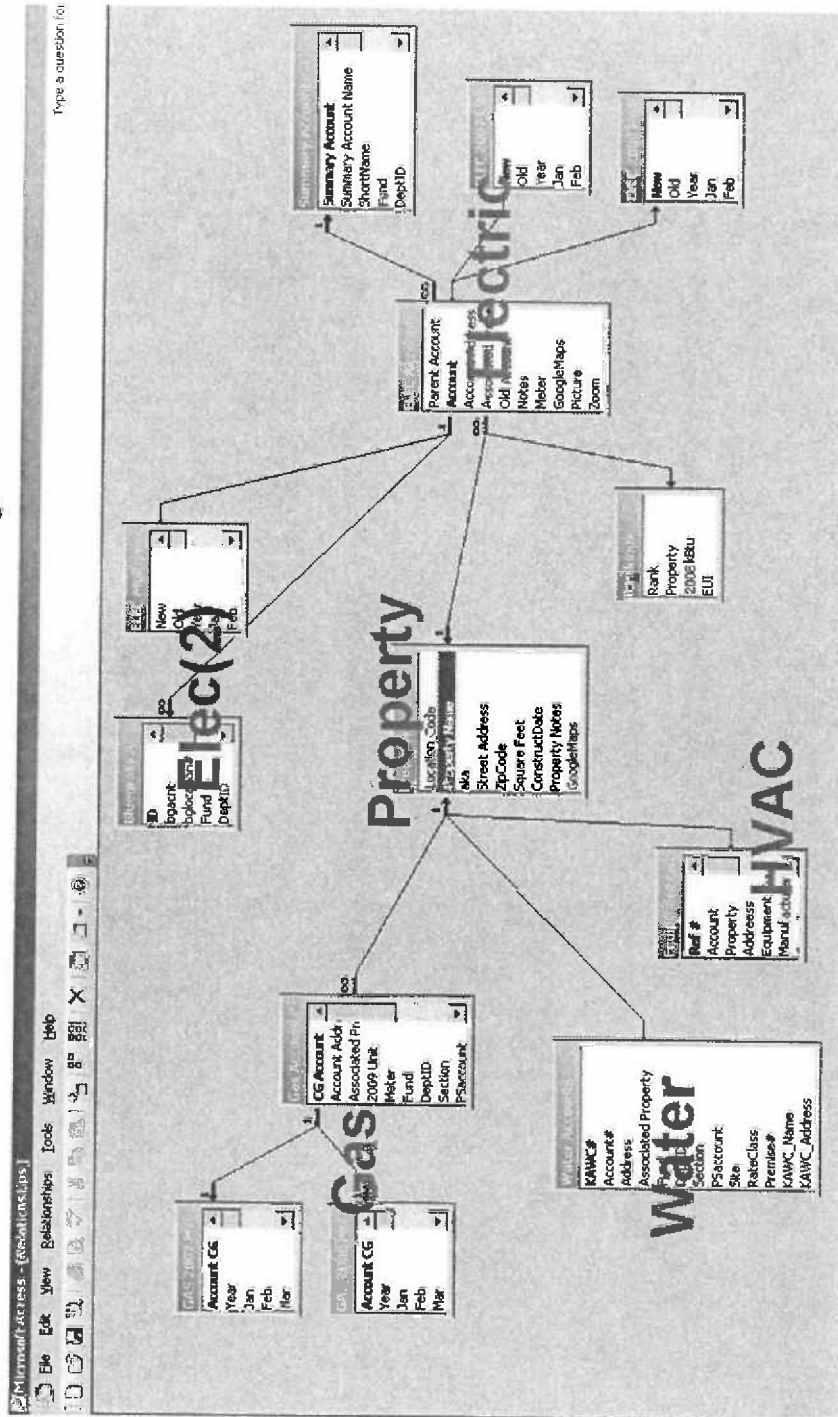
E-mail Print

PROJECT	BUDGET	CONTACT
Lead By Example		
1 <u>Energy Management Technology</u>	\$180,000	jbush@lfucg.com
2 <u>Government Energy Retrofits</u>	\$1,112,800	jbush@lfucg.com
Empower Lexington		
3 <u>Community Energy Awareness</u>	\$297,000	tomw@lfucg.com
4 <u>Community Energy Retrofits</u>	\$314,000	tomw@lfucg.com
5 <u>Intelligent Transportation System</u>	\$500,000	RonH@lfucg.com
6 <u>Community Bike Program</u>	\$175,000	kgleason@lfucg.com
7 <u>Green Roof Education Program</u>	\$25,000	tomw@lfucg.com
8 <u>Recycling Efficiency Program</u>	\$150,000	stevet2@lfucg.com
Total	\$2,753,800	

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The 'Old' Days



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EnergyCAP

EnergyCAP.

Buildings & Meters

Facility

ACCOUNTING

FACILITIES

Unknown Locations?

Buildings

<5K Small

<20K Medium

>20K Large

Community Centers

Black and Williams Center

Carver Community Center

Dunbar Community Center

Gainesway Community Emp

Kenrick Community Center

Detention Center

Fayette Court Complex

Fire

Government Center Complex

Parking Garage

Phoenix Building

Police

Waste / Recycling

Parks

PowerViews

General

Summary

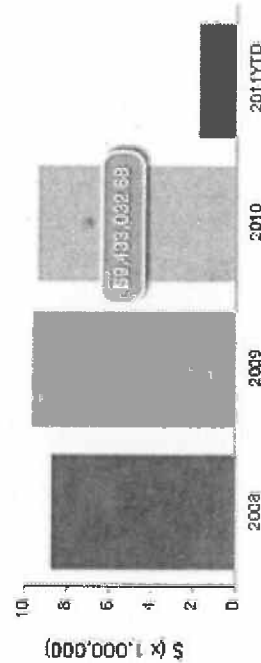
Commodity

Monthly

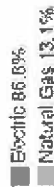
Greenhouse Gas

Fiscal Year Summary (FY ends in Jun of year shown) Last updated: 11/17/2010 13:06

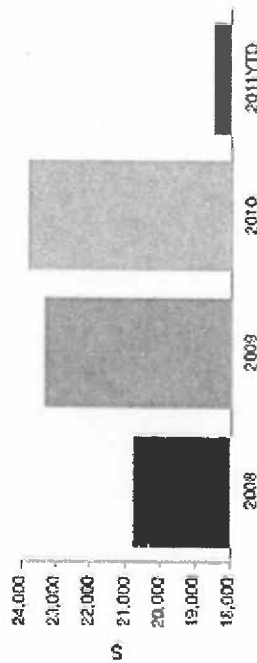
Total Cost Summary



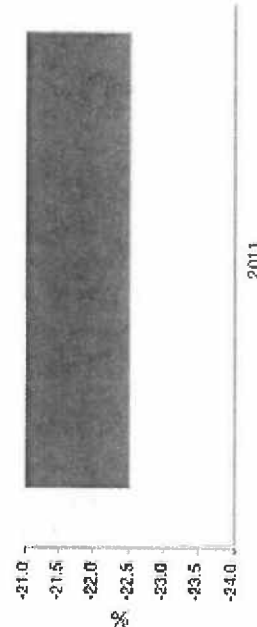
Energy Cost Percentage



Equivalent YTD (Per Day)



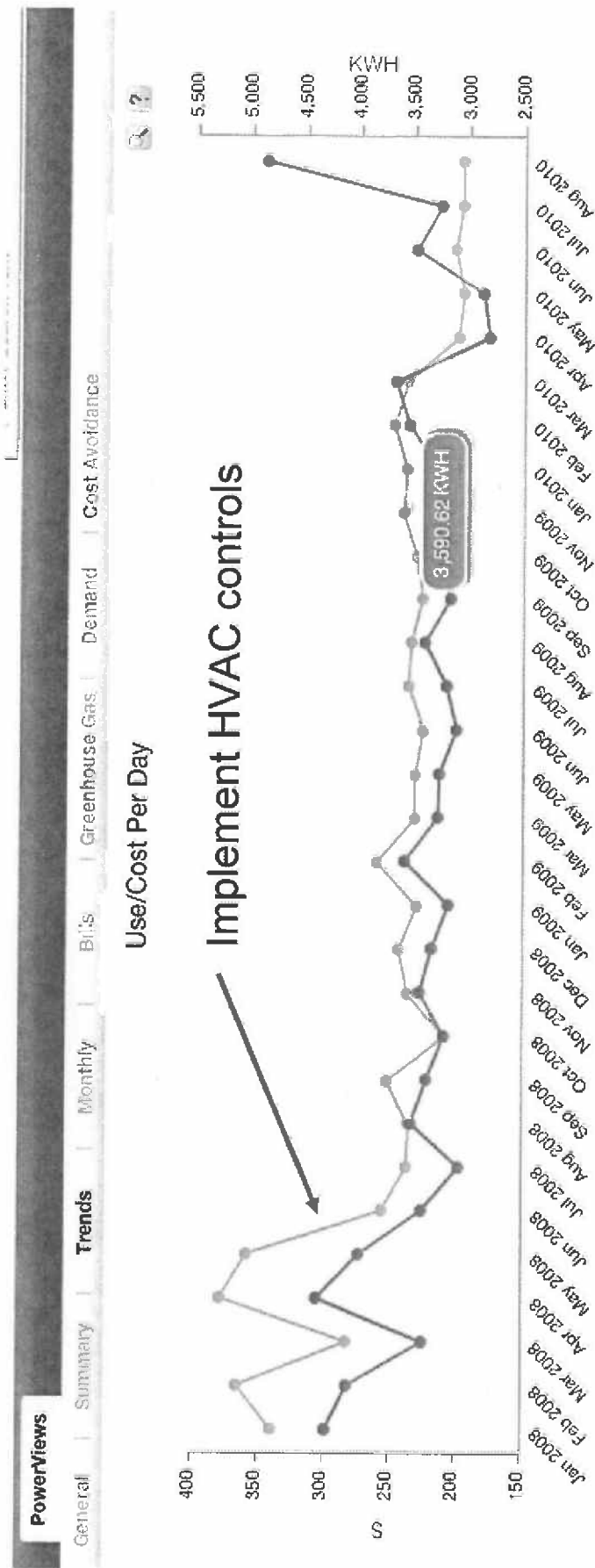
Current YTD vs. Same Period Last Year



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Trending

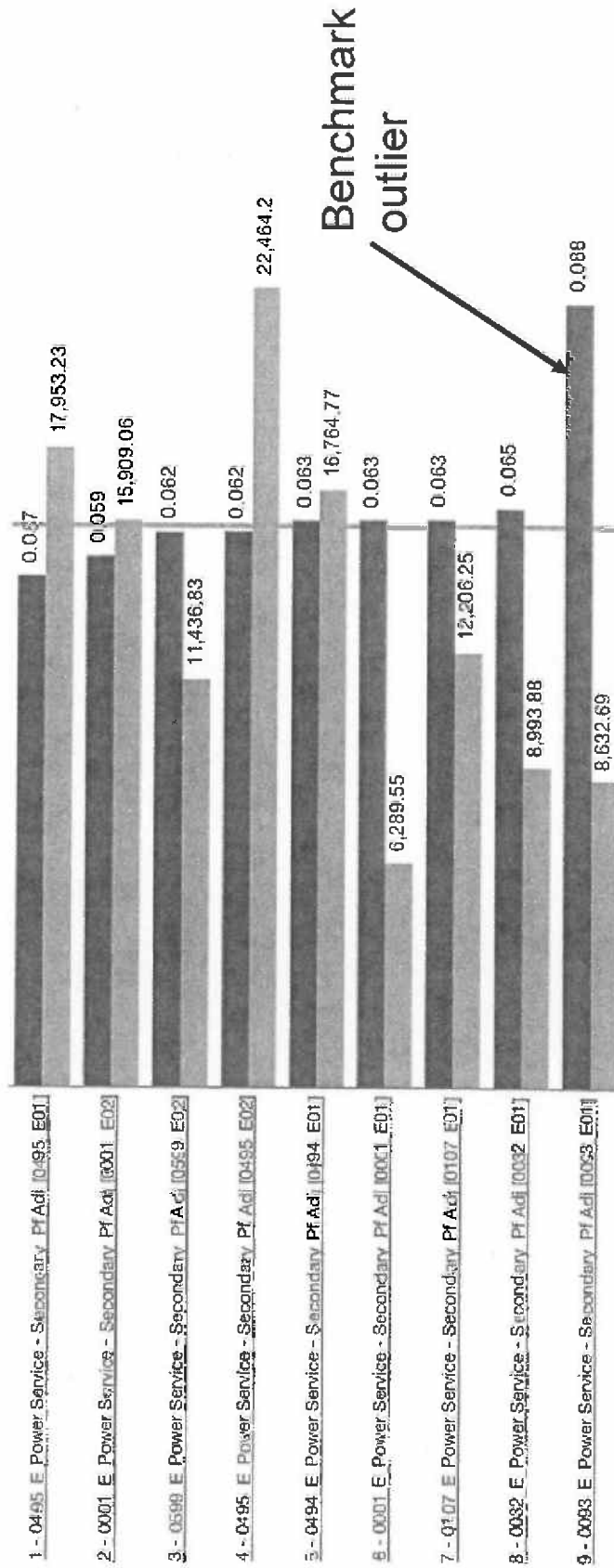


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Benchmarking

Average Unit Cost (\$ per kWh) (Average = 0.063)

