

MACON COUNTY SOLID WASTE MANAGEMENT PLAN



Prepared For:
Macon County Commission

Prepared by



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Cost for this plan?
Recent ADEM budget cuts - how the city missed out on grants for a
recycling program (pg 14)
Littering - addressing → solution
State code (?) littering signs
County to speak @ EARP partners to see if interested
in transfer stations.

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I. Introduction

A Solid Waste Management Plan (SWMP) is required of local governments by the Alabama Department of Environmental Management (ADEM) to plan for the collection and disposal of solid waste generated within its boundaries. A SWMP was last developed for Macon County in 2005, which addressed the solid waste needs for Macon County until 2015. This plan will serve as an update to the 2005 plan by analyzing the previous recommendations and providing suggested alternatives to serve the solid waste needs of Macon County.

The goal of this Solid Waste Management Plan is to aid Macon County, its municipalities, and ADEM in providing for the collection and disposal of solid waste generated within the county. The plan is meant to provide an overview of current waste volumes and characteristics, as well as to project the future solid waste needs of the county. In addition, the plan is intended to offer alternatives and recommendations for the County to implement to efficiently and economically meet their needs. Section X of this plan offers recommendations for Macon County to meet the needs set forth in this plan. The plan will serve Macon County for a 10-year period from 2015 to 2025. As required by Alabama Law, the Macon County Commission will pass a resolution to accept this plan. This updated Plan will expire ten (10) years from the approval date of the Resolution included in Appendix E.

A Solid Waste Needs Assessment was prepared by the South Central Alabama Development Commission (SCADC), which includes all of Macon County. The last assessment, performed in 2003, was used as a guideline in preparing the Macon County SWMP. The assessment used population and waste projections to determine the future solid waste needs of Macon County and the region. Upon its completion and approval, a copy of this report will be made available to the SCADC for their use in future needs assessments.

Macon County is located in Mideast Alabama. It is bounded by Tallapoosa County to the north, Elmore County to the northeast, Lee County to the northwest, Montgomery County to the west, Bullock County to the south, and Russell County to the east. Macon County is composed of four municipalities and one county government. Municipalities include the City of Tuskegee and Towns of Notasulga, Shorter, and Franklin. The county is in a sparsely populated, rural area.

According to the 2010 US Census, the population of Macon County is 20,641 people. This is an approximately 14% decrease from the 2000 US Census figure of 23,449 people. Of the 2010 figure, approximately 47%, or 9,693 people, live outside of the four municipalities. According to the 2010 US Census, populations of the four municipalities are:

1. City of Tuskegee: 9,492
2. Town of Notasulga: 856
3. Town of Shorter: 456
4. Town of Franklin: 143

A detailed list of current population data as well as population projections is shown below (Figure I-1).

**Figure I-1
Macon County Current and Projected Populations**

Area	Census Data			Projected Population			
	1990	2000	2010	2015	2020	2025	2030
Macon County	24,928	24,105	21,452	20,641	19,967	19,347	18,771
Tuskegee	12,257	11,846	9,868	9,492	9,182	8,897	8,632
Franklin	152	149	149	143	139	134	130
Shorter	461	355	474	456	441	427	415
Notasulga	979	916	890	856	828	803	779
Category	Existing Population			Projected Population			
	1990	2000	2010	2015	2020	2025	2030
Urban	13,849	13,266	11,381	10,948	10,590	10,262	9,956
Rural	11,079	10,839	10,071	9,693	9,377	9,085	8,815
Total	24,928	24,105	21,452	20,641	19,967	19,347	18,771

Sources:

U.S. Census Bureau, 2010 Data

University of Alabama Center for Business and Economic Research, 2011

Municipality Projected Population Estimated as Percentage of Future County Population based on municipality's 2010 percentage of overall County population

The major industries in the county are retail, food, and government, which employ approximately 50% of the available work force. Macon County has experienced an economic downturn over the past 25 years. The unemployment rate has continued to rise and is slightly above the national average. This has also contributed to the population decline the county has experienced.

II. Waste Volume and Compositions

NAT'L AVG

Municipal solid waste consists of the solid material discarded by a community including excess food, containers and packaging, residential garden wastes, other household discards, and light industrial debris. These materials are generally disposed of by the community in a permitted landfill. Hazardous wastes including paints, oils, and radioactive substances present special disposal problems and are not included in municipal solid waste. According to the United States Environmental Protection Agency, the US generated approximately 4.7 lbs per day of municipal solid waste in 2005 and 4.43 lbs per day in 2010. A value of 5 lbs per person per day is commonly used for design purposes in developing solid waste plans. This number can vary greatly in an area based on illegal dumping, recycling programs, an area's average income, and the number and type of jobs within the community. Given Macon County's existing population of 20,641, the expected waste to be generated from the county would be 19,575 tons per year; however, recent data shows the total waste at approximately 26,470 tons per year. Table II-1 gives the average composition of solid wastes generated in the United States.

