



Department of Purchasing & Contract Compliance

Felicia Strong-Whitaker, Interim Director

Fulton County, GA

May 13, 2015

Re: 15RFP63658C-MT – Landfill Post Closure Services

Dear Bidders:

Attached is one (1) copy of **Addendum 2**, hereby made a part of the above referenced 15RFP63658C-MT – Landfill Post Closure Services

Except as provided herein, all terms and conditions in the Bid referenced above remain unchanged and in full force and effect.

Sincerely,

Malcolm Tyson

Malcolm Tyson
Assistant Purchasing Agent

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Department of Purchasing & Contract Compliance

Felicia Strong-Whitaker, Interim Director

Fulton County, GA

This Addendum forms a part of the contract documents and **modifies** the original ITB documents as noted below:

1. What role do you want the selected vendor to perform with respect to:

- Merk/Miles Convenience Center Station (Administration/Oversight)
- South Fulton Community Cleanup Event/Household Hazardous Waste

Some of the Merk/Miles Road Landfill wells are monitored for dichloroflouromethane (DCDFM) in addition to Appendix I parameters; other wells are monitored for DCDFM and monitored natural attenuation (MNA) parameters (dissolved oxygen, nitrate, ferrous iron, sulfate, sulfide, methane, ethane/ethene, oxidation-reduction potential, total organic carbon (TOC), carbon dioxide, total alkalinity, fluoride, and chloride). Several wells in the approved Merk/Miles Road Landfill monitoring plan currently are used for water levels only. Some wells are monitored only on an annual basis. Please define which wells are these?

Morgan Falls:

Spring 2016 – (from text - 3 SW locations, 7 wells for water level only, 17 wells sampled for App I parameters), but how many for the additional MNA suite?

Fall 2016 – (from text – 3 SW locations, 7 wells for water level only), how many wells for App I, how many wells for App II and how many wells for the MNA suite?

Merk/Miles:

Spring 2016 – (nothing really in the text except for 4 SW locations), how many wells for WL only, how many wells for App I (DCDFM included or not), how many wells for DCDFM only, how many wells for the MNA suite?

Fall 2016 - (nothing really in the text except for 4 SW locations), how many wells for WL only, how many wells for App I (DCDFM included or not), how many wells for App II, how many wells for DCDFM only, how many wells for the MNA suite?

Response:

A) The vendor will be responsible for coordinating with other county vendors and staff to act as overall project manager for the household hazardous waste event and the convenience center. The level of effort will be limited to less than 5 hours per month of project time which can be billed against owner controlled contingency upon approval of the county. Please see the attached sampling schedule as submitted to the Georgia EPD in 2014. Please adjust your cost calculation on performing the identical sampling methodology for the Morgan Falls and Merk Miles Landfills.

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B) See the attached Sampling Schedule.

2. Is hydrogen needed as part of the MNA suite?

Response: See response to question No. 1

3. Is a Bond required for this proposal? If yes, what amount?

Response: No

4. Where does Section 5, Proposal Forms A, B,C, E, F, and G belong in the proposal submittal?

Response: Section 5 documents should be placed in the technical proposal.

5. When does the Acknowledgement of Addendum belong in the proposal submittal?

Response: In the technical proposal.

6. *Section 3.1.2 and Section 9:* Does the County desire Contract Compliance Exhibits and Financial Information to be bound within the Technical Proposal in addition to being provided in separately sealed envelopes?

Response: The Contract Compliance and Financial Information should be separate from the technical proposal.

7. *Form F – Georgia Security and Immigration Subcontractor Affidavit:* One of our proposed subconsultants is sole employee of her company and is exempt from the Federal work authorization program. Is there an alternate form for subconsultants to fill out if they are exempt from the Federal work authorization program.

Response: There is no alternate form. The subconsultant must note her status on the form.

8. *Addendum 1:* The new/revised Cost Proposal Form from Addendum 1 does not include a line item for Item “G. Merk/Miles Convenience Center Station (Administration/Oversight)”. Should those costs be included in a different line item?

Response: The cost for this function will be identified by the county in the owner controlled contingency.

9. *Addendum 1:* Exhibits 3 and 5 show that pdf attachments “solid_waste_management_plan.pdf” and DRAFT Fulton County Waste Management Alternatives_v2.pdf” should have been included but were not provided. Can you please provide these pdfs?

Response: Please see the attachment.

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ACKNOWLEDGEMENT OF ADDENDUM NO. 2

The undersigned proposer acknowledges receipt of this addendum by returning one (1) copy of this form with the proposal package to the Department of Purchasing & Contract Compliance, Fulton County Public Safety Building, 130 Peachtree Street, Suite 1168, Atlanta, Georgia 30303 by the RFP due date and time of **May 20, 2015**.

This is to acknowledge receipt of Addendum No. 2, _____ day of _____, 2015.

Legal Name of Bidder

Signature of Authorized Representative

Title

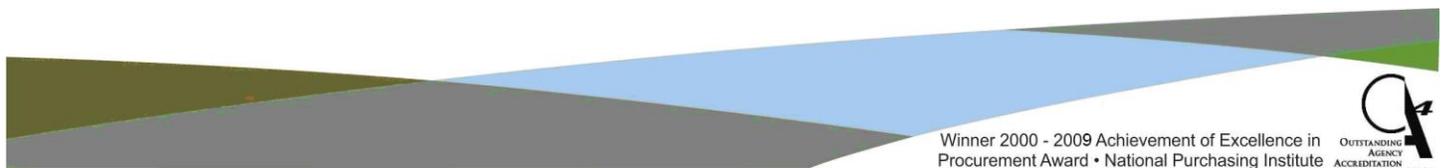


Table A
 Corrective Action Plan Annual Groundwater Monitoring Schedule
 Fulton County - Morgan Falls Road Sanitary Landfill

Location	Monitoring Status	1st Semi-Annual Event	2nd Semi-Annual Event
GWA-2	Detection	Appendix II VOCs & Metals	Appendix II VOCs & Metals
GWA-3	Detection	Appendix II VOCs & Metals	Appendix II VOCs & Metals
GWA-4	Detection	Appendix II VOCs & Metals	Appendix II VOCs & Metals
GWA-5	Assessment*	Appendix II VOCs & Metals + MNA Parameters	Appendix II VOCs & Metals
GWCR-1	Detection	Appendix II VOCs & Metals	Appendix II VOCs & Metals
GWC-2	Assessment	Appendix II VOCs & Metals + MNA Parameters	Appendix II VOCs & Metals
GWC-2Rock	Assessment	Appendix II VOCs & Metals + MNA Parameters	Appendix II VOCs & Metals
GWCR-3Rock	Detection	Appendix II VOCs & Metals	Appendix II VOCs & Metals
GWC-4Rock	Detection	Appendix II VOCs & Metals	Appendix II VOCs & Metals
GWC-5Rock	Detection	Appendix II VOCs & Metals	Appendix II VOCs & Metals
GWC-7Rock	Assessment	Appendix II VOCs & Metals + MNA Parameters	Appendix II VOCs & Metals
GWCR-9Rock	Detection	Appendix II VOCs & Metals	Appendix II VOCs & Metals
GWC-10Rock	Detection	Appendix II VOCs & Metals	Appendix II VOCs & Metals
GWC-11Rock	Detection	Appendix II VOCs & Metals	Appendix II VOCs & Metals
GWC-14Rock	Assessment	Appendix II VOCs & Metals + MNA Parameters	Appendix II VOCs & Metals
GWC-15Rock	Detection	Appendix II VOCs & Metals	Appendix II VOCs & Metals
GWC-16Rock	Assessment	Appendix II VOCs & Metals + MNA Parameters	Appendix II VOCs & Metals
GWC-17Rock	ACM	Water Level Only	Water Level Only
GWC-18Rock	ACM	Water Level Only	Water Level Only
GWC-19Rock	ACM	Water Level Only	Water Level Only
GWC-20	ACM	Water Level Only	Water Level Only
GWC-20Rock	ACM	Water Level Only	Water Level Only
GWC-21Rock	ACM	Water Level Only	Water Level Only
GWC-22Rock	ACM	Water Level Only	Water Level Only

Notes: 1. List is based on Corrective Action Plan (September 2005) and 5 year update (September 2010).

2. Appendix I and Appendix II constituents refer to those constituents as listed in Appendix I and II of 40 CFR Part 258, Subpart E.

3. Assessment wells receive analysis for the full list of Appendix II analytes once every 3 years (next scheduled for the 2nd 2016 monitoring event).