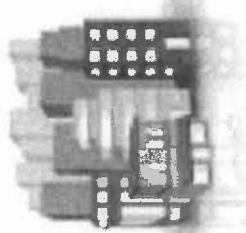


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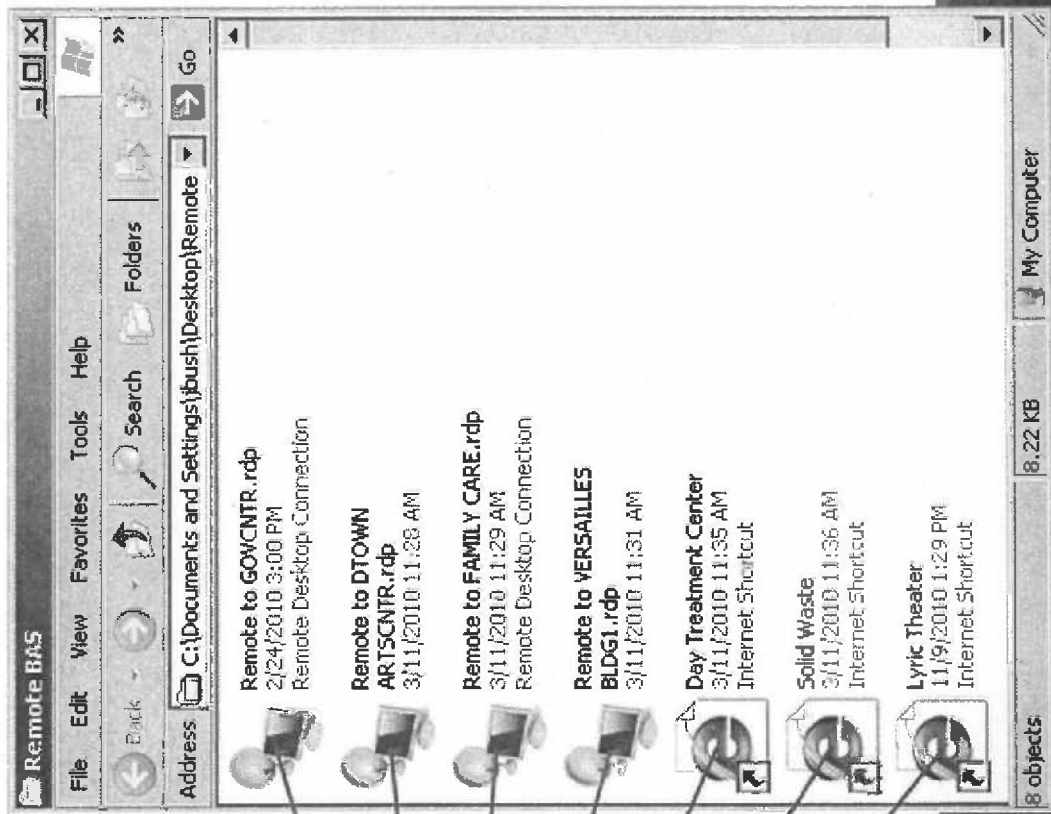
Interval Data

EnergyCAP.
Enterprise



Blue Grass Energy
A Touchstone Energy Cooperative

?



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Government Energy Retrofits

Dunbar CC

Black & Williams CC

Pilot studies (potential)

- LED street lighting
- Solar hot water
- Solar PV

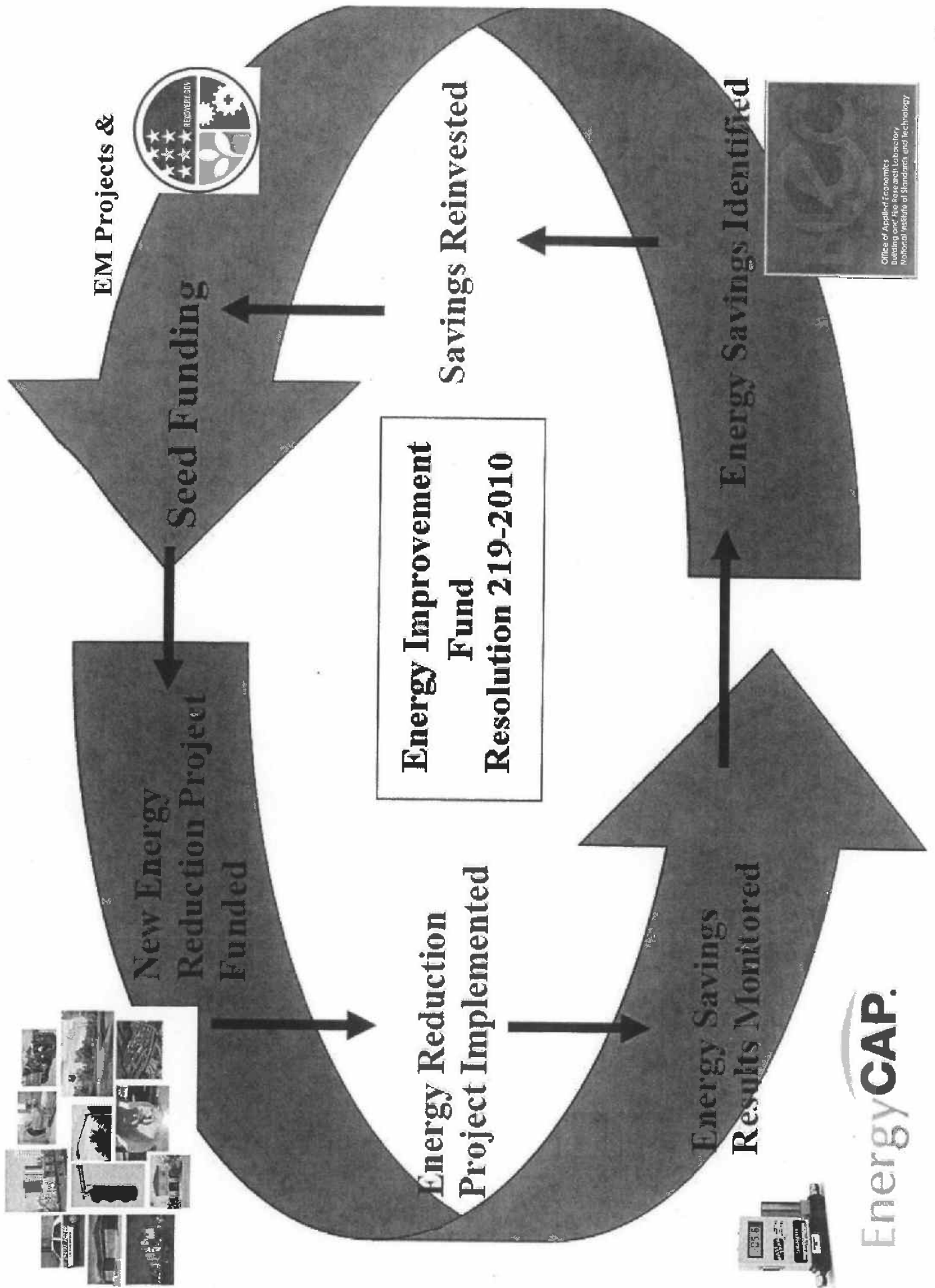
General improvements

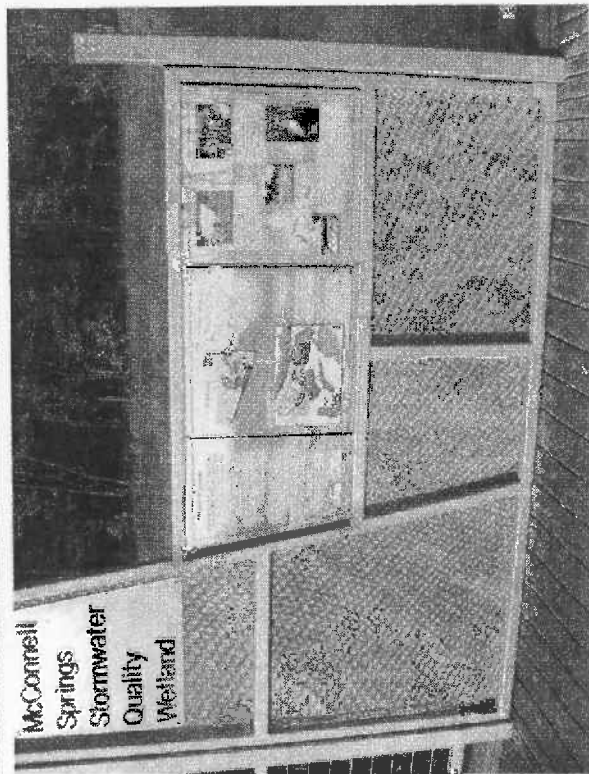
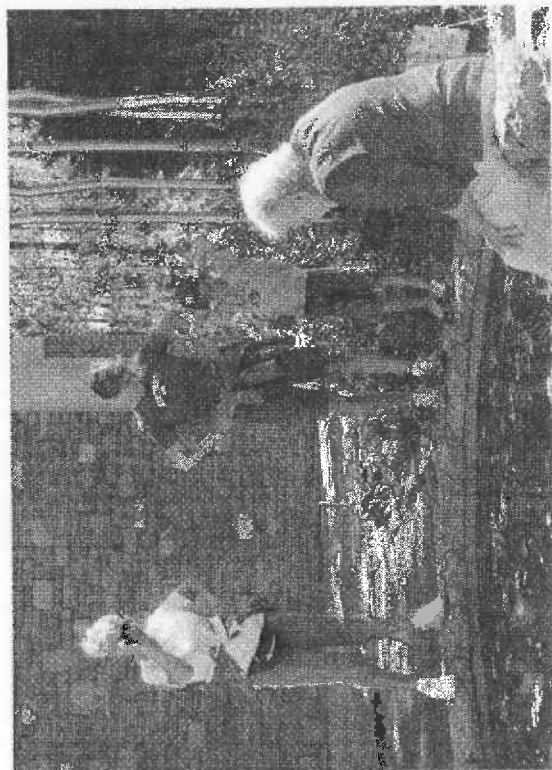
- Lights
- Windows
- Insulation