Handwritten calculation:
 26,470
 - 19,575

 6,895

Table II-1
 Composition of Municipal Solid Waste, 2010

Component	Percentage by Weight
Paper, Cardboard	28.5 ✓
Yard Waste	13.4
Food Waste	13.9
Metal	9.0 ✓
Glass	4.6 ✓
Plastics	12.4 ✓
Wood	6.4
Rubber, Leather, Textiles	8.4
Other (Ceramic, Stone, Dirt)	3.4
Total	100%

County recycle?

A key to evaluating the solid waste management needs for Macon County is to determine the amount of existing and future wastes volumes to be generated. In addition, the composition of that waste generated must be taken into account. This data can be useful in making determinations as to the required landfill capacity and alternatives for collection and disposal. The composition of the waste will aid in determining the amount of potential recyclables as well as waste that could be disposed of in a Construction and Demolition (C & D) landfill instead of a Municipal Solid Waste (MSW) landfill.

Advanced Disposal collects waste for all residences located within Notasulga, Shorter, Franklin, and rural Macon County. Records of waste volume and compositions were obtained from Advanced Disposal for 2014. Solid waste is collected on a weekly basis from 2,404 residences in rural Macon County. The total residential waste generated and collected during this period was 2,200 tons. Solid waste is collected from 75 businesses in rural Macon County. The total solid waste collected from

businesses, institutions, and industries for the same 12-month period was 17,000 tons. The total solid waste collected by Advanced Disposal for 2014 was 19,200 tons.

Records of waste volumes were requested from the City of Tuskegee. The only information that was provided was the number of customers served and the cost of service. Tuskegee has experienced a 10% population decrease over the past decade. The 2005 plan reflects that Tuskegee generated 5,119 tons of residential waste. This number was reduced by ten percent to estimate the waste generated during 2014. The estimated residential waste generated by 3,381 customers will be 4,631 tons. It should be noted that this number is based solely on the population decrease over the past 10 years.

Industrial and construction demolition wastes can vary greatly from one area to another. These wastes are directly affected by the number and type of large industries and the amount of growth and construction an area is experiencing. Macon County currently has no active construction and demolition waste landfills located within the county. The average weight of un-compacted solid waste is estimated at 600 lbs/cubic yard for this report.

Recycling eliminates a portion of a community's total solid waste. Shorter Recycling recycled a total of 222 tons during 2014, while A & S Recycling recycled approximately 2,415 tons during the same period. Recycling programs are discussed in more detail in Section VIII of this report. Including the recycled solid waste, the average annual solid waste collected in Macon County is 21,840 tons or approximately 5.80 lbs per person per day. This amount is slightly higher than the national average discussed previously, which could be attributed to the large amount of commercial waste generated in the county. Table II-2 gives a breakdown of the average annual waste collected in Macon County.

NAT'L
AUG 4.43 lbs

Table II-2
Macon County Waste Totals

Source of Waste	Tons of Waste
Macon County Residential*	6,830
Macon County Commercial	17,000
A & S Recycling	2,415
Shorter Recycling	222
Total	26,467

*Includes estimate for Tuskegee based on population growth.

The Solid Waste Management Plan must address the solid waste needs of Macon County for the next 10 years. In order to accomplish this, projections must be made of the waste to be generated in that time period. Using the projected population trends and past increases in solid waste generation, estimates can be made. According to data from the 2005 plan, Macon County generated an average of 25,377 tons/year of solid waste. In 2014 the total waste rose slightly to 26,674 tons. ↓ a ↓ in population

Table II-3 gives a breakdown of population and solid waste projections for Macon County for the next 10 years. The population figures for 2015, 2020, and 2025 were obtained from the University of Alabama Center for Business and Economic Research. Population projections for intermediate years were interpolated by the author. The solid waste projections over the next 10 years are based on percentage decreases in population. It should be noted that population data is generally not a reliable measure for future waste projections, but considering there are no long range economic projections available from the Regional Planning Commission, population will be the only variable used in predicting future solid waste projections.

**Table II-3
Population and Solid Waste Projections**

Year	Population Projections	Solid Waste Projections (Tons)
2014	20,803	26,469
2015 ✓	20,641	26,263
2016	20,506	26,091
2017	20,371	25,920
2018	20,237	25,748
2019	20,102	25,577
2020 ✓	19,967	25,405
2021	19,843	25,248
2022	19,719	25,090
2023	19,595	24,932
2024	19,471	24,774
2025 ✓	19,347	24,617
2026	19,232	24,470
2027	19,117	24,323
2028	19,001	24,177
2029	18,886	24,030
2030	18,771	23,884

III. Existing Collection Methods

Advanced Disposal collects waste for all residences located within Notasulga, Shorter, Franklin, and rural Macon County. All contracts with Advanced Disposal for rural residential collection are managed by Macon County Commission. There are 2,404 residential customers that are serviced within the county that generated a total of 2,200 tons of waste in 2014.

Advanced disposal also service 75 commercial customers within the county. In 2014 17,000 tons of commercial waste was collected and disposed of at Stones Throw Landfill in Tallassee.