3. MNA Parameters are: dissolved oxygen, nitrate, ferrous iron, sulfate, sulfide, methane, ethane/ethene, oxidation reduction potential, total organic carbon, carbon dioxide, alkalinity, fluoride, and hydrogen.

4. Per the CAP, each groundwater monitoring well is also screened for the presence of methane in the well headspace.

* Currently used for upgradient comparison

Table 1
Groundwater Elevation Data
Morgan Falls Road Sanitary Landfill
October 2014 Sampling Event

Monitoring Well ID	Well Depth (ft btoc)	TOC Elevation (MSL)	Depth Water Level (ft btoc)	Groundwater Elevation (MSL)
GWA-2	31.40	951.42	17.52	933.90
GWA-3	14.83	933.73	9.60	924.13
GWA-4	18.13	935.23	11.92	923.31
GWA-5	40.51	986.63	33.59	953.04
GWCR-1	38.70	973.26	27.85	945.41
GWC-2	40.10	973.26	35.70	937.56
GWC-2Rock	44.72	975.13	37.19	937.94
GWCR-3Rock	37.28	957.21	15.88	941.33
GWC-4Rock	19.62	950.20	14.36	935.84
GWC-5Rock	15.92	942.73	7.58	935.15
GWC-7Rock	76.58	977.31	67.89	909.42
GWCR-9Rock	50.06	974.11	35.48	938.63
GWC-10Rock	80.92	983.01	61.80	921.21
GWC-11Rock	26.99	944.53	23.82	920.71
GWC-14Rock	51.88	959.16	33.04	926.12
GWC-15Rock	38.97	946.83	31.00	915.83
GWC-16Rock	36.90	909.14	29.06	880.08
GWC-17Rock	21.80	955.06	16.65	938.41
GWC-18Rock	48.05	865.96	22.55	843.41
GWC-19Rock	32.40	882.14	27.24	854.90
GWC-20	19.87	835.65	6.88	828.77
GWC-20Rock	50.84	835.18	6.45	828.73
GWC-21Rock	46.97	846.50	NM*	NM*
GWC-22Rock	44.42	845.85	14.32	831.53

Notes: Depths to water measured on October 6, 2014.

TOC = Top of casing; ft btoc = feet below top of casing

MSL = Mean sea level

Wells GWC-17Rock through GWC-22Rock are not part of the approved Groundwater Monitoring Plan and are shown for informational purposes only.

NM* = Flush mount well; could not locate for measurement.

Table 2
 Summary of Water Quality Parameters
 Morgan Falls Road Sanitary Landfill
 October 2014 Sampling Event

Well ID	Sample Method	% Methane by Volume	% Oxygen by Volume	pH (S.U.)	Specific Conductance (µS/cm)	Temperature (°C)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)
GWA-2	Non-Ded. Pump	0.0	19.8	5.08	414	18.4	1.1	-6	2.3
GWA-3	Bladder Pump	0.0	20.9	5.15	165	19.2	1.2	119	1.2
GWA-4	Non-Ded. Pump	0.2	19.1	4.24	78	19.8	1.9	265	5.4
GWA-5	Bladder Pump	0.0	15.5	5.03	139	20.2	4.0	288	4.0
GWCR-1	Bladder Pump	0.0	20.5	5.08	172	18.8	1.0	305	0.0
GWCR-2	Bladder Pump	0.0	20.4	6.39	2,440	17.5	0.5	-109	0.4
GWCR-2Rock	Bladder Pump	4.4	18.7	6.03	2,010	17.0	0.6	-100	0.0
GWCR-3Rock	Bladder Pump	0.1	19.9	5.44	256	18.7	0.8	230	0.0
GWCR-4Rock	Bladder Pump	0.0	19.2	5.51	239	23.3	0.8	171	0.0
GWCR-5Rock	Bladder Pump	0.0	20.4	5.56	314	21.1	0.3	211	0.0
GWCR-7Rock	Bladder Pump	0.0	20.3	5.44	1,160	19.9	1.0	-21	0.0
GWCR-9Rock	Bladder Pump	0.0	20.3	5.58	306	19.0	1.2	266	0.0
GWCR-10Rock	Bladder Pump	0.0	20.1	5.44	1,620	20.3	1.3	209	0.0
GWCR-11Rock	Bladder Pump	0.0	20.2	6.27	1,380	20.7	1.3	106	0.0
GWCR-14Rock	Bladder Pump	0.0	20.7	6.06	1,970	17.5	0.7	-70	2.3
GWCR-15Rock	Bladder Pump	0.0	20.9	4.65	512	19.0	5.3	351	0.4
GWCR-16Rock	Bladder Pump	0.0	20.9	5.57	665	19.5	1.2	64	0.0
SWA-1	NA	NA	NA	6.43	159	20.7	5.9	93	1.5
SWA-2	NA	NA	NA	DRY	DRY	DRY	DRY	DRY	DRY
SWC-3	NA	NA	NA	5.82	425	20.5	5.3	-18	8.9

Notes: Groundwater and surface water samples collected October 6-7, 2014.
 ft BTOC = feet below top of casing
 S.U. = Standard Units
 µS/cm = microSiemens/cm
 NTU = Nephelometric Turbidity Units
 NA = Not Applicable
 NM = Not Measured
 mV = millivolts
 mg/L - milligrams per liter
 °C = Degrees Celsius

Table 3
 Summary of Organic Compound/Metal Detections
 Morgan Falls Road Sanitary Landfill
 October 2014 Sampling Event

Well ID	Organic Compounds		Metals							
	Benzene (µg/L)	Chloro-benzene (µg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cobalt (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Zinc (mg/L)	
GWA-2	-	-	-	0.067	-	-	-	-	-	-
GWA-3	-	-	-	0.026	-	-	-	-	-	-
GWA-4	-	-	-	-	-	-	-	-	-	-
GWA-5	-	-	-	0.030	-	-	-	-	-	-
GWCR-1	-	-	-	0.035	-	-	-	-	-	-
GWC-2	-	-	-	0.67	-	-	-	-	-	-
GWC-2Rock	2.8	-	0.046	0.48	-	-	-	-	-	-
GWCR-3Rock	-	-	-	0.031	-	-	-	-	-	0.050
GWC-4Rock	-	-	-	-	-	-	-	-	-	-
GWC-5Rock	-	-	-	0.037	-	-	-	-	-	-
GWC-7Rock	-	14	-	0.11	-	0.046	-	0.028	-	-
GWCR-9Rock	-	-	-	0.049	-	-	-	-	-	-
GWC-10Rock	-	-	-	0.23	-	-	-	-	-	0.032
GWC-11Rock	-	-	-	0.15	-	-	-	-	-	-
GWC-14Rock	-	-	-	0.55	-	0.089	-	-	-	-
GWC-15Rock	-	-	-	0.12	0.0047	-	-	-	-	0.031
GWC-16Rock	-	-	-	0.23	-	-	-	-	-	0.028
GWPS	5	100	0.010	2	0.004	0.73**	0.002	0.1	10.5**	

- Notes: 1. All groundwater samples collected October 6-7, 2014.
 2. mg/L = milligrams per liter; µg/L = micrograms per liter.
 3. - = Below detection limit.
 4. Underlined concentrations are unverified.
 5. GWPS = Groundwater Protection Standard is the Maximum Contaminant Level (MCL).
 6. NR = Not required.
 7. Bolded and shaded concentrations exceed respective GWPS.
 8. ** = No MCL exists; alternate GWPS referenced during AMP/CAP is used.
 9. NE = A GWPS has not been established

Table 5
Summary of Surface Water Detections
Morgan Falls Road Sanitary Landfill
October 2014 Sampling Event

Location	Chloride (mg/L)	COD (mg/L)	TOC (mg/L)	Barium (mg/L)	Zinc (mg/L)
SWA-1	6.7	--	--	--	--
SWA-2	DRY	DRY	DRY	DRY	DRY
SWC-3	18	15	4.3	0.11	--

Notes: Surface water samples collected on October 7, 2014.

mg/L = milligrams per liter

-- = Below Detection Limit

TOC = Total Organic Carbon

COD = Chemical Oxygen Demand

Table 6
 Summary of Statistically Significant Increases
 Morgan Falls Road Sanitary Landfill
 October 2014 Sampling Event

Location	Monitoring Status	Parameter Name	Exceeds GWPS?
GWC-2	Assessment	Total Barium	No
GWC-2Rock	Assessment	Total Arsenic	Yes
GWC-2Rock	Assessment	Total Barium	No
GWC-7Rock	Assessment	Chlorobenzene	No
GWC-14Rock	Assessment	Total Barium	No
GWC-14Rock	Assessment	Total Cobalt	No
GWC-15Rock	Detection	Total Beryllium*	Yes