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McConnell Springs

Stormwater Quality Wetland Project

Environmental Quality Committee

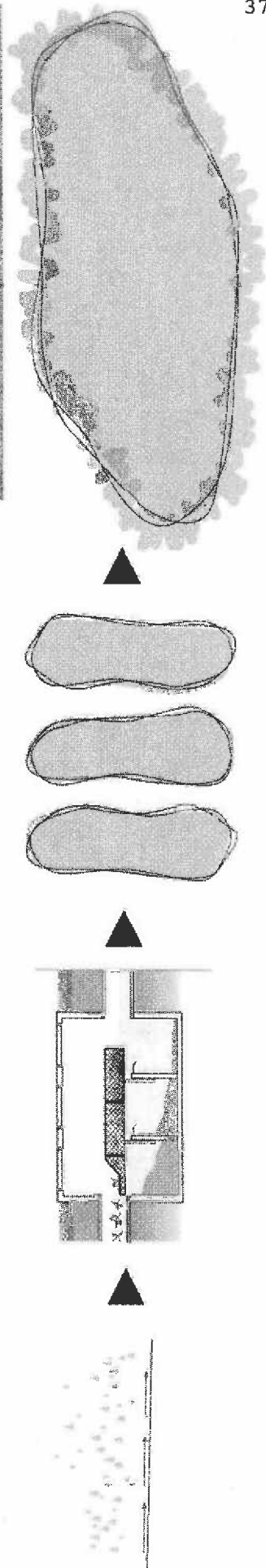
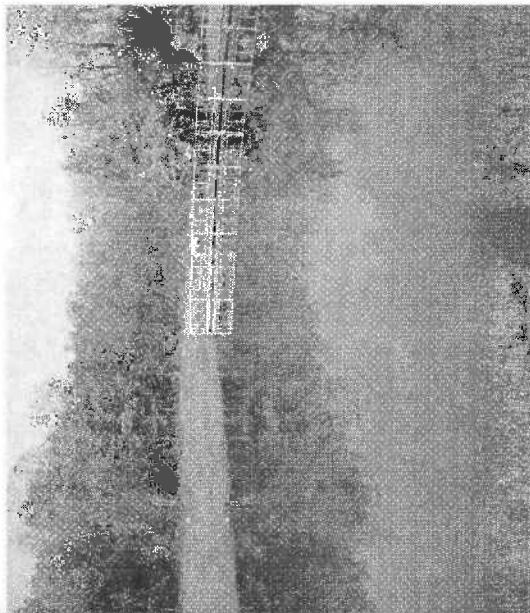
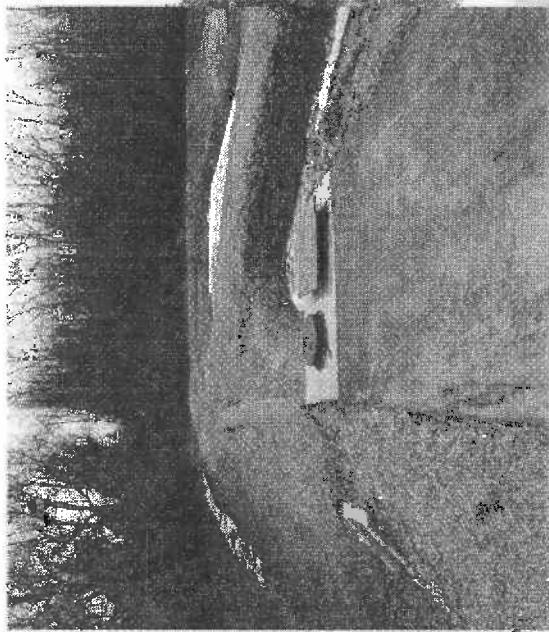
March 8, 2011

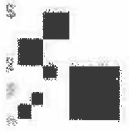
Charles Martin, P.E.
David Price Ph.D.
Division of Water Quality

The “pond” before construction

- Original concept – 2004.
- Partially funded via state administered 319h grant provided by USEPA
- Project languished until 2008 when council funded the unfunded gap.

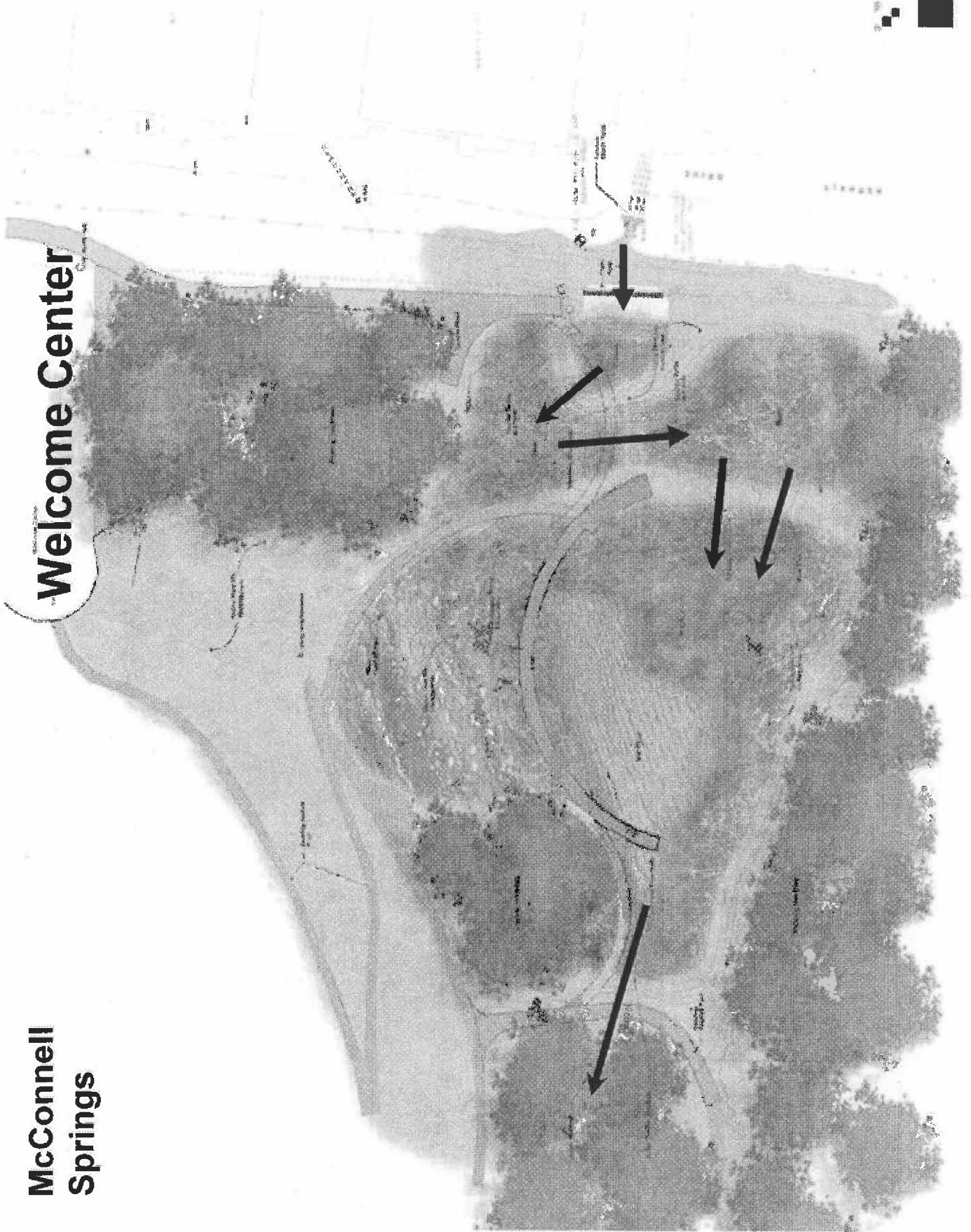
Layout





**McConnell
Springs**

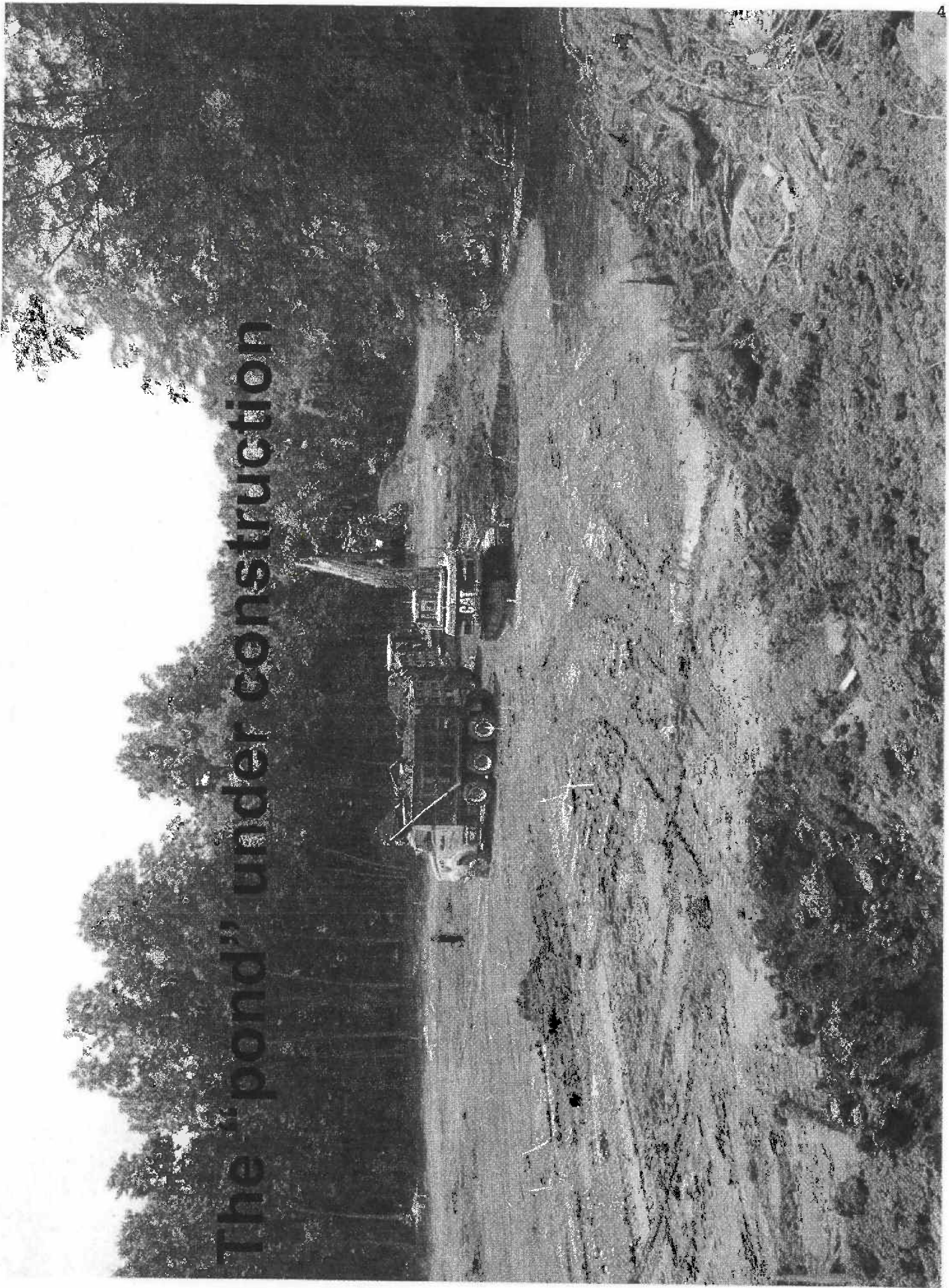
Welcome Center



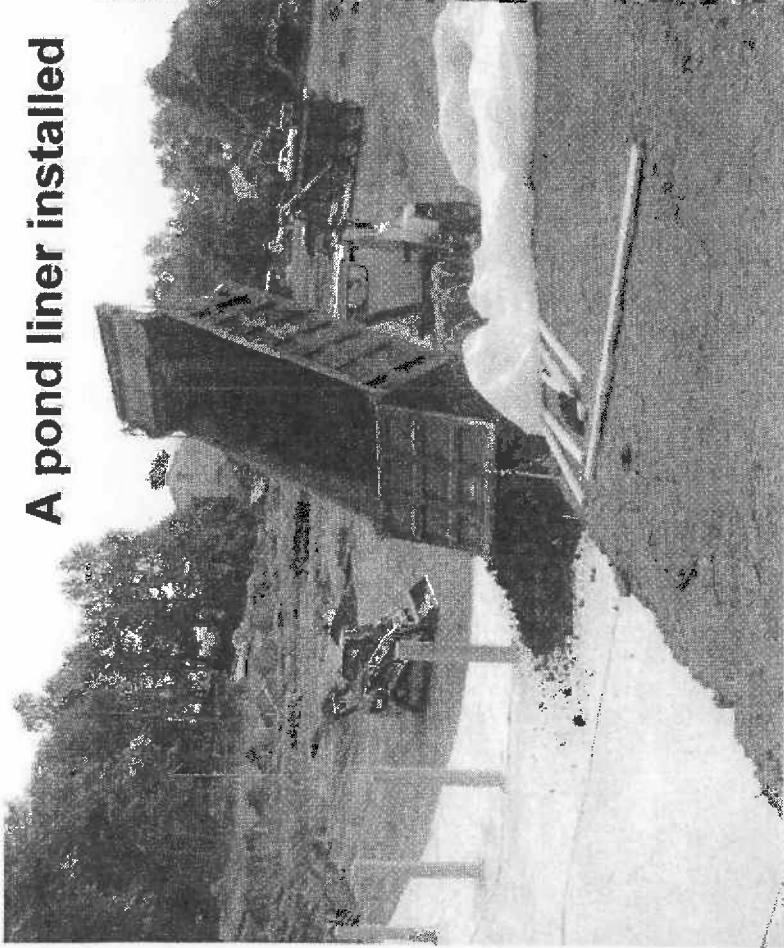
Background

- Construction completed in 2009
 - ✓ Design cost = \$76,800
 - ✓ Construction cost = \$356,480
- Artwork and plantings scheduled for spring 2011 – estimated cost of \$6,000.