The City of Tuskegee Street and Sanitation Department collects from 3,381 customers within the city limits. Residential waste tonnages could not be provided. The population decrease from 2005 to 2014 was used to estimate the total waste generated for this report. The estimated residential waste generated by 3,381 customers was 4,631 tons. It should be noted that this number is based solely on the population decrease over the past 10 years. Commercial waste is also collected by the City of Tuskegee, but records for tonnages could not be provided either. This amount was considered negligible, and therefore was not estimated.

IV. Evaluation of Disposal Facilities

Municipal solid waste is generally disposed in a permitted landfill facility. All newly constructed municipal solid waste landfills require liners, which prevent the leachate from the waste from contaminating adjacent soil and groundwater. Leachates are liquid wastes from a landfill containing dissolved and suspended solid matter. Waste is placed in layers, typically 2 to 3 ft. thick, and is compacted before soil is added as a cover. A landfill is typically evaluated according to its remaining capacity. Municipal Solid waste generated in Macon County is currently disposed of in the Stones Throw Landfill.

Stones Throw Landfill is located in Tallassee, Tallapoosa County, Alabama. The landfill is owned and operated by Advanced Disposal. Stones Throw landfill is currently permitted by the Alabama Department of Environmental Management and the US Environmental Protection Agency to accept 1500 tons per day, and services 19 counties in Alabama, including Macon County. The total permitted area consists of 123.47 acres with 65.88 acres permitted for MSW disposal, and 5.80 acres permitted for C & D disposal. The 5.80 acres for C & D disposal has been closed.

V. Elimination of Dumps

Illegal dumping creates environmental and health hazards and must be addressed as a part of this report. Despite the efforts of Macon County and the municipalities, illegal dumping continues to be a problem. Illegal dumping occurs throughout the county both on public right of way and on private property. The disposed waste can pollute streams and rivers and affect the quality of groundwater. Participation in the solid waste collection system is mandatory of all residents of Macon County.

One of the objectives of this Solid Waste Management Plan is to address illegal dumping in Macon County and offer suggestions for their elimination. The solid waste plan compiled for Macon County in 2005 listed 58 known illegal dumpsites along public right of way within the county. This did not include any illegal dumpsites located on private property within the county.

Macon County has been active in illegal dumpsite clean-up since the last plan. As of the writing of this report, 19 sites have been identified as active illegal dumpsites within the county. In a combined effort, the County, Regional Environmental Solutions Recycling LLC, and Goodwyn Mills, & Cawood have recently remediated 6 additional sites. The complete Remediation Plan for these sites can be found in Appendix F. These sites were identified as a nuisance that have negatively affected the soil, water, and air quality of the surrounding areas. A list of four of the six remediated sites and their respective sizes can be seen in table V-1 below.

Table V-1

Site Location	Cubic Yards of Wastes	Latitude	Longitude
Road 9	340	32.44697	-85.86935
Keith Drive	220	32.44357	-85.75008
Thobolocco Lodge	40	32.36743	-85.86249
Old Chedah Road	500	32.48092	-85.71392
TOTAL	1,100		

Large equipment was utilized for removal of the identified sites. Once the waste was removed, it was hauled to and disposed of at the Stone's Throw Landfill in Tallassee. A detailed description of the remediation process can be found in Appendix F. This approximate 67% reduction in illegal dumping in Macon County can be greatly attributed to the work the county and municipalities have done over the past 10 years, including implementing solid waste collection systems and educating the public of the environmental consequences. A map of all confirmed illegal dumpsites is provided in Appendix G.

A key to the elimination of illegal dumps throughout the county is public education. The public must be made aware of the adverse effects the waste will have on their surrounding environment. One method that can be used to educate the public of the environmental consequences of illegal dumping is through the Macon County School System. Local officials can make presentations and students can be encouraged by teachers and school officials to take the necessary steps to protect the environment for the future. Other methods for public education can include signs throughout the county encouraging residents not to litter and organized clean-ups of dump sites in the county.

→ where? only free of law!

→ State Code 23-5-7 "shall cause" & "can"

A second key is to provide all residences with house-to-house waste pick-up at affordable rates. Some residents who are forced to pay high fees for collection and have to go out of their way to have the waste collected will often seek alternative ways to dispose of the waste such as illegal dumping or burning. Macon County has achieved this by contracting to Advanced Disposal and the City of Tuskegee has achieved this by using their Sanitation Department.

It is recommended that Macon County continue its efforts throughout the ten-year period of this plan to eliminate all illegal dumps within the county. Providing enough manpower to adequately monitor all sites with law enforcement would be virtually impossible, however, all law enforcement throughout the county should be made aware of the location of these dumps and encouraged to periodically monitor them. Citizens of Macon County, especially those living and owning property near the sites should also be encouraged to monitor the sites and report any illegal dumping to appropriate authorities. The county should also consider implementing increased punitive fines for illegal dumping as a deterrent.

Has the county prosecuted anyone for littering in last few years? I have reported several cases of litter on road right of way

VI. Solid Waste Agreements and Authorities

The Macon County Solid Waste Department is directed by the Macon County Commission. Municipalities within the county include the City of Franklin, City of Notasulga, Town of Shorter, and City of Tuskegee. City of Tuskegee Street and Sanitation Department collects residential and commercial waste within Tuskegee city limits. All other municipalities as well as rural Macon County currently have agreements with Advanced Disposal for solid waste collection. Data was not available for agreements between Advanced Disposal and privately owned businesses and industries.