Notes: GWPS = Groundwater Protection Standard

* Non-site related impact addressed in Alternate
 Source Demonstration

Table A
Monitoring Point Sampling Schedule
Merk/Miles Road Sanitary Landfill

Groundwater Monitoring Well	Well Monitoring Status	1st Semi-Annual Event List of Analytes	2nd Semi-Annual Event List of Analytes
GWA-1Rock	Network - Assessment	Appendix I + DCDFM + MNA	Appendix I + DCDFM + MNA
GWA-27Rock	Network - Detection	Appendix I + DCDFM	Appendix I + DCDFM
GWB-1ARock	Network - Assessment	Appendix I + DCDFM	Appendix I + DCDFM
GWB-2Rock	Network - Detection	Appendix I + DCDFM	Appendix I + DCDFM
GWB-3A	Network - Assessment	Appendix I + DCDFM	Appendix I + DCDFM
GWB-4A	Network - Assessment	Appendix I + DCDFM	Appendix I + DCDFM
GWC-1	Network - Assessment	Appendix I + DCDFM + MNA	Appendix I + DCDFM + MNA
GWC-1ARock	Network - Assessment	Appendix I + DCDFM + MNA	Appendix I + DCDFM + MNA
GWC-2Rock	Network - Assessment	Appendix I + DCDFM	Appendix I + DCDFM
GWC-3	Water Level Only	Water Level Only	Water Level Only
GWC-3Rock	Network - Detection	Appendix I + DCDFM	Appendix I + DCDFM
GWC-4	Network - Assessment	Appendix I + DCDFM + MNA	Appendix I + DCDFM + MNA
GWC-5	Network - Assessment	Appendix I + DCDFM + MNA	Appendix I + DCDFM + MNA
GWC-5Deep	Network - Assessment	Appendix I + DCDFM + MNA	Appendix I + DCDFM + MNA
GWC-5Rock	Network - Assessment	Appendix I + DCDFM + MNA	Appendix I + DCDFM + MNA
GWC-6Rock	Delineation	Appendix I + DCDFM	Appendix I + DCDFM
GWC-7	Network - Detection	Appendix I + DCDFM	Appendix I + DCDFM
GWC-7Rock	Network - Detection	Appendix I + DCDFM	Appendix I + DCDFM
GWC-8	Network - Detection	Appendix I + DCDFM	Appendix I + DCDFM
GWC-9	Annual	Appendix I + DCDFM	Water Level Only
GWC-10	Network - Assessment	Appendix I + DCDFM + MNA	Appendix I + DCDFM + MNA
GWC-10Rock	Network - Assessment	Appendix I + DCDFM + MNA	Appendix I + DCDFM + MNA
GWC-11	Network - Assessment	Appendix I + DCDFM + MNA	Appendix I + DCDFM + MNA
GWC-12	Network - Assessment	Appendix I + DCDFM + MNA	Appendix I + DCDFM + MNA
GWC-12Rock	Network - Detection	Appendix I + DCDFM + MNA	Appendix I + DCDFM + MNA
GWC-13	Annual	Appendix I + DCDFM	Water Level Only

Notes:

- Monitoring Point Sampling Schedule is based on April 2012 approved Corrective Action Plan.
- Network assessment monitoring wells receive analysis for the full list of Appendix II analytes once every three years (next scheduled for 2nd 2015 monitoring event).
- MNA Parameters consist of: dissolved oxygen, nitrate, ferrous iron, sulfate, sulfide, methane, ethane, ethene, oxidation-reduction potential (ORP), total organic carbon (TOC), carbon dioxide, total alkalinity, fluoride, and chloride.
- DCDFM = dichlorodifluoromethane.
- Verified Appendix II constituents will be added to all wells.
- Well headspace measurements of percent methane and oxygen by volume conducted prior to sampling.

Table A (Continued)
Monitoring Point Sampling Schedule
Merky/Miles Road Sanitary Landfill

Groundwater Monitoring Well	Well Monitoring Status	1st Semi-Annual Event List of Analytes	2nd Semi-Annual Event List of Analytes
GWC-13Deep	Annual	Appendix I + DCDFM	Water Level Only
GWC-13Rock	Water Level Only	Water Level Only	Water Level Only
GWC-14	Network - Assessment	Appendix I + DCDFM	Appendix I + DCDFM
GWC-15	Network - Assessment	Appendix I + DCDFM + MNA	Appendix I + DCDFM + MNA
GWC-15Rock	Network - Assessment	Appendix I + DCDFM + MNA	Appendix I + DCDFM + MNA
GWC-15Deep	Network - Assessment	Appendix I + DCDFM + MNA	Appendix I + DCDFM + MNA
GWC-16	Network - Assessment	Appendix I + DCDFM	Appendix I + DCDFM
GWC-17	Network - Assessment	Appendix I + DCDFM	Appendix I + DCDFM
GWC-17Rock	Network - Detection	Appendix I + DCDFM	Appendix I + DCDFM
GWC-18	Network - Detection	Appendix I + DCDFM	Appendix I + DCDFM
GWC-19	Network - Assessment	Appendix I + DCDFM	Appendix I + DCDFM
GWC-20	Water Level Only	Water Level Only	Water Level Only
GWC-21Rock	Water Level Only	Water Level Only	Water Level Only
GWC-22*	Water Level Only	Water Level Only	Water Level Only
GWC-23	Delineation	Appendix I + DCDFM	Appendix I + DCDFM
GWC-24	Water Level Only	Water Level Only	Water Level Only
GWC-24Rock	Water Level Only	Water Level Only	Water Level Only
GWC-25	Water Level Only	Water Level Only	Water Level Only
GWC-26	Water Level Only	Water Level Only	Water Level Only
GWC-29Rock	Delineation	Appendix I + DCDFM	Appendix I + DCDFM
GWC-30Rock	Delineation	Appendix I + DCDFM	Appendix I + DCDFM
GWC-31	Delineation	Appendix I + DCDFM	Appendix I + DCDFM

Notes:

- Monitoring Point Sampling Schedule is based on April 2012 approved Corrective Action Plan.
- Network assessment monitoring wells receive analysis for the full list of Appendix II analytes once every three years (next scheduled for 2nd 2015 monitoring event).
- MNA Parameters consist of: dissolved oxygen, nitrate, ferrous iron, sulfate, sulfide, methane, ethane, ethene, oxidation-reduction potential (ORP), total organic carbon (TOC), carbon dioxide, total alkalinity, fluoride, and chloride.
- DCDFM = dichlorodifluoromethane.
- Verified Appendix II constituents will be added to all wells.
- Well headspace measurements of percent methane and oxygen by volume conducted prior to sampling.

* To be monitored for Appendix I + DCDFM during the second 2014 monitoring event

Table A (Continued)
 Monitoring Point Sampling Schedule
 Merk/Miles Road Sanitary Landfill

Surface Water Monitoring Points			
Location	Type	1st Semi-Annual Event List of Analytes	2nd Semi-Annual Event List of Analytes
SWA-1	Surface Water	GA SW Params	GA SW Params
SWC-1	Surface Water	GA SW Params	GA SW Params
SWC-2	Surface Water	GA SW Params	GA SW Params
SWC-3	Surface Water	GA SW Params	GA SW Params

Notes:

- Monitoring Point Sampling Schedule is based on April 2012 approved Corrective Action Plan.
- Network assessment monitoring wells receive analysis for the full list of Appendix II analytes once every three years (next scheduled for 2nd 2015 monitoring event).
- MNA Parameters consist of: dissolved oxygen, nitrate, ferrous iron, sulfate, sulfide, methane, ethane, thene, oxidation-reduction potential (ORP), total organic carbon (TOC), carbon dioxide, total alkalinity, fluoride, and chloride.
- DCDFM = dichlorodifluoromethane.
- Verified Appendix II constituents will be added to all wells.
- Well headspace measurements of percent methane and oxygen by volume conducted prior to sampling.