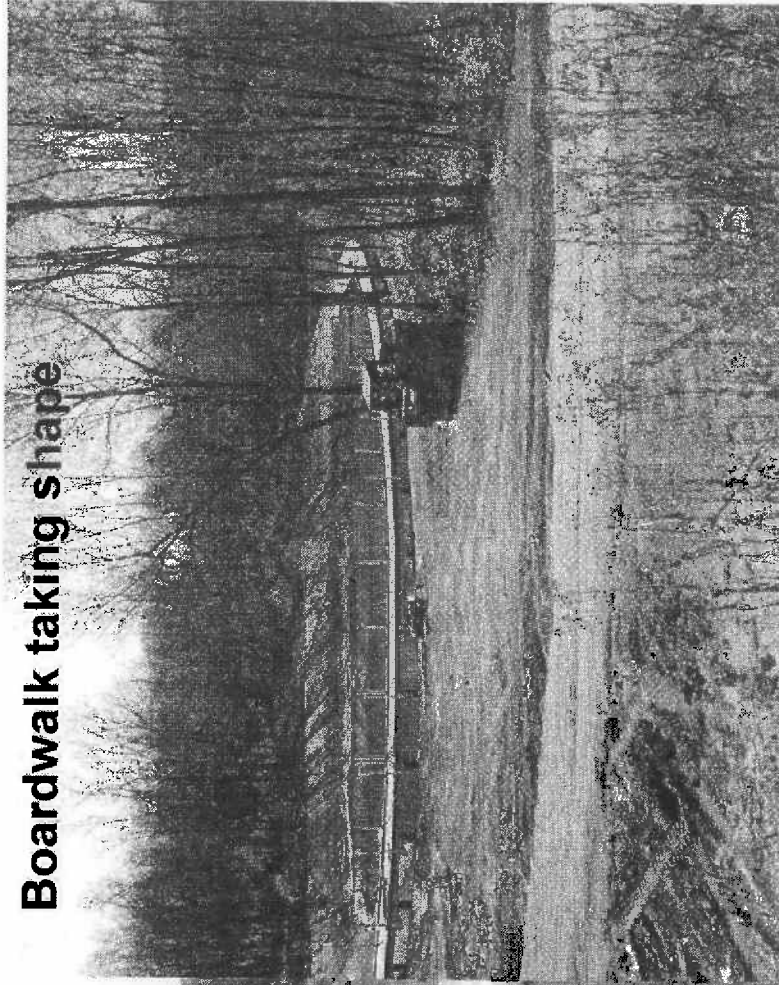
The "pond" under construction



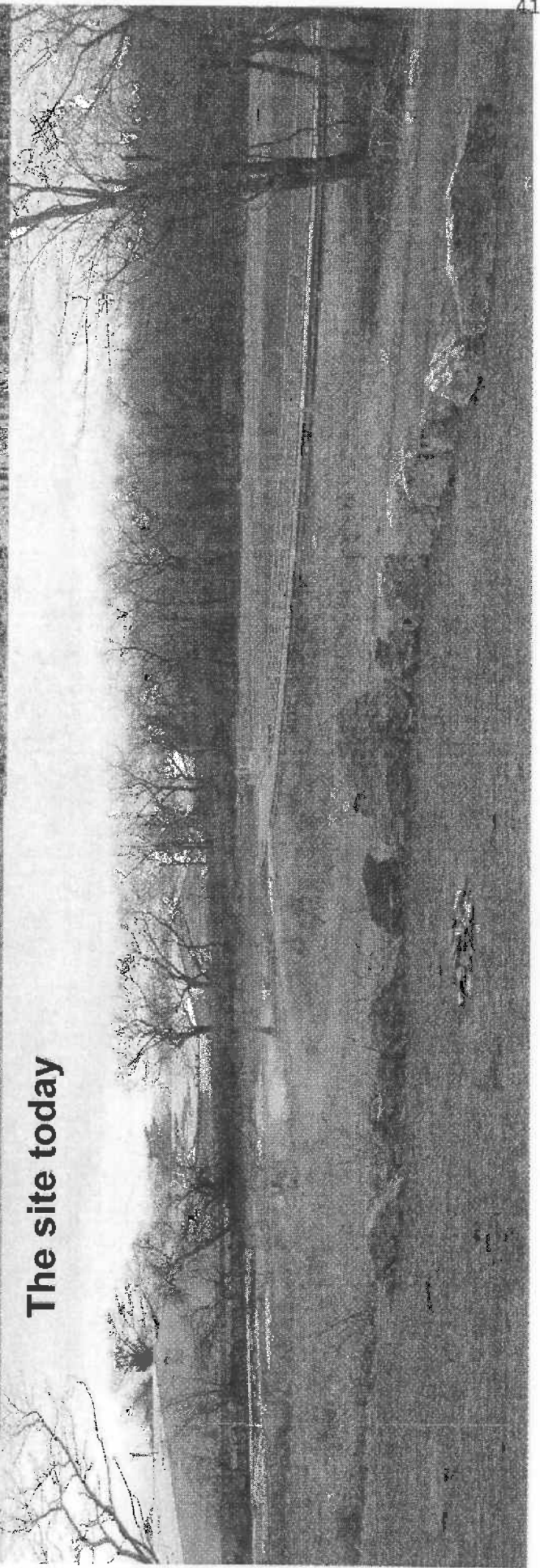
A pond liner installed



Boardwalk taking shape



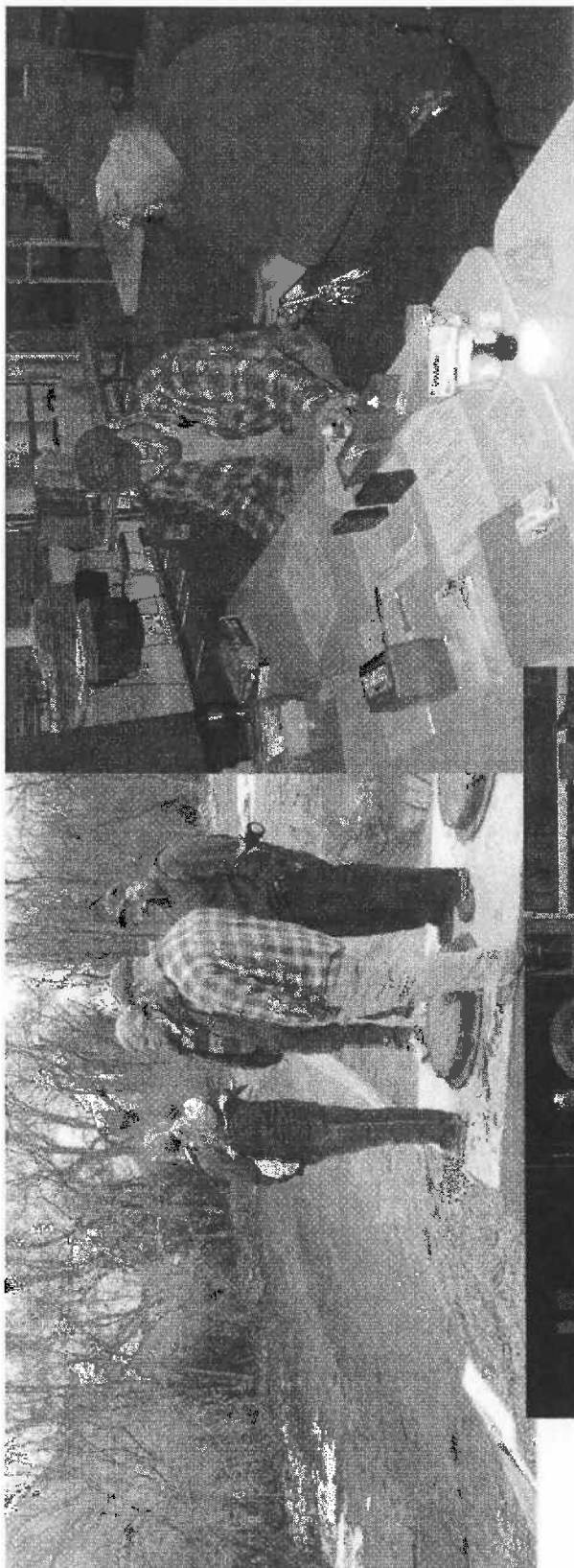
The site today



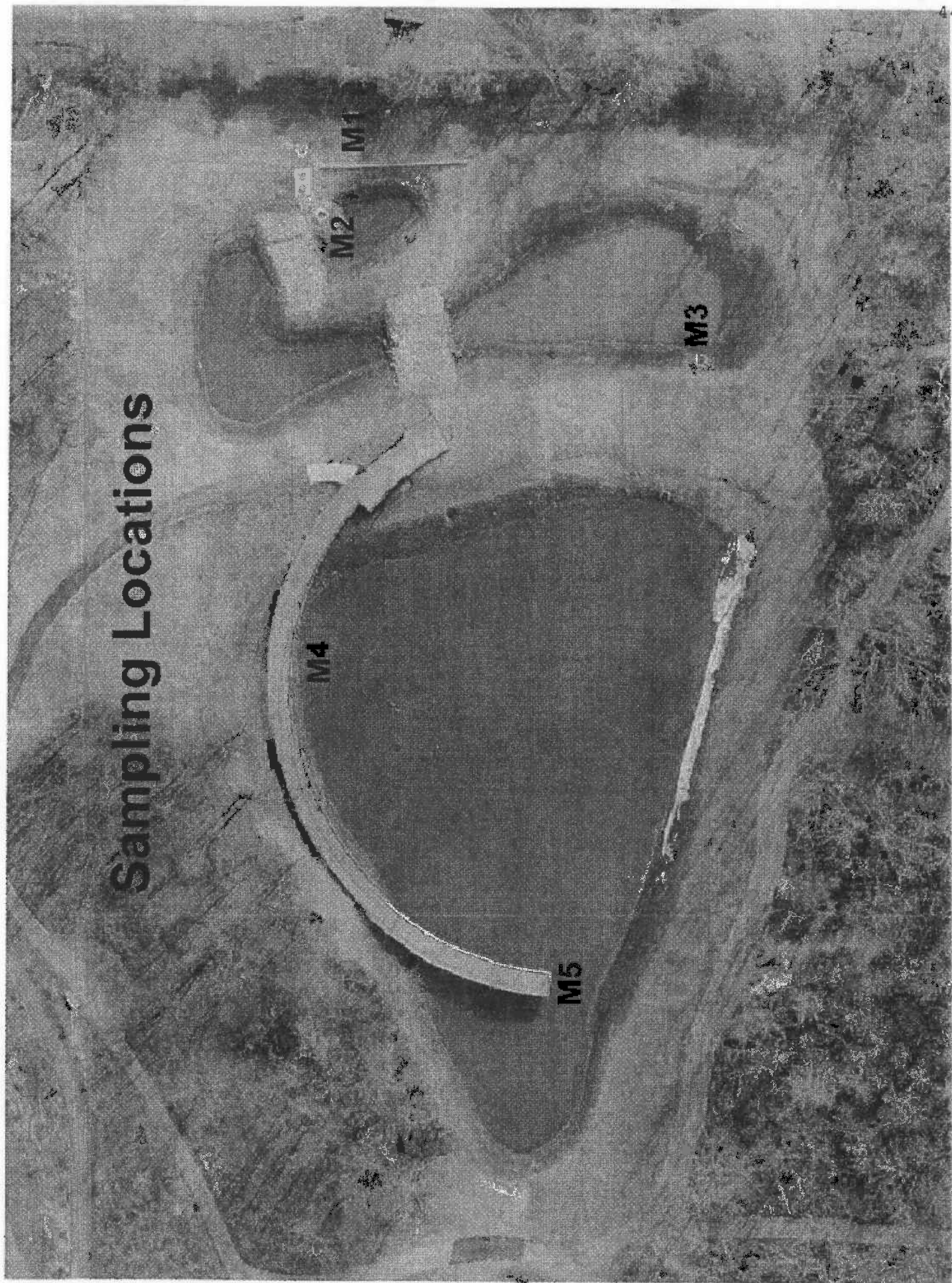
Outcomes

- An amenity for an annual estimated 20,000 McConnell Springs visitors – Confirmed!
- 2010 winner of Kentucky's Outstanding Watershed Award – KY-TN Water Environmental Association
- A water pollution control facility – needs to be confirmed – the division turns to volunteers and it's laboratory staff expertise