VII. Recycling

Recycling is an important step in developing an effective solid waste management plan for a community. Recycling programs can eliminate 25% to 50% of the waste generated by a community. Programs can consist of collection of materials for reuse, as well as composting of yard wastes. It is estimated that approximately 20% of the solid waste from a community is made up of yard wastes. Other recyclable wastes including plastics, paper and cardboard must be collected and transported to a facility capable of recycling the materials.

EARP?

Recycling can be accomplished both at the source and at the point of disposal. Collection programs can be established to pick up recyclables at each residence, business, and institution with the resident having the responsibility to separate the items from other waste. Recycling centers can also be set up at one or more locations in the county, providing a location where recyclable wastes can be taken. In addition, recycling containers can be set up at all transfer stations and landfills to allow customers bringing wastes to these locations to participate in the program.

7. In addition to providing collection services, educational tools can be utilized to promote recycling activities. The recycling director for the county can visit each school within the county to educate the students on the importance of recycling and protecting the environment for the future. Public education methods can also be utilized by the county and local municipalities.

The City of Shorter operates a recycling program in the county, Shorter Recycling. Shorter Recycling accepts drop off material, has a number of remote dumpsters within the county, and can pick up material on an as needed basis. Cardboard, newspaper, magazines, plastics, aluminum, and cooking and motor oil are accepted for recycling. A representative from Shorter Recycling estimated that 1,500 gallons of oil, 15 tons of plastics, 200 tons of cardboard and paper material, and 1 ton of aluminum were recycled in 2014. Shorter Recycling removed a total of 222 tons of material in 2014 from the waste stream, which was baled and eventually sold for reuse.

A & S Recycling is a private recycling program located in Tuskegee. They accept any material dropped off at their facilities, such as aluminum, ferrous metals, non-ferrous metals, car batteries, and other miscellaneous materials. These materials are separated, baled, and eventually sold for reuse. A & S Recycling was contacted in regards to the volume of waste accepted. Materials accepted in January 2015 were given, and this number was multiplied by 12 to estimate the yearly recycling. It is estimated that 2,415 tons of material is recycled annually.

10 years & counting!
As noted in the 2005 Plan, Alabama Act 89-824 recommends that each county develop a recycling plan to reduce waste volume by 25%. Although a schedule for meeting the recommendation was proposed, the county as a whole has not reached the goal. Macon County recycles approximately 10% of its total solid waste, the majority of which is done with A & S Recycling. In order to meet the 25% goal, Macon County must implement a county-wide plan or expand the existing facilities and encourage participation with all local municipalities. A proposed plan of action for reaching this goal is described in Section VIII of this report.

VIII. Proposed Alternatives

In compiling a Solid Waste Management Plan for Macon County, it is important to evaluate alternatives in order to ensure the county has the proper plans in place to adequately serve its residents' solid waste needs. Alternatives must be evaluated for solid waste collection, disposal, and recycling programs. An analysis must be made of the current system to determine any deficiencies and areas where the county can seek to improve. Several factors must be taken into account, including the county's anticipated growth, their ability to meet current and future regulatory requirements, and their ability to provide quality service to the residents at affordable rates.

The first area that was analyzed was the collection of solid waste within the county. Currently, Advanced Disposal collects the majority all solid waste generated within Macon County on a contract basis. Advanced Disposal charges the county and municipalities \$49,500.00 per month to collect waste from the 2,404 households within the county, or an average of approximately \$21 per customer per month. City of Tuskegee Street and Sanitation Department collects waste within Tuskegee's City Limits; 3,381 residences are charged \$24 per month for collection and disposal of solid waste.

feasible → One alternative for the collection of solid waste would be for the county and municipalities to collect waste at all residences and businesses. In order to accomplish this, a County-wide Solid Waste Authority would need to be established to oversee the collection services and aid the municipalities in all management aspects. Costs of the collection system would depend greatly on the location of the disposal facility. This alternate would have the advantage of giving control of the system to the county and local governments for cost and quality control. One disadvantage to this alternate is the required initial investment to start the collection system.

A second alternative for collection of solid waste is to continue to contract with a private company. The county and municipalities can choose to continue with the same company or solicit bids from other companies for the services. An advantage to this alternative is that it puts the responsibility of operating the system, including maintaining equipment and personnel, on the private company. A disadvantage to this alternative is that it does not give the local governments control over the quality of service and costs to the residents.

The second area analyzed was the disposal location of solid waste generated from the county. Currently, all municipal solid waste generated in Macon County is disposed of in the Stone's Throw Landfill located in Tallassee, Tallapoosa County, Alabama. The landfill is owned and operated by Advanced Disposal. Although the residents of Macon County are not directly charged a tipping fee for disposal of waste, the cost is factored in to the fees paid for collection. Macon County does not have any operating C & D landfills to dispose of C & D waste.