Table 1
Groundwater Elevation Data
Merk/Miles Road Sanitary Landfill
October 2014 Sampling Event

Monitoring Well ID	Well Depth (ft btoc)	TOC Elevation (ft MSL)	Depth to Water (ft btoc)	Groundwater Elevation (MSL)
GWA-1Rock	89.30	937.39	54.62	882.77
GWA-27Rock	34.73	895.14	26.89	868.25
GWBR-1ARock	59.69	912.68	49.17	863.51
GWB-2Rock	40.87	891.20	33.58	857.62
GWB-3A	27.11	878.25	25.30	852.95
GWB-4A	35.68	899.35	31.85	867.50
GWC-1	42.07	874.39	35.38	839.01
GWC-1ARock	53.60	873.63	35.60	838.03
GWC-2Rock	37.45	860.06	31.81	828.25
GWC-3	15.04	844.98	DRY	DRY
GWC-3Rock	28.30	845.45	17.47	827.98
GWC-4	25.20	836.14	18.42	817.72
GWC-5	25.02	844.03	19.03	825.00
GWC-5Deep	91.59	843.14	19.68	823.46
GWC-5Rock	25.43	842.37	17.88	824.49
GWC-6Rock	43.53	847.58	30.06	817.52
GWC-7	15.73	850.46	DRY	DRY
GWC-7Rock	32.86	850.53	15.20	835.33
GWC-8	27.32	839.78	21.57	818.21
GWC-9	26.25	844.73	22.53	822.20
GWC-10	25.19	843.91	21.57	822.34
GWC-10Rock	86.20	844.00	22.34	821.66
GWC-11	29.71	846.92	24.13	822.79
GWC-12	29.22	847.28	24.08	823.20
GWC-12Rock	61.95	848.96	24.55	824.41
GWC-13	35.95	855.42	25.09	830.33
GWC-13Deep	74.45	853.68	30.62	823.06
GWC-13Rock	52.30	856.41	23.57	832.84
GWC-14	25.56	845.34	18.63	826.71

Notes: Depths to water measured on September 30, 2014.

TOC = Top of casing

ft = feet

btoc = below top of casing

MSL = Mean sea level

Table 1 (Continued)
 Groundwater Elevation Data
 Merk/Miles Road Sanitary Landfill
 October 2014 Sampling Event

Monitoring Well ID	Well Depth (ft btoc)	TOC Elevation (ft MSL)	Depth to Water (ft btoc)	Groundwater Elevation (MSL)
GWC-15	26.40	847.22	21.25	825.97
GWC-15Deep	66.36	846.63	19.98	826.65
GWC-15Rock	43.11	847.78	19.35	828.43
GWC-16	27.76	850.07	21.97	828.10
GWC-17	22.60	852.50	20.03	832.47
GWC-17Rock	57.65	851.27	19.82	831.45
GWC-18	23.67	861.64	17.71	843.93
GWC-19	30.28	828.47	21.51	806.96
GWC-20	29.50	836.79	12.59	824.20
GWC-21Rock	37.50	850.90	26.46	824.44
GWC-22	18.50	794.16	7.73	786.43
GWC-23	36.66	811.57	26.82	784.75
GWC-24	33.24	854.56	28.02	826.54
GWC-24Rock	50.00	856.73	30.58	826.15
GWC-25	34.33	803.84	7.23	796.61
GWC-26	23.36	826.89	23.40	803.49
GWC-29Rock	43.93	827.08	30.38	796.70
GWC-30Rock	41.32	852.31	29.88	822.43
GWC-31	29.83	812.52	21.28	791.24

Notes: Depths to water measured on September 30, 2014.

TOC = Top of casing

ft = feet

btoc = below top of casing

MSL = Mean sea level

Table 2
Field Data Summary
Merk/Miles Road Sanitary Landfill
October 2014 Sampling Event

Monitoring Well ID	% Methane by Volume	% Oxygen by Volume	Sample Method	pH (S.U.)	Specific Conductance (µS/cm)	Temperature (°C)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)
GWA-1Rock	0.0	20.9	BP	7.12	415	20.8	0.4	48	0.0
GWA-27Rock	0.0	20.0	BP	4.54	64	21.0	6.4	261	1.7
GWBR-1ARock	0.0	20.9	BP	5.55	705	22.8	0.8	91	28
GWB-2Rock	0.0	19.7	BP	5.74	948	20.8	0.5	97	0.0
GWB-3A	0.0	20.9	BP	5.26	201	20.9	0.0	200	6.3
GWB-4A	0.0	20.9	BP	4.73	62	18.7	3.3	309	0.0
GWC-1	0.0	20.9	BP	5.64	564	20.2	0.7	87	0.0
GWC-1ARock	0.0	20.9	BP	5.78	697	20.6	0.1	33	0.0
GWC-2Rock	0.0	15.9	BP	5.43	242	20.9	0.7	40	0.0
GWC-3	0.0	20.9	Water Level Only						
GWC-3Rock	0.0	20.9	BP	5.32	282	17.3	0.0	282	0.0
GWC-4	5.5	17.1	BP	5.36	230	21.1	0.5	75	0.0
GWC-5	0.8	20.4	BP	5.06	452	22.0	0.6	68	0.0
GWC-5Deep	0.0	20.9	BP	7.17	462	19.9	0.7	159	0.0
GWC-5Rock	0.0	20.9	BP	11.04	685	22.5	5.4	-32	0.0
GWC-6Rock	0.0	20.9	BP	7.05	485	24.2	4.5	126	0.0
GWC-7	6.5	18.2	BP	Dry					
GWC-7Rock	0.0	20.9	BP	5.46	82	22.0	4.8	236	0.0
GWC-8	0.0	20.9	BP	5.58	108	19.6	5.1	254	0.0
GWC-10	6.0	16.2	BP	6.00	959	21.1	0.7	-51	0.0
GWC-10Rock	0.0	20.9	BP	6.14	635	19.7	1.1	6	0.0
GWC-11	0.5	10.4	BP	5.48	296	19.7	0.6	117	0.0
GWC-12	0.0	20.9	BP	5.49	183	19.7	0.0	198	0.0
GWC-12Rock	0.0	20.9	BP	6.34	403	19.8	2.3	158	13
GWC-13Rock	0.0	20.9	Water Level Only						
GWC-14	0.0	17.6	BP	5.39	159	20.0	1.4	384	0.0
GWC-15	0.0	20.8	BP	5.43	135	18.7	2.2	68	0.0
GWC-15Deep	0.0	20.9	BP	7.13	307	18.0	0.0	-163	0.0
GWC-15Rock	0.0	20.9	BP	5.36	277	19.5	5.8	168	0.0
GWC-16	0.0	20.9	BP	5.77	126	20.0	3.8	361	0.0
GWC-17	0.0	18.2	BP	5.04	48	19.2	2.1	354	0.0
GWC-17Rock	0.0	20.9	BP	5.64	101	18.3	1.7	300	33
GWC-18	0.0	19.6	BP	4.75	83	17.8	0.6	260	0.0
GWC-19	0.0	20.9	BP	5.63	134	16.1	0.0	2	0.0
GWC-20	0.0	20.9	Water Level Only						
GWC-21Rock	0.0	20.9	Water Level Only						
GWC-22	0.0	20.9	BP	5.06	54	23.3	2.3	215	0.0
GWC-23	0.0	20.9	BP	4.26	145	19.7	3.7	298	0.0
GWC-24	0.0	20.9	Water Level Only						
GWC-24Rock	0.0	20.9	Water Level Only						
GWC-25	0.0	20.9	Water Level Only						
GWC-26	0.0	20.1	Water Level Only						
GWC-29Rock	0.0	20.9	BP	4.59	107	22.6	3.6	262	0.0
GWC-30Rock	0.0	20.4	BP	4.70	194	23.2	4.9	281	0.0
GWC-31	0.0	19.5	BP	5.35	97	20.3	3.2	219	0.0

Notes: mg/L = milligrams per liter

S.U. = standard units

PP = Non-Dedicated Peristaltic Pump

°C = Degrees Celsius

ORP = Oxidation Reduction Potential

rel mV = relative millivolts

ft btoc = feet below top of casing

µS/cm = microSiemens per centimeter

NTU = nephelometric turbidity units

BP = Dedicated Bladder Pump

Table 3
 Summary of Organic Compound Detections
 Merky/Miles Road Sanitary Landfill
 October 2014 Sampling Event