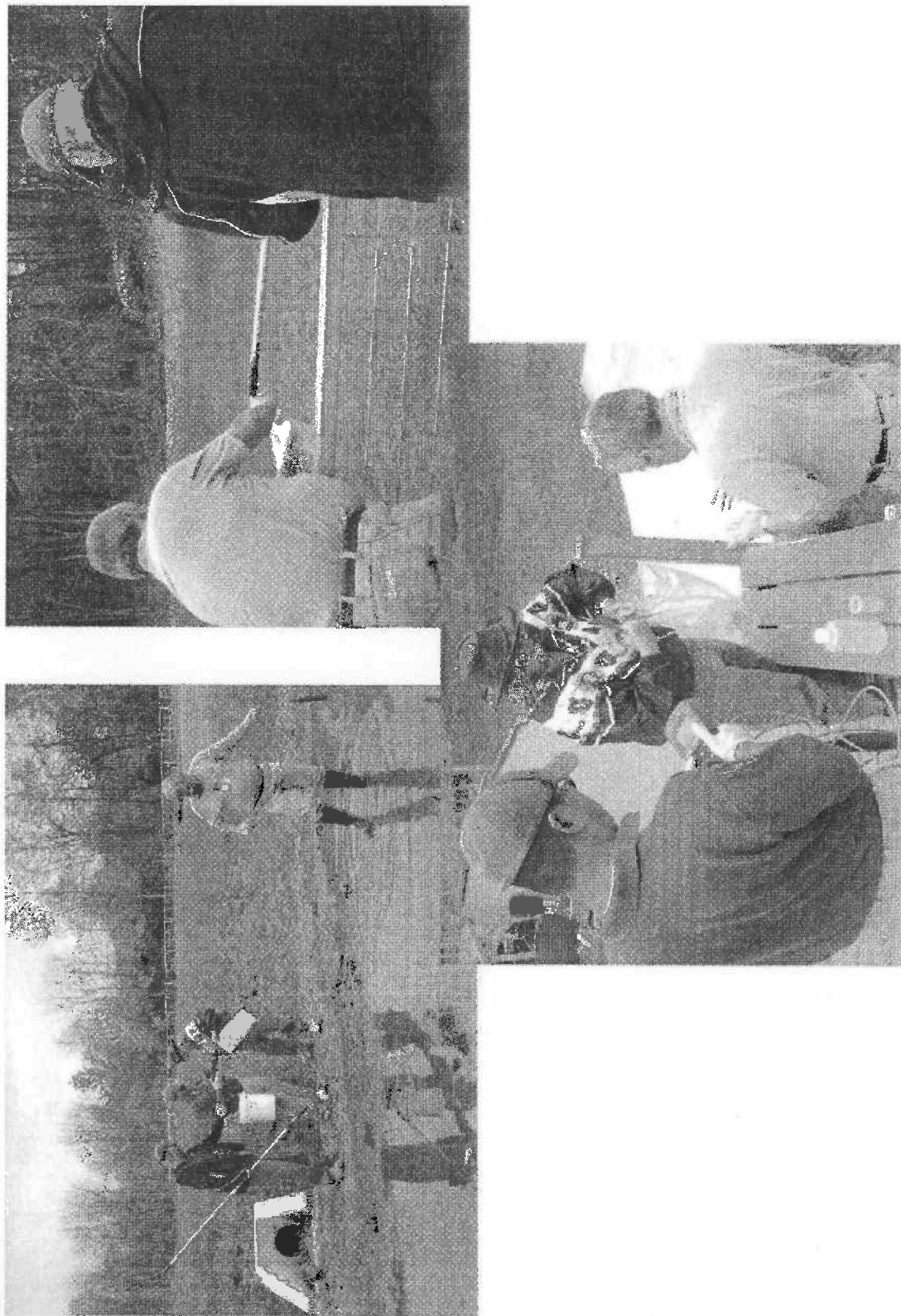
Locating Sampling Sites and Training of Personnel



Sampling Locations



Sampling at McConnell Springs Stormwater Quality Wetland Project



Water Quality Parameters Measured at McConnell Springs Stormwater Quality Wetland Project

- **Temperature**
- **pH**
- **ORP**
- **Dissolved Oxygen**
- **Conductivity**
- **Total Dissolved Solids**
- **Salinity**
- **Alkalinity**
- **Hardness**
- **Carbonaceous
Biological Oxygen
Demand (CBOD)**
- **Total Suspended Solids**
- **Total Ammonia**
- **Nitrate**
- **Nitrite**
- **Total Phosphorous**
- **Ortho-phosphate**
- ***E. coli***
- **Other Coliforms**
- **Turbidity**
- **Clarity**
- **Depth**

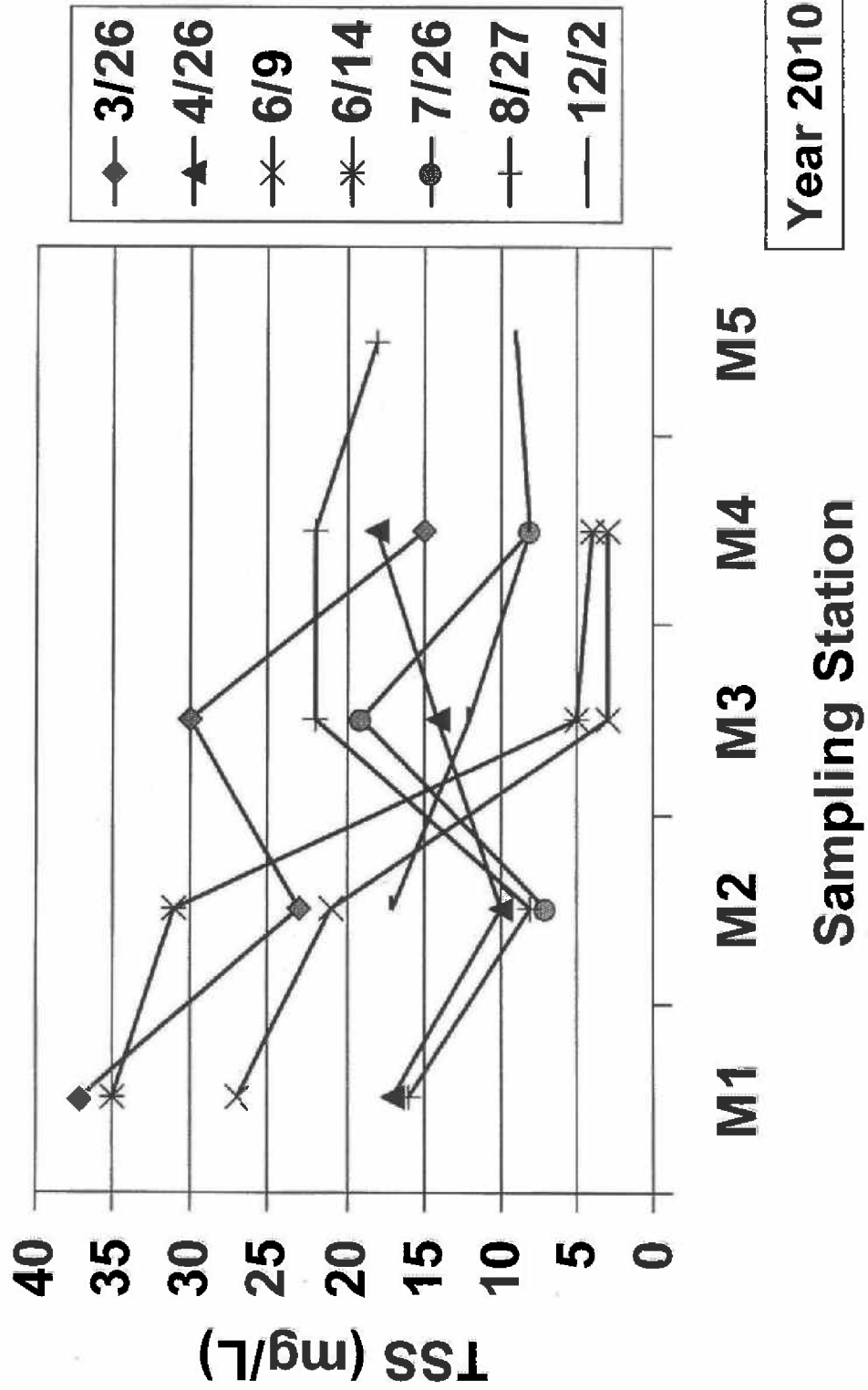
Metals analyzed by ICP at UK-KGS

• Aluminum	• Magnesium
• Antimony	• Manganese
• Arsenic	• Nickel
• Barium	• Phosphorus
• Beryllium	• Potassium
• Boron	• Selenium
• Cadmium	• Silicon
• Calcium	• Silver
• Chromium	• Sodium
• Cobalt	• Strontium
• Copper	• Sulfur
• Gold	• Thallium
• Iron	• Tin
• Lead	• Vanadium
• Lithium	• Zinc