One alternative for solid waste disposal is for Macon County to construct a regional landfill in cooperation with adjoining counties and municipalities. Several standards must be evaluated in order to determine if the county or surrounding region would benefit from constructing a landfill. The existing and future solid waste management needs, including planned developments, must be evaluated. The new landfill must be sited based on proximity to major transportation arteries as well as proximity to major industries and municipalities that will generate large waste volumes. In

addition, all environmental, social and economic impacts must be analyzed to determine the effect the landfill would have.

In order to construct a regional landfill, a regional solid waste authority would need to be established, which would include parties from all interested counties. In addition, all municipalities within Macon County would need to enter into an agreement with the authority and have representation to protect their interests. The regional authority would work together with the various counties and municipalities to determine the best possible location and size of the proposed landfill. The site selected by the previous authority, as well as additional sites, would need to be evaluated to determine the best environmental and economic location. The authority would be required to ensure the landfill was designed and constructed according to all current EPA and ADEM standards. Any proposed site would need to be evaluated for potential environmental consequences, and methods would need to be established to protect the surrounding air, water, and other natural resources.

In addition to the solid waste authority, the State SWMP recommends that a Citizens Solid Waste Advisory Committee be formed. The committee would be comprised of citizens throughout the county and all municipalities with concern for the future of Macon County. This committee could aid the authority and county in locating a proposed landfill site by giving feedback as to the social and economic impacts the facility might have. This citizens committee could be formed by volunteers or appointed by each municipality and the county.

A second alternative is to continue utilizing the existing collection and disposal system. The county could continue to contract the collection through a private company and allow that company to dispose of the waste at an approved landfill site of their choosing. Currently, the majority of collection and disposal of all waste in Macon County is handled by Advanced Disposal. The problem that exists with this alternative is that the private company contracted would be a for-profit organization. This could cause the price per customer to be higher than that of a county operated system. In addition, the county would not have as much control as they would when operating their own collection and disposal system.

Without the participation of adjoining counties, it would not be economically feasible for Macon County to construct and operate a landfill MSW facility. Macon County currently generates approximately 2,200 tons per year of municipal solid waste. Given these figures, it is currently more economical for Macon County to contract with a private company for solid waste disposal. The possibility of a landfill facility in Macon County should be reevaluated if there is a dramatic increase in waste generated or if other counties express interest in participating in the project.

The third area that was analyzed was the recycling program for Macon County. Currently, there are two recycling programs located within the county, City of Shorter Recycling and A & S Recycling. The City of Shorter accepts recyclable materials, provides a number of portable stations throughout the city, and can schedule pick-ups on an as needed basis. Shorter recycles an average of 222 tons per year of cardboard, newspaper, magazines, plastics, aluminum, and cooking and motor oil. A & S Recycling is a private recycling program located in Tuskegee. They recycling an average of 2,415 tons of aluminum, ferrous metals, non-ferrous metals, car batteries, and other miscellaneous materials per year.

One alternative for Macon County is to establish a county-wide recycling program. The county would hire a recycling director and staff to collect, separate and transport the material to the appropriate recycling centers. The county would purchase portable containers to be placed throughout the county for use by all residents. In addition, a building would be needed to provide a central location for handling of all recyclable materials. The county could coordinate their efforts with the existing program established by Shorter and A & S Recycling and encourage the other municipalities to participate. **ΣARP**

The proposed recycling program would need to be implemented in phases by the county over a 3 to 5 year period. The county could start the program at a basic level and add locations and methods of collection each year. One possibility for the county is to start the program by contracting with a private company who would collect the materials at various points throughout the county and transport them to the appropriate recycling centers. The county could also explore the possibility of utilizing the existing facilities in Shorter and Tuskegee through agreements with these two entities.

The 2005 Solid Waste Plan for Macon County set a goal of 6,350 tons per year of recycled material. This would account for approximately 25% of the total solid waste generated by the county and would meet the requirements established by the State. This goal could be easily obtained if the program is established as planned. In order to fully implement a successful recycling program, the county must work with all municipalities to educate the public of its importance and provide convenient methods for public participation. ?

A second alternative for recycling is to implement a system of composting. As mentioned in section VII, yard wastes can account for as much as 20% of a community's total solid waste. By committing a portion of the total yard waste to recycling, Macon County could easily reach the 25% goal. Composting can be achieved both on an individual and community-wide basis. Citizens and business owners can create small composts to handle grass clippings, leaves and small limbs. The county or municipalities can create more large-scale composts to be used by the citizens and city departments. Yard wastes and tree debris could be collected by the municipalities or counties, or could be transported to the compost site by the public. The compost material would result in a dramatic landfill area savings and could ultimately be sold by the county. ←

IX. Economic Considerations

In order for Macon County to choose the best alternatives for solid waste collection and disposal, all economic aspects must be considered. The county must work to provide the best possible service for all residents at affordable rates. As a part of this solid waste plan, economic factors are evaluated for collection, disposal, and recycling of solid waste. These factors, coupled with the environmental considerations noted throughout the report, will form a composite basis for determining which options the county should pursue.

