December 2011



DeKalb County Long-Range Comprehensive Energy and Sustainability Plan





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Energy and Sustainability Plan

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Acknowledgements

This plan is prepared for DeKalb County, Georgia. A Steering Committee of DeKalb County staff, community leaders, and citizens provided guidance in the development of the plan.

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Transforming into a Sustainable Community







People around the world have come to realize that humans cannot continue to use natural resources faster than natural resources can regenerate. Doing so contributes to pollution and environmental degradation, social inequity and poverty, and

a decline in human health and quality of life. This recognition has led to a world-wide movement called "sustainability." While sustainability reflects the intersection of

"... development that meets the needs of the present without compromising the ability of future generations to meet their own needs..."

- 1987 Brundtland Commission

three areas of concern for local governments and communities: economic development, equitable social inclusion, and environmental performance, it is also about saving money. For example, saving energy saves money. As the analysis in this Long-Range Comprehensive Energy and Sustainability Plan (Sustainability Plan) shows, investment in energy saving strategies can result in considerable pay back on that investment. largely determine our success or failure in overcoming environmental challenges and embracing sustainable practices as a way of everyday life. Local governments are major participants in the sustainability

The way our communities develop will

movement. They build and maintain infrastructure; set policies, standards, and regulations; and manage programs to meet the needs of the community. The development of a Sustainability Plan allows DeKalb County to develop a long-

term and sustainable energy efficiency and conservation plan, and maximize the opportunity for cost savings, environmental benefits, financial leverage, and economic development. A sustainable community must constantly learn how to merge its physical/environmental planning with its economic planning.



Executive Summary



The purpose of this initiative is to develop a long-range, comprehensive energy and sustainability strategy for DeKalb County government and the community-at-large. This plan addresses energy use, water consumption, land use, transportation, procurement and local sustainable food.

The overall goal of this initiative is to promote and implement responsible management and effective stewardship of the County's built and natural environments by developing sustainable energy and water efficiency strategies and land use and transportation policies that maximize the opportunity for cost savings, environmental benefits, financial leverage, and economic development.

The study was funded as part of the American Recovery and Reinvestment Act

(ARRA) and the Energy Efficiency and Conservation Block Grant (EECBG) program. The federal grant program emphasizes sustainable economic development, with emphasis on job creation and retention.

This plan was developed by a diverse group of DeKalb County employees, community leaders and citizens who comprised the Sustainability Steering Committee. The group met numerous times during the study process to set goals and establish implementation strategies that are focused on conservation and cost control.

The Sustainability Committee organized its work in four areas – Sustainability Planning, Energy, Natural Resources, and Complete Committees. Each area was reviewed and analyzed through the lenses of the 1987 Brundtland Commission definition of sustainability: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

Even before embarking on this sustainability planning process, DeKalb County government was already engaged in a number of sustainable best practices from



procurement to solid waste management, including a 3,200 kilowatt landfill methane gas electricity generation facility at the Seminole Landfill. Additionally, any residential properties built prior to 1993 in DeKalb County must have water efficient plumbing fixtures installed upon resale before the new homeowner can obtain water service from the County. The County's current draft update of the Zoning Ordinance incorporates a number of sustainable best practices for land use, and the County has been proactive in acquiring greenspace and additional park land.

This Sustainability Plan addresses both the government's and the community's opportunities to promote sustainability. The strategy for moving DeKalb County toward sustainability focuses first on changes the County government has control over. The government has the most control over its internal operations. In addition, the County has jurisdiction over changes to the built environment (land use, infrastructure, and building permits) within its boundaries. This authority impacts the greater community's ability to practice sustainable best practices. This Plan identifies strategies that require the community and the government to work together and strategies that are related solely

to the government sector or the communityat-large.

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Periodic workshops with the Sustainability Steering Committee were held to identify current DeKalb County government and community sustainability initiatives, to formulate a purpose statement for DeKalb County's government operations and the broader community, to discuss challenges to sustainability, and formulate goals and recommendations.

A purpose statement was developed that reads "The purpose of the DeKalb County Long-Range Energy and Sustainability Plan is to identify short- and long-term initiatives that are fiscally responsible and create support for the sustainable use of energy and natural resources."

Assessments of current operations across departments multiple (e.g., materials management and procurement) were conducted. Through meetings with department heads and other personnel, information was obtained regarding the current status of sustainability initiatives as well as the departments' ability to implement additional sustainability programs. Α workshop with the broader community garnered additional input that helped form



the Sustainability Steering Committee's sustainability vision.