Well ID	1,1-Dichloro-ethane (µg/L)	1,1-Dichloro-ethene (µg/L)	Benzene (µg/L)	Chloro-benzene (µg/L)	Chloro-ethane (µg/L)	Chloroform (µg/L)	cis-1,2-Dichloro-ethene (µg/L)	Dichloro-difluoro-methane (µg/L)	Methylene Chloride (µg/L)	Tetrachloro-ethene (µg/L)	Toluene (µg/L)	Trichloro-ethene (µg/L)	Vinyl chloride (µg/L)	Xylenes (µg/L)
GWA-1Rock	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWA-27Rock	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWBR-1ARock	-	-	-	-	-	-	2.6	-	-	-	-	-	-	-
GWBR-2Rock	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWBR-3A	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWBR-4A	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-1ARock	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-2Rock	-	-	-	-	3.3	-	9.2	-	-	-	-	-	-	-
GWC-3Rock	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-4	-	-	7.2	-	-	-	23	-	-	-	-	2.4	-	-
GWC-5	-	-	-	10	2.7	-	53	-	-	-	-	-	3.1	-
GWC-5Deep	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-5Rock	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-6Rock	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-7	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
GWC-7Rock	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-10	-	-	-	-	-	-	-	-	-	-	2.0	-	4.2	-
GWC-10Rock	11	-	2.4	-	-	-	8.9	-	-	-	-	3.6	-	-
GWC-11	17	2.7	-	-	-	-	19	-	-	-	-	4.1	-	-
GWC-12	5.1	-	-	-	-	-	7.5	-	-	-	-	3.2	-	-
GWC-12Rock	5.3	-	-	-	-	-	3.5	-	-	-	-	2.3	-	-
GWC-14	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-15Deep	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-15Rock	-	-	2.7	-	-	-	16	-	11	-	-	-	3.1	-
GWC-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-17Rock	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWC-29Rock	-	-	-	-	-	4.0	-	-	-	-	-	-	-	-
GWC-30Rock	-	-	-	-	-	12	-	-	-	-	-	-	-	-
GWC-31	2.7	-	-	-	-	-	8.4	-	-	6.2	-	4.1	-	-
GWPS	7	7	5	100	3.6	80	70	7	5	5	1000	5	2	10,000

Notes: 1. All groundwater samples collected on September 30 & October 1-3, 2014.
 2. µg/L = micrograms per liter
 3. - = Below Detection Limit
 4. GWPS = Groundwater Protection Standards established in ACM/CAP.
 5. Bold and shaded values exceed GWPS.
 6. Underlined values are not considered verified.
 7. NE = Not Established
 8. NR = Not Required

Table 4
 Summary of Appendix I Metals Detections
 Merk/Miles Road Sanitary Landfill
 October 2014 Sampling Event

Well ID	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cobalt (mg/L)	Lead (mg/L)	Zinc (mg/L)
GWA-1Rock	--	--	--	--	--	--
GWA-27Rock	--	--	--	--	--	--
GWBR-1ARock	--	0.16	--	--	--	0.023
GWB-2Rock	--	0.23	--	--	--	--
GWB-3A	--	0.079	--	--	--	--
GWB-4A	--	0.021	--	--	--	--
GWC-1	--	0.14	--	--	--	--
GWC-1ARock	--	0.11	--	--	--	--
GWC-2Rock	--	0.066	--	--	--	--
GWC-3Rock	--	0.037	--	--	--	--
GWC-4	--	0.024	--	--	--	--
GWC-5	--	0.027	--	--	--	--
GWC-5Deep	--	--	--	--	--	--
GWC-5Rock	--	0.033	--	--	--	--
GWC-6Rock	--	--	--	--	--	--
GWC-7	DRY	DRY	DRY	DRY	DRY	DRY
GWC-7Rock	--	--	--	--	--	--
GWC-8	--	--	--	--	--	--
GWC-10	--	0.081	--	--	--	0.11
GWC-10Rock	--	0.11	--	--	--	--
GWC-11	--	0.060	--	--	--	--
GWC-12	--	0.031	--	--	--	--
GWC-12Rock	--	0.039	--	--	--	--
GWC-14	--	0.063	--	--	--	--
GWC-15	--	0.12	--	--	--	--
GWC-15Deep	--	--	--	--	--	--
GWC-15Rock	--	0.080	--	--	--	--
GWC-16	--	0.027	--	--	--	--
GWC-17	--	0.031	--	--	--	--
GWC-17Rock	--	0.025	--	--	--	--
GWC-18	--	0.028	--	--	--	--
GWC-19	--	--	--	--	--	--
GWC-22	--	--	--	--	--	--
GWC-23	--	0.037	--	--	--	--
GWC- 29Rock	--	--	--	--	--	--
GWC-30Rock	--	--	--	--	--	--
GWC-31	--	--	--	--	--	--
GWPS	0.01	2	0.004	2.1	0.023	5

- Notes: 1. All groundwater samples collected on September 30 & October 1-3, 2014.
 2. mg/L = milligrams per liter.
 3. -- = Below detection limit.
 4. Bold and shaded values exceed GWPS.
 5. Underlined values not verified.
 6. GWPS = Groundwater Protection Standard established in the ACM.

Table 5
 Summary of Natural Attenuation Parameters
 Merky/Miles Road Sanitary Landfill
 October 2014 Sampling Event

Well ID	Total Alkalinity (mg/L)	Total CO ₂ (mg/L)	Ferrous Iron (mg/L)	Fluoride (mg/L)	Chloride (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Total Organic Carbon (mg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)
GWA-1Rock	170	50	0.0	0.50	1.6	0.050	26	-	-	-	-	0.76
GWC-1	190	425	0.4	-	44	-	8.9	-	19	-	-	590
GWC-1ARock	320	290	2.2	-	26	0.38	11	-	17	-	-	45
GWC-4	100	410	2.0	-	4.8	0.35	0.52	-	1.8	-	-	6,200
GWC-5	82	400	2.6	-	53	-	19	-	9.0	-	-	1,600
GWC-5Deep	200	60	0.0	0.70	2.0	0.89	24	-	3.8	-	-	0.93
GWC-5Rock	170	>300	0.0	-	4.2	3.0	6.8	1.3	1.3	-	-	21
GWC-10	250	400	2.2	-	6.4	-	-	-	3.8	-	-	4,700
GWC-10Rock	310	300	4.0	-	4.1	-	3.6	-	-	-	-	3,900
GWC-11	130	350	1.2	-	13	-	1.2	-	1.4	-	-	2,400
GWC-12	68	145	0.0	-	6.5	0.69	-	-	1.1	-	-	21
GWC-12Rock	180	115	0.0	-	4.4	0.25	1.3	-	-	-	-	9
GWC-15	24	35	1.0	-	28	0.70	-	-	2.3	-	-	28
GWC-15Deep	170	100	0.0	0.15	4.6	-	24	-	2.5	29	-	4,300
GWC-15Rock	120	240	0.2	-	29	0.62	0.65	-	7.5	-	-	2,200

Notes: 1. All Groundwater samples collected on September 30 & October 1-3, 2014.

2. mg/L = milligrams per liter

3. µg/L = micrograms per liter

4. - = Below Detection Limit

5. NM = not measured.

Table 7
 Summary of Surface Water Detections
 Merk/Miles Road MSWLF
 October 2014 Sampling Event

Location	pH (S.U.)	D.O. (mg/L)	Temp. (°C)	Sp. Cond. (µS/cm)	Turbidity (NTU)	TOC (mg/L)	COD (mg/L)	Chloride (mg/L)	Barium (mg/L)	Zinc (mg/L)
SWA-1										
Dry										
SWC-1	6.14	2.8	25.9	177	62	2.6	11	5.5	--	--
SWC-2	7.24	3.2	28.6	124	2.4	--	--	3.8	--	--
SWC-3										
Dry										

Notes: Surface water points sampled October 2, 2014.
 mg/L = milligrams per liter
 TOC = Total Organic Carbon
 COD = Chemical Oxygen Demand
 -- = Below Detection Limit
 D.O. = Dissolved Oxygen
 Sp. Cond. = Specific Conductance
 Temp. = Temperature
 µS/cm = microSiemens per centimeter
 NTU = nephelometric turbidity units
 S.U. = standard units
 °C = Degrees Celsius

Table 8
 Summary of Statistically Significant Increases
 Merk/Miles Road Sanitary Landfill
 October 2014 Sampling Event

Well ID	1,1-DCA	Benzene	cis-1,2-DCE	Methylene Chloride	Vinyl Chloride	Barium	Zinc
Upgradient/Background Wells							
GWA-1Rock							
GWA-27Rock						X	
GWR-1ARock						X	
GWB-2Rock						X	
GWB-3A						X	
GWB-4A						X	
GWC-1						X	
GWC-1ARock						X	
GWC-2Rock						X	
GWC-3Rock						X	
GWC-4		X	X			X	
GWC-5			X				
GWC-5Rock						X	
GWC-5Deep							
GWC-7							
GWC-7Rock							
GWC-8							
GWC-10						X	X
GWC-10Rock	X		X			X	
GWC-11	X		X			X	
GWC-12	X		X			X	
GWC-12Rock	X					X	
GWC-14						X	
GWC-15						X	
GWC-15Deep							
GWC-15Rock			X	X	X	X	
GWC-16						X	
GWC-17						X	
GWC-17Rock						X	
GWC-18						X	
GWC-19						X	

Notes: 1. X = Did not qualify as an SSI. Blank cell = Did not qualify as an SSI.
 2. Bold and shaded values exceed relevant GWPS. Underline indicates unverified detection.
 3. 1,1-DCA = 1,1-dichloroethane; cis-1,2-DCE = cis-1,2-dichloroethene; TCE = trichloroethene.