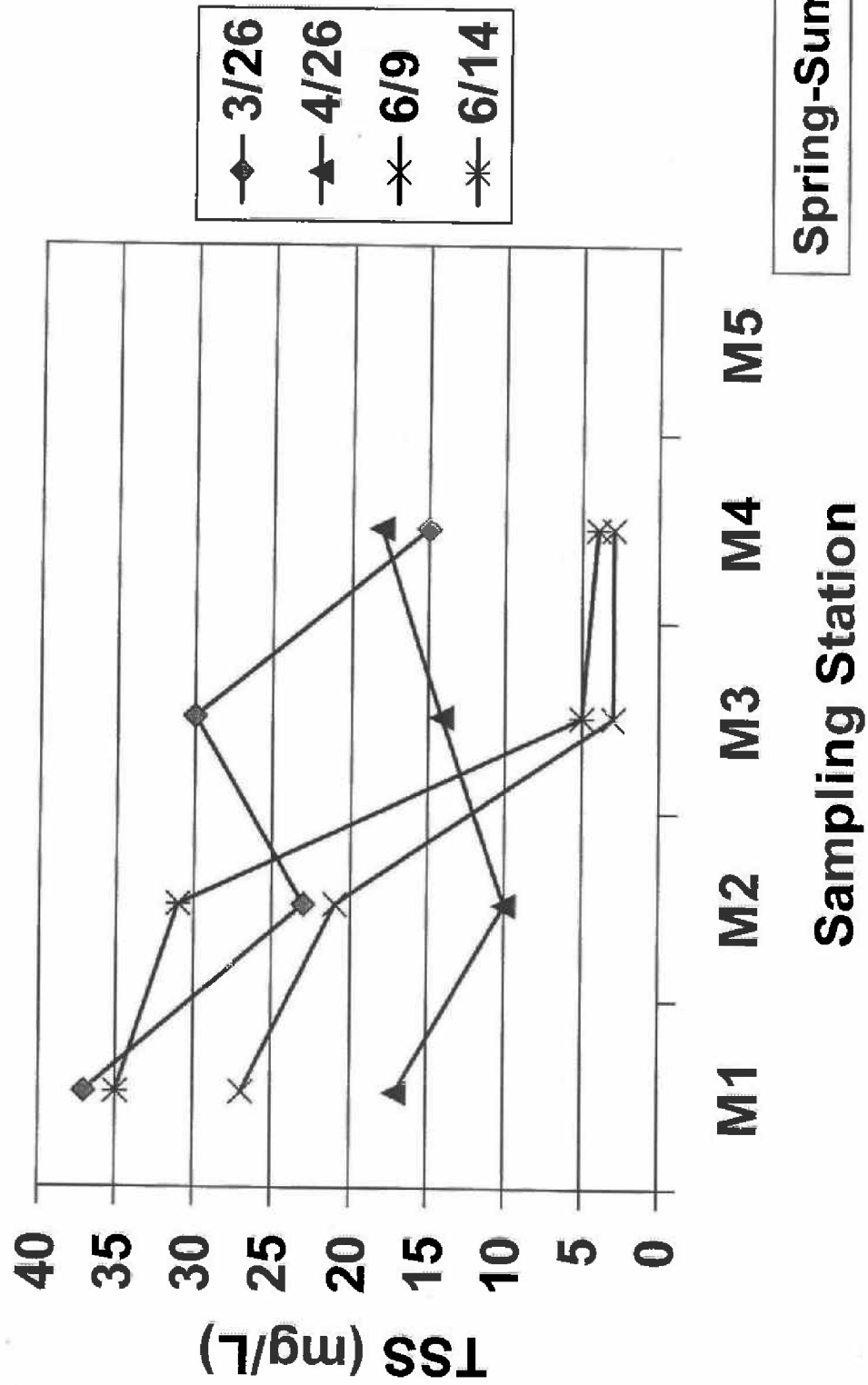
Water Quality Sampling Dates in 2010

- **March 26**
- **April 22**
- **April 26**
- **June 9**
- **June 12**
- **June 14**
- **July 26**
- **August 27**
- **December 2**

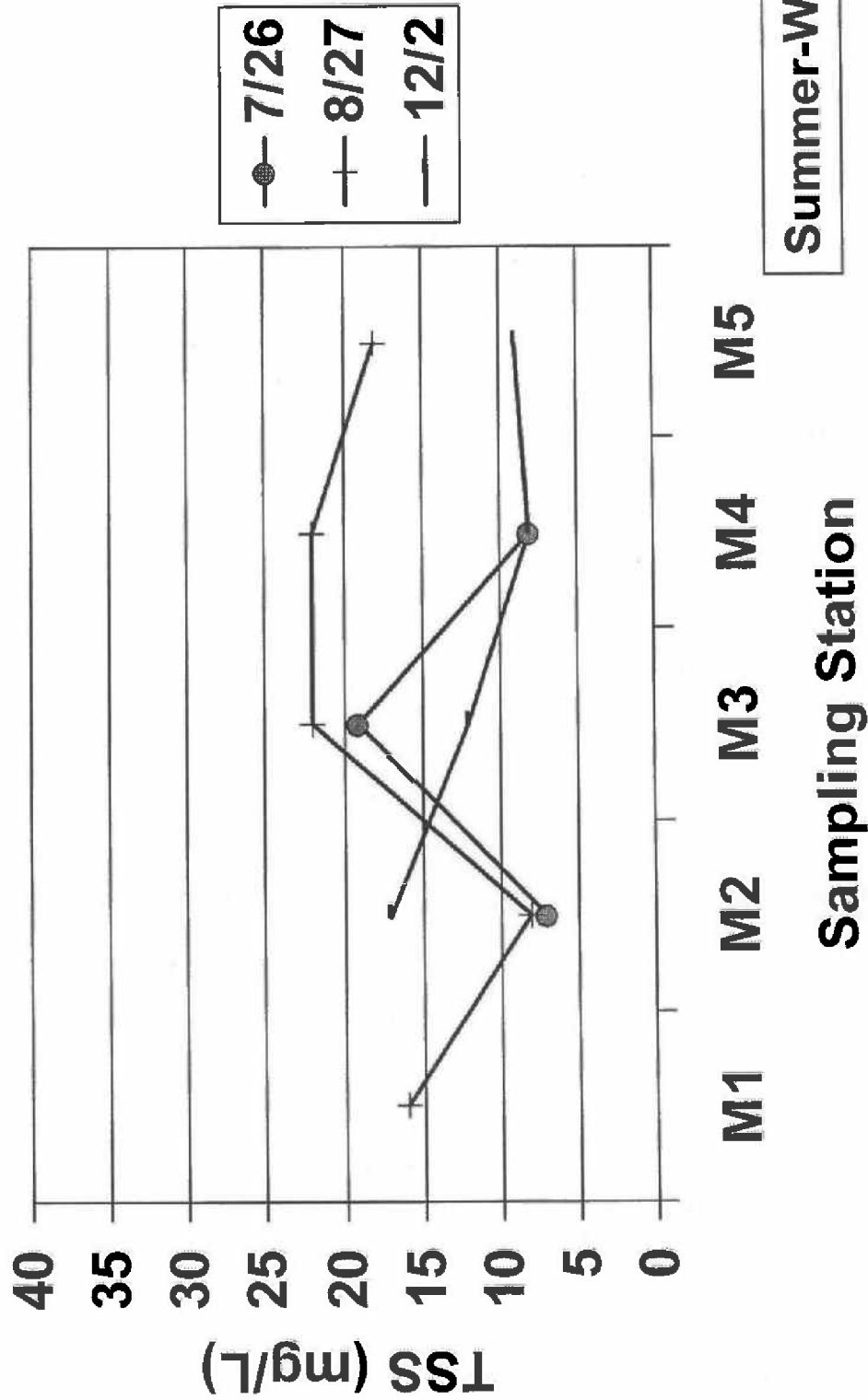
Total Suspended Solids (TSS) in Water Samples from McConnell Springs Stormwater Quality Wetland Project



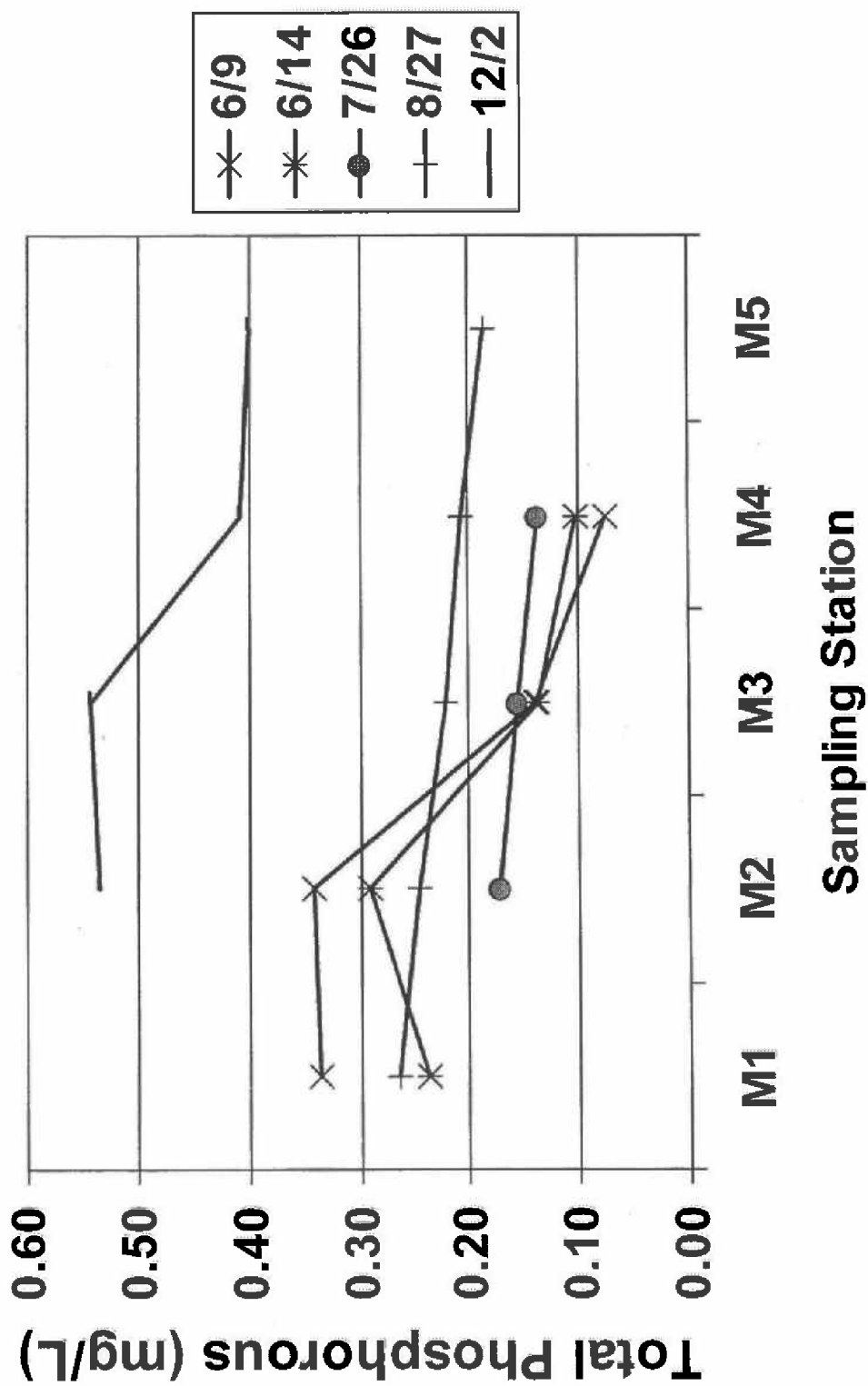
Total Suspended Solids (TSS) in Water Samples from McConnell Springs Stormwater Quality Wetland Project