The first economic consideration is for the collection of solid waste in the county. Presently, the county and municipalities, excluding The City of Tuskegee, spend \$49,500.00 per month for weekly house-to-house pick up of the 2,404 households within the county. In order for the county to implement a collection service, estimates would need to be made for the required equipment, personnel, and management. Coordination would be required with each municipality to determine how collection in these areas would be handled. Due to the complexity of the issue, no cost estimates for a collection system were made as a part of this report. The county, however, should further explore this option and determine if it would benefit the residents economically.

↘ The second economic consideration is disposal of all solid waste. Currently, tipping fees are calculated into the amount that residents pay for solid waste collection. It is currently not economically feasible for Macon County to construct a municipal solid waste regional landfill.

↘ The third economic consideration is for a recycling program in Macon County. Recent data showed pricing for materials as \$70-\$80/ton for cardboard, \$70-\$80/ton for newspapers, \$100-\$110/ton for magazines, \$0.60/lb for aluminum, and \$35/ton for clear glass. To reach the 25% goal for recycling, the county would need to recycle approximately 5,460 tons per year.

X. Conclusions and Recommendations

Macon County currently generates approximately 26,469 tons per year of solid waste. For design purposes, a value of 27,000 tons per year can be expected for the next 10-year period. All solid waste within rural Macon County, Shorter, Notasulga, and Franklin is collected and disposed of by Advanced Disposal on a contract basis. The total cost of collection and disposal for all solid waste from Advanced Disposal is approximately \$49,500 per month for residential. Solid waste generated in Tuskegee is collected by The City of Tuskegee Street and Sanitation Department. Residents are charged \$81,228 for this service. Solid waste is disposed of in the Stone's Throw Landfill in Tallassee, Tallapoosa County, Alabama.

Three aspects of the solid waste system were evaluated as a part of this plan. First, solid waste collection alternatives were presented including maintaining the current system with private collection, and providing collection by the county or local municipality. Second, disposal alternatives were also discussed including utilizing private landfills and the possible construction of a regional landfill. Finally, recycling programs were analyzed and suggestions were made to implement increased recycling and public education.

XI. Guidelines for Local Approval of New or Expanded Facilities

The Macon County Commission, as well as leaders from all municipalities within the county, must evaluate the alternatives for solid waste collection, disposal and recycling and determine the best course of action to take over the next ten year period. Several key factors must be used as guidelines for the leaders to use in making their determinations.

In evaluating alternatives for new or expanded facilities, including a county operated landfill and a recycling center, the commission must determine if the needs set forth in the Solid Waste Management Plan have been addressed. New or expanded facilities must be sized according to current and projected waste volumes to ensure they will meet the county's economic needs over the ten-year period. In analyzing alternates for collection of waste, the county must evaluate the existing conditions, including cost per customer and level of service, in order to determine if changes should be made. Any proposed changes to the existing system must be consistent with the plan adopted by the county and municipalities.

In locating potential sites for solid waste facilities within the county, the commission must evaluate all existing and planned development and infrastructure. The commission should work closely with other agencies including any industrial development boards and regional planning agencies to determine if other development has been planned in or around potential sites. Potential sites must also be evaluated for their proximity to existing industries that generate large volumes of waste.

Currently, the existing industries within Macon County do not generate large quantities of solid waste that must be disposed of in a MSW landfill. Prior to determining the location of new sites, the commission must reevaluate these figures as well as determine any areas that are proposed for the development of industries. The commission should also consider the location of existing and proposed major transportation routes in locating the sites. Coordination should be made with local, state and federal transportation authorities to determine any potential conflicts and proposed routes.

Prior to constructing new facilities, including a landfill, transfer station or recycling center, the commission must evaluate the potential impacts on the surrounding public health, public safety and the environment. The county must work closely with ADEM and EPA to determine the guidelines for construction and operating such facilities. Costs for providing for these services should be included in the overall budgeting of new facilities to ensure sufficient funding is in place. Once a potential site is located, environmental impact studies should be performed to determine the possible impacts the facility will have. As a part of these studies, social and economic impacts of the proposed facility should also be evaluated. The proposed location should be found to have minimal impacts on the surrounding property values and social perception.

State and Federal Regulations regarding the siting, design, construction and operation of solid waste processing and disposal facilities are in place to protect air, water and natural resources. These Regulations which safeguard against health, safety and environmental concerns involve:

- Buffer zones
- Minimum separation from groundwater
- Storm water run-on/run-off

- Liners, if applicable
- Leachate collection systems, if applicable
- Gas monitoring systems, if applicable
- Daily cover of solid waste

Planning and Zoning is the principal means for the county to guide its future growth and achieve a logical pattern of land use and development for the county. Some of the generally accepted specific objectives of Planning and Zoning are:

- To conserve the taxable value of land and buildings.
- To prevent overcrowding of land and buildings.
- To control pollution, noise, dust, smoke, vibration, odor, flashes of light or danger of explosion.
- To lessen or avoid congestion in the public streets.
- To promote the public health, safety, comfort, morals, and general welfare of the public and the community.