Analysis of Waste Management Alternatives

Executive Summary

The State of Georgia law requires Fulton County to periodically update its Solid Waste Management Plan (SWMP) in order to be eligible for permits, grants, and loans for municipal solid waste disposal facilities. The County last updated its SWMP in 2005 and is currently in the process of completing a full update of the plan. The SWMP update examines the County's waste disposal stream and includes a comprehensive review of the County's solid waste reduction, collection, and disposal practices and needs. It also considers related land limitation issues and education and public involvement needs related to these items. The culminating product of the SWMP is the implementation plan, which includes a short term work program.

As part of its SWMP update, the Fulton County Solid Waste Department (County) requested recommendations for implementation of a new program. The recommendations are based on findings from the SWMP update and further analysis completed as a part of this Analysis of Waste Management Alternatives. The recommendations of this Analysis will be included in the final development of the short-term work program of the SWMP update.

The overarching mission of the State and County solid waste planning objectives is to ensure that solid waste collection, disposal, and management activities are efficient and responsive to the community's unique needs while having a minimal impact on the environment.

In the southern portion of the County, approximately 26,000 households are served, with collection and disposal services by a number of private haulers, most of which are not registered with the County. In addition to the unregistered haulers, the County faces many other challenges regarding its current solid waste program. The problems resulting from current waste management procedures in unincorporated Fulton County are significant enough to warrant some changes. Some of the largest challenges include illegal dumping, tire dumping, unregistered haulers, as well as the current lack of a well defined organizational structure for solid waste management. Authority and responsibility for necessary functions are not entirely clear, and costs are spread among many County departments, making them difficult to track or control.

After a review of the current challenges, an analysis of three program alternatives was performed. The programs chosen were from three neighboring counties, and each represented a different way of managing the solid waste collection, from county run, to privatized multiple haulers, to county managed franchise system. The single hauler franchise system is the recommended alternative for Fulton County. A single exclusive franchise for the entire unincorporated area of the County, with required participation by all property owners, and with the County collecting revenues and serving as the contact point for customer service, can have many advantages, including reducing motivation for illegal dumping, economies of scale, recycling and yard waste collection alternatives, simple process for county residents, and the creation of a revenue stream to support a structure that will address other issues such as clean up and beautification programs.

Implementing a revised and improved solid waste management program will require extensive efforts, including addressing needs for managing the procurement of bids from potential haulers, managing and monitoring the selected haulers, dealing with customers, collecting revenues, responding to illegal dumping, and any other issue that might arise. This analysis recommends that the County focus initial efforts on two primary objectives: (1) implementation of a universal residential collection program in the unincorporated County, and (2) creation of some form of tire disposal program in the unincorporated County with consideration of a supporting program County-wide.

Current Challenges

Waste collection and disposal in South Fulton County is currently managed by a number of private haulers, only a small portion of which are registered with the County. The County faces numerous challenges associated with the current situation, including:

- **Illegal dumping** – Illegal dumping of solid waste is an increasing problem in South Fulton County. As summarized in earlier sections, this dumping leads to deteriorating safety, environmental, public health, and economic conditions in the County.
- **Tire dumping** – tire dumping is particularly problematic in that tire dumps represent extreme environmental and public health hazards.
- **Difficulty in responding** – the County’s current organization does not provide adequate staff to respond to these problems as they occur.
- **Difficulty in preventing future illegal dumping** – current waste management procedures do not provide adequate tools or resources to allow the County to take sufficient action to prevent ongoing and increasing illegal dumping.
- **Difficulty in managing costs** – with the County’s current organization for solid waste management, it is difficult to control the County’s costs of responding to these waste management issues. Cost impacts are felt in multiple departments and areas including code enforcement, planning, transportation, public health, environmental courts, and solid waste management.
- **Limited revenues** – The County’s only dedicated source of revenue related to solid waste is associated with management of the Merk Miles transfer station and landfill.

In response to these challenges, Fulton County is considering alternative waste management solutions. The following section summarizes current waste management procedures in Gwinnett, Cobb, and DeKalb Counties, three metropolitan area counties providing examples of three different approaches.

Examples of Alternative Waste Management Approaches

Gwinnett County

Gwinnett County handles solid waste collection and disposal through a series of exclusive contracts with five private haulers. The five private haulers have each been assigned exclusive territories, and each signed a uniform contract with Gwinnett County. The program is new, being implemented July 1, 2010. The haulers are required to provide weekly pick up of waste, including recycling, bulk waste, and for an additional fee, yard waste. They provide customers with a 95 gallon bin, and with an optional smaller 65 gallon bin available if requested.

Gwinnett County charges a solid waste collection fee for residential service of \$16.61 per month to be paid for each residential unit, which includes collection of recyclables and white goods if requested by a resident. Additionally, the County charges each residential unit \$1.25

per month for administrative costs, for a total monthly cost of \$17.86 per household. Gwinnett County announced that there will be no adjustment of monthly fees for residents during the initial 18 months of the contract (July 1, 2010 through December 31, 2011). In addition to the \$17.86 monthly fee, waste haulers can collect yard trimmings upon request of a resident, and charge the resident directly at a rate of \$60 per service unit (\$10 per month) to be paid semi-annually without proration for service provided at any time during either six month billing period (January - June, and July - December). The County is not involved in those transactions.

The County collects all fees, except fees charged for yard trimmings, through ad valorem tax bills. Each month the haulers provide an electronic report to the County detailing the residential units serviced. The County pays each hauler based on the residential units serviced by the 10th of the month following service.

Since Gwinnett County implemented the new solid waste collection program so recently, operating revenues and expenses for the solid waste fund are not yet available in an audited format. The most recently available Comprehensive Audited Financial Report (CAFR) is for fiscal year (FY) 2009, prior to the implementation of the new program. The old program involved direct billing for solid waste services by haulers, and limited involvement of the County. Gwinnett incurred expenses of just under \$1 million in its solid waste fund under the old program, and received revenues in the form of user fees and charges mostly of approximately \$1.1 million. The FY 2011 budget shows proposed revenue from fees and other sources of \$39 million, which now includes the cash flow to pay the franchised haulers.

Cobb County

Cobb County handles solid waste collection through a system of non-exclusive franchises. To become a franchised hauler, each business that wants to collect solid waste within Cobb County needs to apply for a solid waste permit. The application needs to be filed with the business license office. Once a license has been issued, all residential collectors are required to comply with the following requirements:

- Collectors shall provide residential collection service at least once per week.
- Residential collectors shall give written notice of any change in policy or level of service within 10 days to both the County and the residents affected.
- All collectors, including commercial collectors, must dispose of any solid waste in an approved disposal facility permitted and regulated by the state department of natural resources and/or the county.
- Yard trimmings are required to be disposed of appropriately. It is unlawful within unincorporated Cobb County to dispose of yard trimmings in all municipal solid waste landfills with liners or leachate collection systems. All collectors, including commercial collectors, must dispose of yard trimmings, if collected, in the following manner: sorting and stockpiling; or chipping; or composting; or using as mulch; or by otherwise beneficially reusing or recycling it to the maximum extent feasible; or by delivering it to certain types of landfills that are permitted to accept yard trimmings.

Additionally, to qualify as a hauler within the County, all collectors must offer to their residential customers the option of having their recyclable materials collected at least once a month. Haulers must collect recyclable materials, at a minimum including newspaper and aluminum. All collectors must offer an appropriate container, bags or other type of receptacle for those residential customers opting for this recycling service. Any collector providing such a container, bags or other type of receptacle to any residential customer may charge a fee for such a container, bags or other type of receptacle. In no event shall any of the recyclable materials collected pursuant to this optional recycling service be disposed of in any landfill.