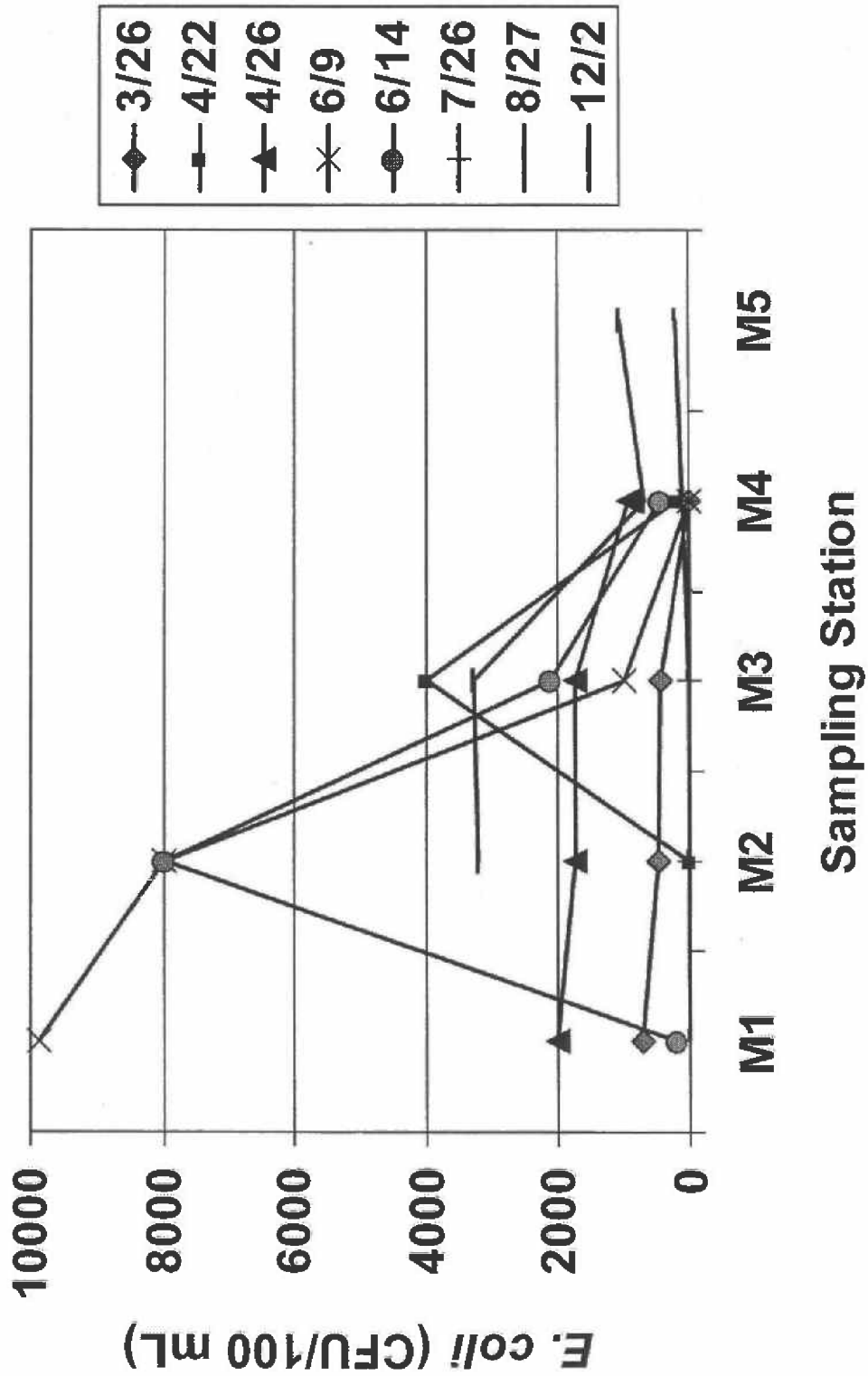
Total Suspended Solids (TSS) in Water Samples from McConnell Springs Stormwater Quality Wetland Project



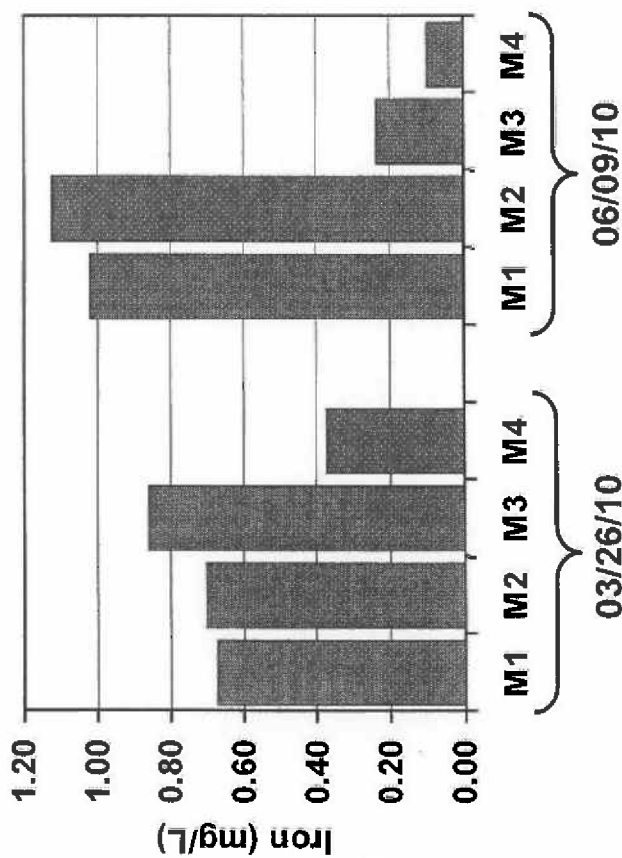
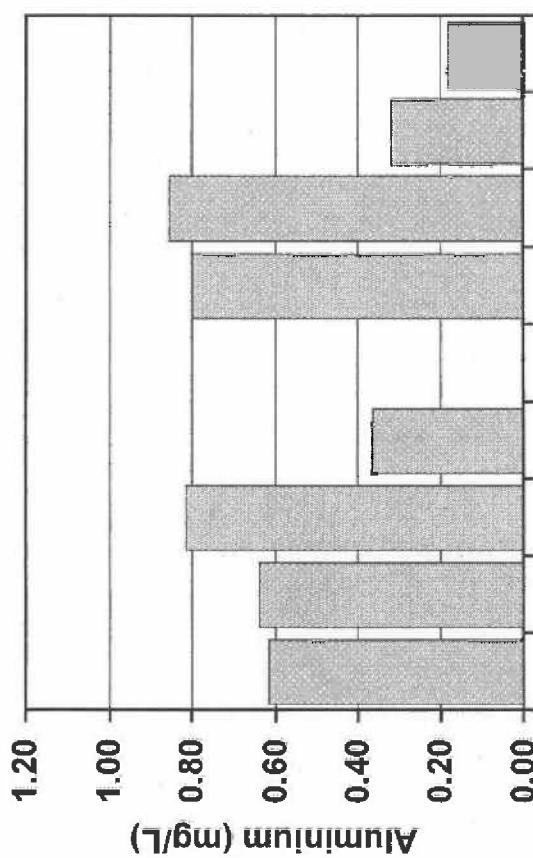
**Total Phosphorous in Water Samples from McConnell
Springs Stormwater Quality Wetland Project**



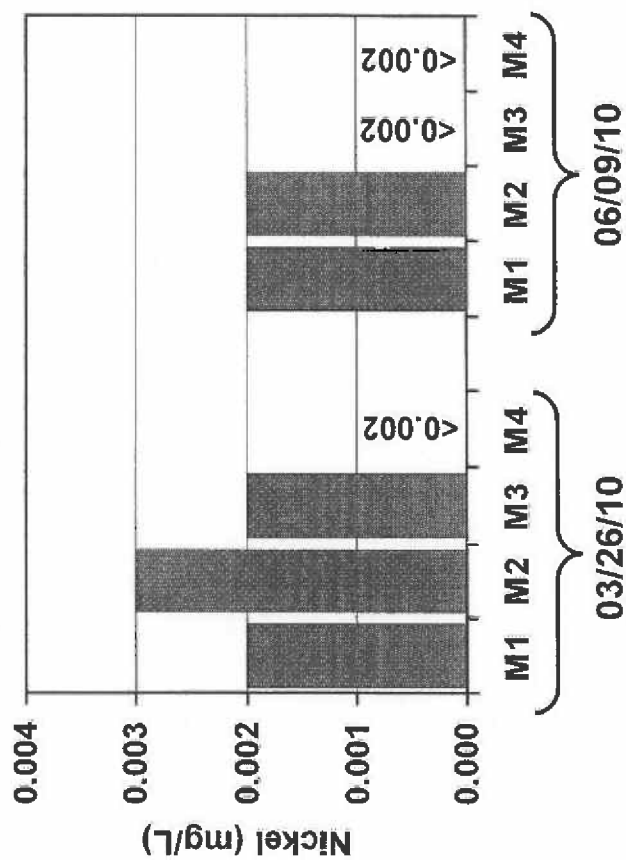
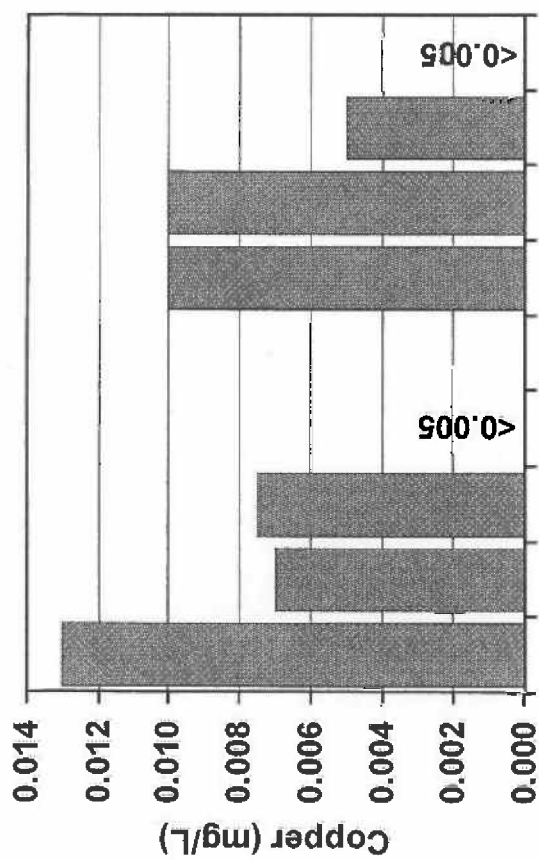
Bacterial Counts (*E. coli*) in Water Samples from McConnell Springs Stormwater Quality Wetland Project



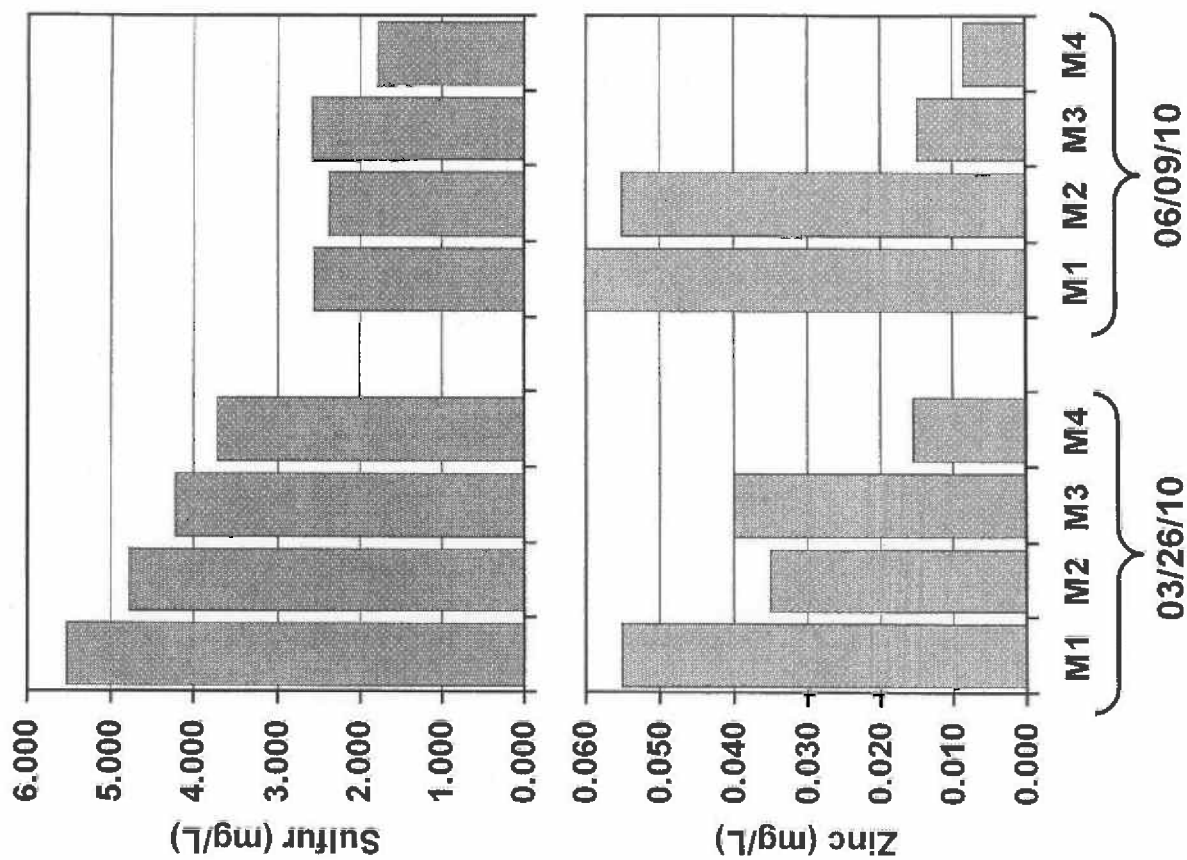
Metal Concentrations in Water Samples from McConnell Springs Stormwater Quality Wetland Project