The Planning and Zoning Department or Commission typically ensures that all new development meets specific guidelines and requirements related to the adequacy of roads, parking, traffic flow, setbacks, drainage, utilities, etc. Any proposed solid waste transfer stations, disposal facilities, or processing facilities shall also be located in areas that are appropriately zoned for each type of facility.

A solid waste facility or recycling facility will require certain public services as a minimum. Water service is vital for fire protection, sanitation, and housekeeping. Water service can be public water system extensions or on-site wells. Strategically placed sewage treatment facilities can be convenient for leachate and wash down water treatment as well as sanitation treatment. If these are not close by, then liquid wastes will need to be captured and hauled to the facilities or sewer extensions constructed. Alternatively, on site treatment operations may be considered.

Even considering the information presented above, unforeseen circumstances during the next ten years may lead to the need for additional solid waste disposal or processing facilities in the County due to increased population or commercial development. The County may also wish to consider locating additional solid waste processing or disposal facilities within its jurisdiction due to host government benefits (i.e. fees, taxes, etc.) that would be received from these types of facilities.

XII. Public Participation

Macon County must seek to involve the public in the approval of this Solid Waste Management Plan. A copy of the draft plan was made available at the Commission's office for public review. A public hearing will need to be announced and held in the Macon County Courthouse. A copy of the draft plan was also sent to all municipalities within the county for their review and comments. All information received from the municipalities was evaluated by GMC and incorporated into the final plan. The municipalities will be encouraged to pass a resolution in support of the plan and adhere to the recommendations in any future changes in handling their solid waste.

The public should also be involved in any changes to the existing solid waste management and collection system including collection contracts, siting of landfills, and proposed changes in recycling. One possible way this can be accomplished is by the development of a Citizens Solid Waste Advisory Committee. Although the ultimate decision to make changes to the system would remain with the Macon County Commission, the advisory committee would be allowed to make recommendations and aid the county in evaluating alternatives. The committee would be made up of citizens from all municipalities and rural areas within the county. The committee would be responsible for organizing additional public hearings and should be made aware of all proceedings before changes are made.

XIII. RCRA Subtitle D Requirements

The Resource Conservation and Recovery Act (RCRA), an amendment to the Solid Waste Disposal Act, is the principal federal law in the United States governing the disposal of solid waste and hazardous waste. RCRA was enacted in 1976 to:

- Protect human health and the environment from the potential hazards of waste disposal;
- Conserve energy and natural resources;
- Reduce the amount of waste generated; and
- Ensure that wastes are managed in an environmentally sound manner.

Enacted in 1984, the Subtitle D amendment to RCRA deals with nonhazardous solid waste management and designates the state and local governments as the primary planning, permitting, regulating, implementing, and enforcement agencies for the management and disposal of household and industrial or commercial non-hazardous solid wastes. Minimum nationwide standards have been developed under Subtitle D that includes specific requirements for the proper design and operation of MSW landfills and other solid waste disposal facilities. These requirements include location restrictions, facility design (liner, leachate collection, run-off controls, etc.) and operating criteria, groundwater and landfill gas monitoring requirements, corrective action requirements, financial assurance requirements, and closure and post-closure care requirements. Most states (including Alabama) have adopted these criteria into their state solid waste management programs. In addition to the minimum federal criteria, states may also impose requirements that are more stringent than the federal requirements. This Plan is in compliance with RCRA, 42 U.S.C. § 6941.

All four (4) municipalities in Macon County require mandatory residential solid waste collection for households in their jurisdiction, and all of these municipalities except Tuskegee have a contract with Advanced Disposal for these services. City of Tuskegee Street and Sanitation Department collects waste from within the city limits. In addition, the Macon County Commission provides household solid waste collection services in the unincorporated parts of the county through a contract with Advanced Disposal. All municipal solid waste collected is disposed of in an MSW landfill that has been designed in accordance with Subtitle D regulations.

XIV. References

Alabama Department of Environmental Management, Alabama Solid Waste Management Plan. January, 2015. <http://www.adem.state.al.us/default.cnt>

Environmental Protection Agency, Municipal Solid Waste Generation in the United States. January, 2015. <http://www.epa.gov/epawaste/nonhaz/municipal/index.htm>

University of Alabama Center for Business and Economic Research, 2010 Census for Alabama. January, 2015. <http://cber.cba.ua.edu/data.html>

South Central Alabama Development Commission, Solid Waste Needs Assessment. January, 2015. <http://scadc.net>

APPENDIX A

LETTERS OF APPROVAL

APPENDIX B

PUBLIC NOTICE

APPENDIX C

PROOF OF PUBLICATION

APPENDIX D

PUBLIC HEARING SIGN-IN SHEET

APPENDIX E

MACON COUNTY RESOLUTION

APPENDIX F

LANDFILL REMEDIATION PROCESS

**SOLID WASTE SITE
REMEDATION PLAN**

Prepared for:

**MACON COUNTY
COMMISSION
MACON COUNTY, ALABAMA**



Prepared By:
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December 10, 2010

Macon County Solid Waste Remediation Plan for Unauthorized Dump Sites
GOODWYN, MILLS & CAWOOD

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Macon County Solid Waste Remediation Plan for Unauthorized Dump Sites
GOODWYN, MILLS & CAWOOD, INC.