Cobb County has completely privatized the system, and as a result, neighborhoods often see multiple garbage trucks coming to collect waste on several days of the week. With a wide range of haulers and services, there is also a range of monthly charges. Haulers each invoice the customers directly, some monthly, some quarterly, with average monthly rates ranging from \$10 to \$15 a month. Rates depend on the hauler, as well as the area of the County, as some neighborhood Homeowners Associations offer special negotiated rates for solid waste collection.

The most recently available Comprehensive Audited Financial Report (CAFR) is for fiscal year (FY) 2009, during which Cobb incurred expenses of just over \$10 million in its solid waste fund and received revenues of approximately \$5.5 million. The apparent shortfall is most likely an aberration resulting from a single year snapshot; a multiple year analysis, combined with the recognition of transfers in and out of the solid waste fund could reveal a different picture.

DeKalb County

DeKalb County handles solid waste collection by providing services directly to the public, and does not have contracts or franchises with any private haulers. The County, through its Sanitation Department, provides collection of household garbage twice per week in the unincorporated areas of the County and the city of Lithonia. Residents are allowed an unlimited amount of household solid waste curbside in approved receptacles: 20-32 gallon metal or plastic cans or bags and paper boxes. Garbage is manually collected by a crew consisting of a driver and two collectors using a rear loader high compaction vehicle. Back door service is provided at no extra charge to residents who are exempt for medical reasons from placing their containerized refuse on the curb. Backdoor service is also available to other customers for an additional charge.

In addition to solid waste collection, DeKalb offers three types of recycling options. The basic service provides weekly residential curbside recycling service for newspaper and aluminum cans. The comprehensive subscription curbside recycling program allows participating in recycling with a variety of items that have been identified as part of the program. Lastly, residents can recycle by dropping off their recycling materials at designated locations.

The County does collect yard debris, including grass clippings, leaves, twigs, branches, limbs, tree parts, shrubbery, vines, garden plants, etc., and other naturally occurring vegetative matter. Grass clippings, leaves, twigs, shrubbery, vines, garden plants, and small items must be

placed in approved 20-40 gallon receptacles. Approved receptacles include durable metal and plastic containers or durable biodegradable paper bags.

Sanitation charges provide for landfill maintenance, environmental compliance, countywide sanitation, and related services, and are included on the annual tax statement for most properties in DeKalb County. Currently, the County charges a rate of \$265.00 per year, or \$22 per month.

The most recently available Comprehensive Audited Financial Report (CAFR) is for fiscal year (FY) 2009, during which DeKalb incurred expenses of just over \$59 million in its solid waste fund, and received revenues in the form of user fees and charges mostly of approximately \$67.6 million.

These three metropolitan area Counties offer insight into the primary options Fulton County is considering for waste management in the future. Each offers a different set of advantages and disadvantages to the public, and would result in differing levels of cost, and require differing amounts of change.

The table below summarizes the three program alternatives discussed above, and the services offered in each:

**Figure 1
Program Alternatives Matrix**

Government	Gwinnett County (1)	Cobb County,GA (2)	DeKalb County (3)
Population	651,695	489,114	560,807
Housing Units	231,787	196,579	244,604
Households (estimate)	213,743	180,212	217,513
System	Contract/Exclusive Franchise	Non-Exclusive Franchise	County Collection
Details	5 haulers	50+ haulers	no private haulers
Mandatory	Yes	Yes	Yes
Frequency	Weekly	Weekly	Bi-Weekly
Fee Structure	Negotiated Contract	Privatized System	County Collection
Cost/House/Month	\$ 17.86	\$10.00 - \$15.00	\$ 22.00
Cost/House/Year	\$ 214.32	\$120.00 - \$180.00	\$ 264.00
Billing	Property Tax Statements	Each hauler bills individually	Property Tax Statements
Frequency of Billing	Annually	Mostly Quarterly	Annually
Yard Waste	elective, \$10/month	Yes	Yes
Recycling	Yes	Yes	Yes
Bulk Waste	Yes	Yes	Yes
Solid Waste Revenues	\$ 39,689,510	\$ 5,681,913	\$ 67,689,000
Solid Waste Expenses	\$ (39,689,510)	\$ (10,296,597)	\$ (59,248,000)

Notes:

- (1) Gwinnett implemented system in July 2010. Revenues & expenses shown are from FY 11 Budget.
- (2) Revenues and expenses for solid waste fund as identified in the Cobb County FY 09 CAFR. However, Cobb County does not collect user fees, each hauler collects those individually. Additionally, Cobb County's solid waste fund has previously received transfers from other funds. Analyzing the fund from a one year outlook is difficult to get an accurate picture.
- (3) Revenues and expenses for solid waste fund as identified in the DeKalb County FY 09 CAFR.

Fulton County's Situation and Decision Framework

The problems resulting from current waste management procedures in unincorporated Fulton County are significant enough to warrant change. It is not possible in this document to provide a comprehensive feasibility study, nor to outline all of the organizational, public policy, accounting, financing, and management issues relevant to the County's decision on the future organization of solid waste management services. But this document can usefully indicate some of the key factors relevant to the decision, and suggest a potential direction which would need to be analyzed and verified by detailed and thorough and detailed analysis in the future.

Some of the largest challenges facing the County involve the current lack of a deep or well defined organizational structure for solid waste management. Authority and responsibility for necessary functions are not entirely clear, and costs are spread among many County departments and are not easily tracked or controlled. These factors both contribute to the current problems and make movement toward an improved management structure challenging.

As a preliminary direction, and subject to refinement and subsequent analysis, an approach along the lines of current solid waste management procedures in Gwinnett County may have the potential to resolve many of the problems facing Fulton County.

A single exclusive franchise for the entire unincorporated area of the county, with required participation by all property owners, and with the County collecting revenues and serving as the contact point for customer service, could lead to a number of advantages, including:

- Universal service would reduce the motivation for illegal dumping;
- The potential for achieving economies of scale through provision of collection and disposal services to the entire unincorporated area;
- The ability to provide recycling and yard waste collection on a wide scale;
- Simplifying waste management for county residents; and
- Creation of a revenue stream sufficient to support an enhanced organizational structure able to address other issues in the future such as the creation of an enhanced tire disposal management plan, cleanup of existing dumps and other hazards, and beautification programs.

Implementing a revised and improved solid waste management program will require extensive efforts including addressing needs for managing the procurement of bids from potential haulers, managing and monitoring the selected haulers, dealing with customers, collecting revenues, responding to illegal dumping, and any other issue that might arise.

A few of the key items needing consideration at this time are:

- **Billing** – whether this will be accomplished through the annual tax bill or through separate monthly or annual billing, the County needs to review the options and create a

plan for billing. To evaluate billing through the property tax billing system, detailed discussions with the personnel responsible for this system should take place, and detailed plans should be made to create a precise definition of who will be billed, confirm the ability of the tax assessor's database and procedures to bill accordingly, determine when the change will occur, how the transition will be handled, and how disputes and other issues will be addressed.

Residential billing could very likely be incorporated into the property tax billing system, done on an annual basis at an established monthly rate. Items to consider are solid waste rates in neighboring counties, which range from \$10 to \$22 a month, as well as the revenue requirements that will be generated as a result of implementing and maintain the solid waste collection program. Tax billing would involve some cost to the tax assessor, which would need to be borne by participants in the program, though billing costs in this case would likely be lower than in any other billing option.

- **Commercial waste** – The County will need to decide if its program should include commercial waste. Most such programs are focused on residential waste management only, and this decision is likely to be appropriate in Fulton County as well. If it were to be determined that commercial waste generators were making a significant contribution to environmental or other issues, it may be possible to examine the potential for a regulatory fee of a certain amount per commercial customer per month or year. A relatively modest amount could have the potential to offset some of the revenue requirements for program implementation and maintenance.
- **Administrative costs** – The revenues from solid waste fees need to be sufficient to cover the costs of hauling and disposal, as well of program administration. Gwinnett County charges a monthly administrative fee to residential customers to assist in maintaining the solid waste program. It is important to complete extensive organizational planning, responsibility mapping, staffing, and budgeting to establish an appropriate administrative fee amount to fully meet Fulton County's needs, inclusive of appropriate funding by the solid waste program of support service provided by other departments (e.g. transportation, public health, environmental courts, and charges from the tax assessor's office or the cost of any other billing approach).
- **Legal review** – this report does not address the County's authority to pursue any changes to its solid waste management procedures. A complete legal review is an important early step to assure that the County is proceeding on a path that is consistent with its authority. Such a review is always important, but it is particularly important in this case as the alternatives being considered would have direct impacts on firms currently providing collection services in Fulton County.
- **Hauler selection** – preparation of a bid document will require thoughtful and careful analysis to address legal requirements and to specify with clarity and precision the services being requested. The scope of services must be appropriate to meet the objectives of the County, and it must be understandable and achievable by potential bidders. Issues related to multiple franchise areas or a single franchise area must be addressed, and the potential for specialty or "niche" bids to address certain

communities or needs must be anticipated. A framework must be developed to allow the balanced comparison of bids from potential service providers, and an evaluation matrix should be developed to facilitate an examination of the quality, reliability, financial capacity, service record, and other attributes of bidders.