Metal Concentrations in Water Samples from McConnell Springs Stormwater Quality Wetland Project



Metal Concentrations in Water Samples from McConnell Springs Stormwater Quality Wetland Project

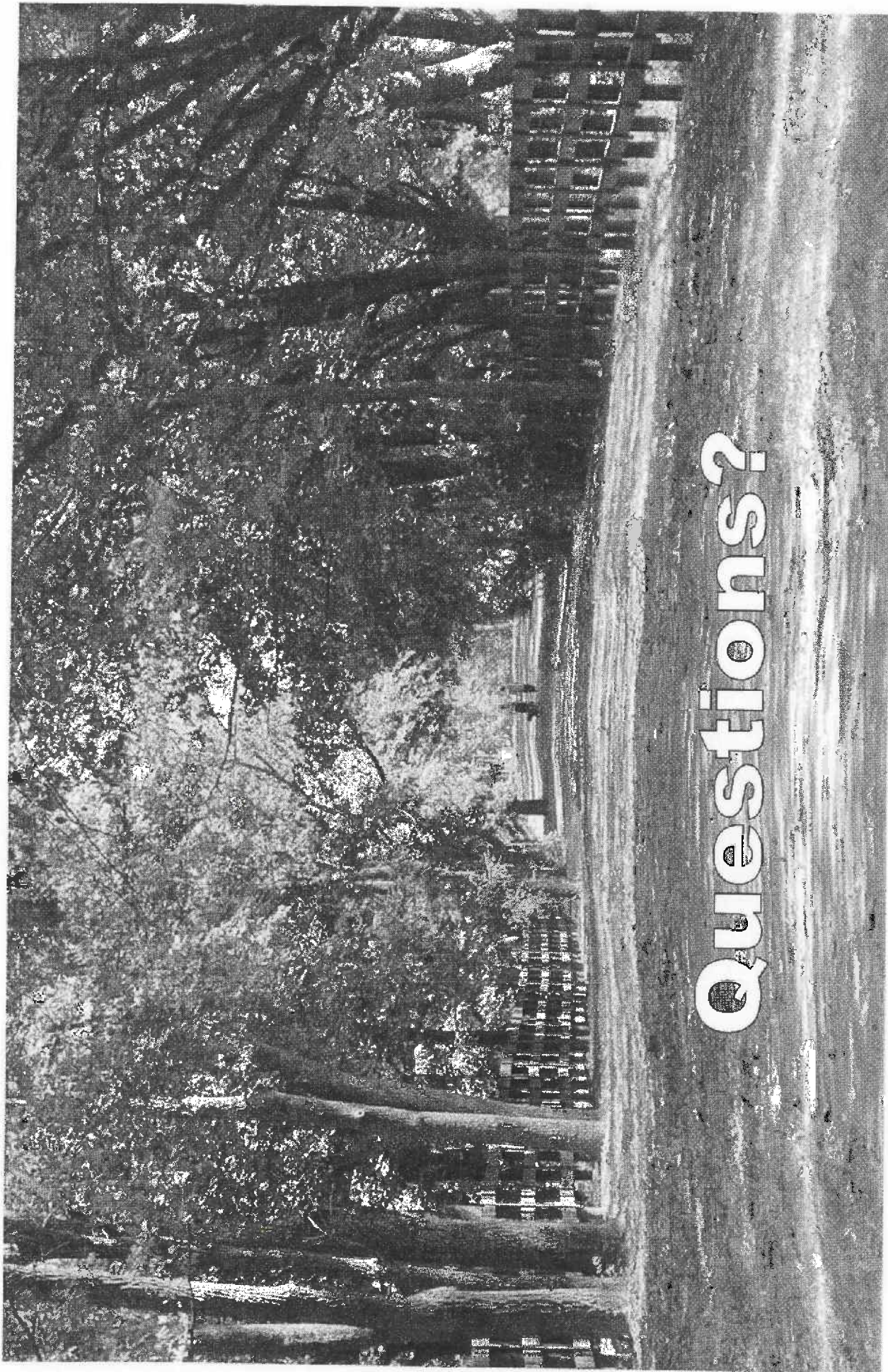


CONCLUSIONS

- pH, dissolved oxygen, alkalinity and hardness were within normal parameters
- Total suspended solids decreased through the stormwater facility
- Ammonia levels decreased at sites M4 and M5
- Nitrate and nitrite levels were low
- Total phosphorous and orthophosphates decreased over time
- Counts for *E. coli* and other coliforms were lowest at sites M4 and M5

CONCLUSIONS

- Metals not detected in any of the sites: antimony, beryllium, cadmium, chromium, gold, lead, selenium, silver, thallium, strontium, and vanadium
- Reductions of aluminum, copper, iron, nickel, sulfur and zinc through the stormwater facility
- Based on the preliminary data, it appears that the structures are performing as expected
- Continue monitoring in 2011, at least every other month, is recommended
 - Significant for phosphorous and metals which could be detrimental



www.lexingtonky.gov/waterquality

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
STATEMENT OF NET ASSETS
PROPRIETARY FUNDS
As of January 31, 2011
-- DRAFT --

	<u>Water Quality Mgt.</u>
ASSETS	
Current Assets:	
Cash and Cash Equivalents	1,567,733
Receivables:	
User Fees Receivable	653,102
Other Receivables	-
Less Allowance for Uncollectible Accounts	(39,551)
Total Current Assets	<u>2,181,284</u>
Non-Current Assets:	
Capital Assets:	
Infrastructure	270
Less Accumulated Depreciation	(4)
Total Non-Current Assets	<u>266</u>
Total Assets	<u>2,181,550</u>
LIABILITIES	
Current Liabilities:	
Accounts, Contracts and Retainage Payable	29,531
Internal Balances	(3,345,458)
Compensated Absences	93,116
Total Current Liabilities	<u>(3,222,812)</u>
Non-Current Liabilities	
Unearned Revenues & Other	34
Compensated Absences	93,116
Total Non-Current Liabilities	<u>93,150</u>
Total Liabilities	<u>(3,129,662)</u>
NET ASSETS	
Invested in Capital Assets, net of related debt	540
Unrestricted (Deficit)	5,310,673
Total Net Assets	<u>5,311,213</u>

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET ASSETS
PROPRIETARY FUNDS

Preliminary for the seven months ended January 31, 2011

-- DRAFT --

	<u>Water Quality Mgt.</u>
Operating Revenues	
User Charges	\$6,592,983
Other	3,853
Total Operating Revenues	<u>6,596,836</u>
Operating Expenses	
Administration	
Personnel	1,283,885
Operating	1,636,529
Capital	18,140
Total Administration Expenses	<u>2,938,554</u>
Depreciation	3
Total Operating Expenses	<u>2,938,557</u>
Operating Income (Loss)	<u>3,658,279</u>
Non-Operating Revenues (Expenses)	
Income on Investments	1,503
Total Non-Operating Revenues (Expenses)	<u>1,503</u>
Income (Loss) Before Contributions and Transfers	3,659,782
Transfers In	0
Transfers Out	<u>0</u>
Change in Net Assets	3,659,782
Net Assets - July 1	1,651,431
Net Assets - January 31	<u><u>\$5,311,213</u></u>

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
STATEMENT OF NET ASSETS
PROPRIETARY FUNDS
As of January 31, 2011
-- DRAFT --

	Business-type Activities Enterprise Funds	
	Sanitary Sewer System	Landfill
ASSETS		
Current Assets:		
Cash and Cash Equivalents	7,060,257	3,316,642
Investments	19,283,064	21,195,195
Receivables:		
User Fees Receivable	2,626,906	658,845
Other Receivables	3,436,403	551,830
Less Allowance for Uncollectible Accounts	(104,853)	(714,684)
Inventories	(4,242)	-
Restricted Investments:		
Reserved for Maintenance and Operation	5,854,288	-
Reserved for Sinking Fund	8,870,186	-
Total Current Assets	47,022,008	25,007,827
Non-Current Assets:		
Restricted Investments:		
Reserved for Construction & Capital Acquisitions	5,277,313	-
Reserved for Depreciation	3,432,005	-
Reserved for Debt Service	8,612,473	-
Capital Assets:		
Land	1,539,293	5,194,637
Land Improvements	254,476	16,505,870
Buildings	2,148,289	64,815
Sewer Plants	163,269,363	-
Sewer Lines	158,052,781	-
Vehicles, Equipment, and Furniture	6,981,741	53,735
Intangibles	417,317	-
Less Accumulated Depreciation	(137,418,884)	(6,912,442)
Construction in Progress	20,686,300	4,851,207
Unamortized Bond Costs	1,349,299	-
Total Non-Current Assets	234,601,767	19,757,822
Total Assets	281,623,774	44,765,649
LIABILITIES		
Current Liabilities:		
Accounts, Contracts and Retainage Payable	357,749	169,427
Accrued Payroll	-	-
Internal Balances	6,707,003	(3,494,839)
Other	1,251,466	-
Compensated Absences	308,103	462
Landfill Closure and Postclosure Care Costs	-	401,878
Payable from Restricted Investments:		
Accounts, Contracts and Retainage Payable	212,747	-
Bonds Payable	-	-
Interest Payable	1,466,939	-
Total Current Liabilities	10,304,006	(2,923,072)
Non-Current Liabilities		
Unearned Revenues & Other	289,063	900,000
Bonds Payable	60,055,000	-
Compensated Absences	710,621	4,157
Landfill Closure and Postclosure Care Costs	-	17,854,682
Total Non-Current Liabilities	61,054,684	18,758,839
Total Liabilities	71,358,690	15,835,767
NET ASSETS		
Invested in Capital Assets, net of related debt	177,404,731	19,683,368
Restricted for:		
Capital Projects	37,453,768	-
Debt Service	7,938,633	-
Depreciation	3,228,250	-
Maintenance and Operations	5,851,295	-
Unrestricted (Deficit)	(21,611,593)	9,246,515
Total Net Assets	210,265,085	28,929,883

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET ASSETS
PROPRIETARY FUNDS

Preliminary for the seven months ended January 31, 2011

-- DRAFT --

	Business-type Activities	
	Enterprise Funds	
	Sanitary Sewer System	Landfill
Operating Revenues		
User Charges	\$27,855,922	\$3,973,374
Fees	509,416	98,877
Exactions	37,365	0
Other	303,445	117,080
Total Operating Revenues	28,706,148	4,189,331
Operating Expenses		
Treatment Plant		
Personnel	2,195,972	0
Operating	2,107,865	0
Capital	76,281	0
Collection System		
Personnel	1,372,824	0
Operating	1,106,665	0
Capital	109,572	0
Landfill		
Personnel	0	37,151
Operating	0	1,552,844
Capital	0	93,656
Administration		
Personnel	2,495,608	188,217
Operating	1,622,850	347,470
Capital	5,117,887	0
Depreciation	4,120,571	534,485
Total Operating Expenses	20,326,095	2,753,823
Operating Income (Loss)	8,380,053	1,435,509
Non-Operating Revenues (Expenses)		
Net Change in Fair Value of Investments	(150,595)	(1,918)
Income on Investments	310,976	11,731
Interest Expense and Fiscal Agent Fees	(2,607,597)	0
Amortization of Bond Costs	0	0
Gain (Loss) on Sale of Capital Assets	(23,129)	0
Total Non-Operating Revenues (Expenses)	(2,470,345)	9,813
Income (Loss) Before Contributions and Transfers	5,909,708	1,445,322
Transfers In	0	0
Transfers Out	0	(100,000)
Change in Net Assets	5,909,708	1,345,322
Net Assets - July 1	204,355,377	27,584,561
Net Assets - December 31	\$210,265,085	\$28,929,883

Environmental Quality Committee

<u>Item</u>	<u>Old Committee</u>	<u>New Committee</u>	<u>CM Referred</u>
Private Solid Waste Providers	Services	Environmental Quality	Gorton
Capacity Analysis	Water Quality	Environmental Quality	Blues