SECTION I
INTRODUCTION

Macon County Solid Waste Remediation Plan for Unauthorized Dump Sites
GOODWYN, MILLS & CAWOOD

SECTION I
INTRODUCTION

1A Historic Overview

In accordance with the Solid Wastes and Recyclable Materials Management Act, the Solid Waste Fund Site Remediation (SWFSR), Code of Alabama, 1975, 22-27-10, 22-27-12 & 22-27-7, established procedures for the disbursement of monies from the Solid Wastes Fund for use in assessing, investigating, conducting necessary remediation, and achieving closure of unauthorized solid wastes dumps. This solid wastes remediation fund is designed to provide innocent landowners throughout the state money to remediate illegal dump sites. The SWFSR will be used by local government(s) in managing the collection and disposal of solid wastes.

1B Purpose

Goodwyn, Mills, and Cawood (GMC) has been retained by Regional Environmental Solutions Recycling, LLC to provide a solid waste remediation plan for three unauthorized dump sites located in Macon County, Alabama. The purpose of the remediation plan is to remove waste within these unauthorized dump sites located on the property of innocent landowners in Macon County, Alabama. These dumps can contribute to the degradation of soil, water, and air quality. They are aesthetically unpleasing along the rights of way of public and private roads. The wastes will be properly disposed of at a nearby authorized solid waste landfill or transfer station. Maps depicting the dump locations are attached as Figures 1-6.

Macon County Solid Waste Remediation Plan for Unauthorized Dump Sites
GOODWYN, MILLS & CAWOOD, INC.

SECTION II
REMEDATION GOALS

SECTION II
Solid Waste Remediation Goals

2A Remediation Goals

Representatives of the Alabama Department of Environmental Management, Regional Environmental Solutions Recycling, LLC, and GMC have identified three (3) unauthorized dump sites located along county roads within Macon County, Alabama that will be remediated. These dumps have become an eye sore that also have a negative effect on soil, water, and air quality in the surrounding area. This waste could cause infections/disease to people or wildlife.

The goal of this remediation plan is to provide guidelines to follow, in an effort to remove all debris from these dumps and prohibit future use of these dump locations. The removal of this waste will provide a clean environment for the surrounding community and the wildlife that inhabit the area. It is important to collect baseline data of the site in order to compare pre- and post- project conditions. Photographs of each site have been taken as well as GPS coordinates (Appendix B).

Macon County Solid Waste Remediation Plan for Unauthorized Dump Sites
GOODWYN, MILLS & CAWOOD, INC.

**SECTION III
REMEDATION MEASURES**

SECTION III
REMEDIATION MEASURES/ METHODS

3A Collection/Removal

In order to efficiently and effectively remediate the sites identified in Macon County, large equipment will be necessary. It is anticipated that a large excavator, skid steer loader, bull dozer, and dump truck may be required to complete the remediation process. The equipment used at each site will be site specific. While each site is similar, they have different obstacles to overcome and various pieces of equipment will be necessary to accomplish the project. All waste collected will be hauled to the Brundidge (Mark Barbaree Brundidge Landfill), Tallassee (Sunflower Landfill), or Salem Landfill (Salem Waste Disposal Center). Load sheets and receipts from the landfill will be provided once the project is complete.

3B Transportation

Wastes removed from each site will be loaded into dump trucks, covered, and hauled to an approved facility. Load sheets will be maintained to provide an accurate accounting of waste removed. All wastes will be transported to the Brundidge, Salem, or Tallassee Landfill.

3C Restoration

In the event that additional soil has to be excavated during remediation, the site will be re-graded to allow for proper drainage and long term maintenance. All disturbed areas will be reclaimed and re-vegetated within 120 days of initial disturbance.

3D Site Securities

Each dump site on the project will be secured with fencing while work is being conducted. Traffic control will not entail complete blocking of any road, simply one lane for equipment access. Road cones will be installed to warn the traffic of upcoming work 60 to 70 feet from the work area. In the event that the road has to be blocked for a few minutes in its entirety, flag men will be located on both ends to warn the traffic of the work area. Once remediation activities are completed at each site, signs will be posted indicating that the dump site is closed (Appendix C).

3E Quantity of Waste

The quantity of waste at each unauthorized dump site was estimated by representatives of Regional Environmental Solutions Recycling, LLC and GMC. The majority of wastes at each site consist of municipal solid waste with a mixture of tires. All waste collected will be hauled to the Brundidge (Mark Barbaree Brundidge Landfill), Tallassee (Sunflower Landfill), or Salem Landfill (Salem Waste Disposal Center).

If during remediation special or hazardous waste is discovered, the appropriate authorities will be contacted (Macon County EMA and/or ADEM) to ensure that all necessary precautions are taken to prevent exposure to the public.

Site Location	Cubic Yards of Wastes	Latitude	Longitude
Dudley Site	3,105	32.45087	-85.6254
Torbett Site	138	32.431039	-85.459193
Greathouse Site	2,811.75	32.55883	-85.72887
TOTAL	6,054.75		