- **Hauler licensing and monitoring** – It is important for the County to expand its ability to monitor and regulate its licensing process to ensure compliance by all haulers. A system of universal participation by residents would be expected contribute to an elimination of illegal haulers, but licensing will remain as an important tool to assure that solid waste is handled in a way that is beneficial to residents and businesses in Fulton County.
- **Tire disposal** – Illegal tire dumping is an area of significant concern for the County. Improper disposal of tires is contributing to a number of negative effects, and needs to be addressed. This is an issue of critical importance to the County, and should be addressed as part of redesigning the solid waste program serving unincorporated South Fulton County. Factors needing to be examined and analyzed to allow a tire disposal program to address the problems in the County include:
 - The potential benefit of engaging a single hauler to pick up all tires in the unincorporated part of Fulton County – If it were possible to reduce the number of tire haulers, the County would be more likely to be able to enforce and monitor the disposal of tires throughout the unincorporated area.
 - The potential to institute a County wide tire hauler fee – It is evident that much of the illegal tire dumping in the unincorporated part of the County is from within the Cities, particularly the City of Atlanta. As the County is compelled to respond to these illegal dumps regardless of the source, and as the County is partially involved in illegal dumps located within the cities as well, there may be logic and justification for a fee mechanism that encompasses the entire County.
 - The creation of improved and expanded enforcement methods to assure compliance, including warnings/penalties/fines, and the possibility of relying on the Health Department for enforcement.
- **Yard waste** – Yard waste must be part of the services provided in any scenario. Yard waste collection is an important basic service, and must be collected and disposed of properly to maintain the quality of life in the County and meet legal requirements. Illegal dumping of yard trimmings is an issue in the unincorporated County, and as such, it is likely to be beneficial to include yard waste collection as a required component of the residential program bid process.
- **Recycling** – Recycling collection also must be a part of the services provided in any scenario. Potential haulers should be expected to provide recycling pick up along with solid waste pick up, and specific requirements must be determined in advance, including the precise materials to be collected, the manner of collection, and certification of ultimate disposition of collected recyclable materials.

- **Staffing** – ensure that the County has the proper staff to accommodate implementation and management of the new program. Employees will need to be available for dealing with hauler licensing, revenue collecting, payments to haulers, customer questions, and dealing with enforcing penalties and fines for improper disposal. Lines of authority and responsibility need to be clarified and agreed upon.
- **Beautification programs** – once a residential solid waste program is established, the County can focus on implementing or expanding beautification programs in appropriate portions of the County. The residential solid waste program could provide a revenue stream with the potential to support one or more of the following services:
 - Street sweeping programs
 - Keep Fulton Beautiful
 - Enhanced litter collection
 - Right of way cutting and enhancement

Recommendations

Based on the discussion above and in light of the available resources of the County, and the current solid waste functions in the County, it is recommended that the County focus initial efforts on two primary objectives: implementation of a universal residential collection program in the unincorporated County, and creation of some form of tire disposal program in the unincorporated County and consideration of a supporting program County-wide.

1. **Residential collection program** – analyze, determine optimal actions, and create transition plans and a business plan to create a universal residential collection program in the unincorporated County including:
 - Selecting a franchise vendor for residential solid waste collection in unincorporated Fulton County;
 - Implement a billing mechanism through the County Tax Commissioner or other means; and
 - Budget, develop management and staffing programs, and conduct a rate and fee study to ensure the fees collected will allow County to manage the program;
 - Ensure the selected hauler will provide services that include yard waste collection, recycling, bulk waste collection and disposal.
2. **Tire disposal program** – analyze, determine optimal actions, and create transition plans and a business plan to create a tire disposal program in the unincorporated County including:
 - Selecting one tire hauler to collect and dispose of tires; and

- Analyzing and determining the feasibility of implementing a County wide tire permitting program through the Health Department, determining appropriate fee amounts, administrative procedures, revenue collection procedures, and authority.
3. **Administrative** – In support of the two primary objectives above, the County will need to designate employees to address solid waste management functions. Employees will be needed to handle enforcement, customer service, and other program functions including coordinating with other departments with solid waste responsibilities, monitoring selected haulers, operating a call center to handle citizen complaints, and implementing improved or expanded beautification programs. The current organizational structure is not adequate to conduct these expanded functions. The revenue stream associated with the proposed residential program should be structured to allow funding of the necessary functions.
 4. **Revenue Projections** – It is recommended that the County perform a more in depth study to develop complete and well documented revenue projections associated with implementing the recommended alternatives. Determining reasonable staffing and budget estimates will allow the creation of an adequate rate structure, which is a critical success factor for the new program. Any rate structure must be adequate to meet program requirements, as a change in any rate structure in the first several years of the program will tend to be extremely unpopular with the affected public.

The potential gross revenue stream could be estimated by multiplying 26,000 (an estimate of the households in unincorporated South Fulton County) by an assumed annual fee amount per household. As an example, a monthly fee of \$20 would translate into an annual fee of \$240 per household and gross revenue from all households of approximately \$6.2 million per year. More detailed information, including the cost proposals from the haulers, the payments that will be contributed to the Tax Commissioner's office for processing the billing, beautification programs, and costs of program administration would need to be included in a rate study to provide a full picture and allow confidence in setting a fee amount.

Analysis of Waste Management Alternatives

Executive Summary

The State of Georgia law requires Fulton County to periodically update its Solid Waste Management Plan (SWMP) in order to be eligible for permits, grants, and loans for municipal solid waste disposal facilities. The County last updated its SWMP in 2005 and is currently in the process of completing a full update of the plan. The SWMP update examines the County's waste disposal stream and includes a comprehensive review of the County's solid waste reduction, collection, and disposal practices and needs. It also considers related land limitation issues and education and public involvement needs related to these items. The culminating product of the SWMP is the implementation plan, which includes a short term work program.

As part of its SWMP update, the Fulton County Solid Waste Department (County) requested recommendations for implementation of a new program. The recommendations are based on findings from the SWMP update and further analysis completed as a part of this Analysis of Waste Management Alternatives. The recommendations of this Analysis will be included in the final development of the short-term work program of the SWMP update.

The overarching mission of the State and County solid waste planning objectives is to ensure that solid waste collection, disposal, and management activities are efficient and responsive to the community's unique needs while having a minimal impact on the environment.

In the southern portion of the County, approximately 26,000 households are served, with collection and disposal services by a number of private haulers, most of which are not registered with the County. In addition to the unregistered haulers, the County faces many other challenges regarding its current solid waste program. The problems resulting from current waste management procedures in unincorporated Fulton County are significant enough to warrant some changes. Some of the largest challenges include illegal dumping, tire dumping, unregistered haulers, as well as the current lack of a well defined organizational structure for solid waste management. Authority and responsibility for necessary functions are not entirely clear, and costs are spread among many County departments, making them difficult to track or control.

After a review of the current challenges, an analysis of three program alternatives was performed. The programs chosen were from three neighboring counties, and each represented a different way of managing the solid waste collection, from county run, to privatized multiple haulers, to county managed franchise system. The single hauler franchise system is the recommended alternative for Fulton County. A single exclusive franchise for the entire unincorporated area of the County, with required participation by all property owners, and with the County collecting revenues and serving as the contact point for customer service, can have many advantages, including reducing motivation for illegal dumping, economies of scale, recycling and yard waste collection alternatives, simple process for county residents, and the creation of a revenue stream to support a structure that will address other issues such as clean up and beautification programs.

Implementing a revised and improved solid waste management program will require extensive efforts, including addressing needs for managing the procurement of bids from potential haulers, managing and monitoring the selected haulers, dealing with customers, collecting revenues, responding to illegal dumping, and any other issue that might arise. This analysis recommends that the County focus initial efforts on two primary objectives: (1) implementation of a universal residential collection program in the unincorporated County, and (2) creation of some form of tire disposal program in the unincorporated County with consideration of a supporting program County-wide.