This Plan promotes responsible management and effective stewardship of the County's built and natural environments, transforming DeKalb County into a model government agency that is economically vibrant, healthy, resource-efficient, and environmentally conscientious. The community-at-large will receive numerous benefits as the County leads by example.

The of following Summary Recommendations selected represents recommendations developed with the guidance of the Sustainability Steering Committee including several department heads. A more detailed narrative of these recommendations follows this summary. A complete list can be found in the Appendices in the document Goals Template.



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"...making sustainability sustainable..."

DeKalb County Steering Committee Member





Sustainability Planning

For DeKalb County to thrive and prosper, we must address the energy, mobility, and natural resource challenges faced by the County government and by all DeKalb County residents. To pursue and coordinate County government and community-wide sustainability programs, DeKalb County must establish and fund a Sustainability Office with appropriate staff. Additionally, DeKalb County will implement an Environmentally Preferable Purchasing Policy considering pollutant releases, waste generation, greenhouse gas emissions and energy consumption.

- Establish and fund a Sustainability Office with key staff.
- Work with each department head to create that department's sustainability plan.
- Determine the performance measurement metrics included in the Goals Template that the County has data to complete, delete metrics for which no data can be obtained, and formulate new metrics that the County can measure.

the progress of department action items listed in the Sustainability Plan.

- Provide a yearly status review to the Chief Executive Officer and Board of Commissioners.
- Create an outreach plan to interface with the broader community and the DeKalb County Public Schools.
- Create a DeKalb County Sustainability website for the community that provides information about sustainability initiatives and best practices.
- Develop a Sustainable Procurement Mission Statement.
- Develop and maintain a database of current and new vendors who provide sustainably produced products (e.g. recycled, ecopreferable, sustainable, environmental preferable and/or biodegradable).
- Use electronic signatures on standard documents (e.g. letters, forms, and bids).
- Generate duplex (two-sided) documents when feasible.
- Eliminate the use of non-biodegradable products.
- Install occupancy sensor lighting.

- Establish an Internal Green Procurement Team that would work with Departments to implement County-wide procurement goals.
- Work with each department head to monitor





For DeKalb County to thrive and prosper, we must ensure that energy use and the performance of our buildings support, rather than detract from, DeKalb County residents' quality of life. Accordingly, DeKalb County will strive for sustainability by incorporating measures that reduce energy consumption and by pursuing cleaner, efficient, and locallyoriented energy strategies.

- By January 1, 2013, reduce DeKalb County government's electricity consumption by 10% from 2008 levels, adjusted for increase in buildings and/or square footage.
- Reduce the size of DeKalb County government's vehicle fleet by 3% each year with a target to reduce the fleet size to the 2,900 unit range.
- Spread awareness of, and enforce, DeKalb County's anti-idling policy, which applies to the County government's non-public safety/nonemergency vehicles and states that employees must turn off vehicles after five minutes of idling.

- Invest in and promote lesser polluting energy sources (e.g., propane fuel for vehicles) and renewable energy.
- Provide historical water use data on the water bill for customers.
- Offer incentives for businesses that meet an ongoing energy efficiency and/or green building performance measure such as ranking in the top 10% of Energy Start Portfolio Manager and/or LEED Existing Buildings Operations & Maintenance (EBOM).
- Offer incentives for homes and commercial projects that meet certified energy efficiency standards for buildings and green building certification programs such as LEED, EarthCraft, Energy Star or Georgia Peach Green Building Rating System.
- Evaluate the feasibility of developing alternative energy sources such as methane gas collection to electricity, grease to diesel fuel, and wind harvesting at County facilities, in addition to the County's current efforts at the Seminole Landfill.
- Establish an anti-idling policy for the Public Safety Department vehicles that lowers fuel consumption.





Natural Resources

For DeKalb County to thrive and prosper, we must meet the needs of our growing County without burdening the natural resources upon which the economy and livelihood Environmentally rely. sustainable approaches to the management of trees, greenspace, local water systems, as well as waste stream, will help ensure the protection of vital natural resources. Moreover, DeKalb County must embrace a sustainable, local food system, which can enhance human health, promote environmental renewal, foster local economies, and link communities throughout the County.

- Revise new development landscape planting requirements to require trees to be planted using current best management practices and at an increased rate in parking lots and not under power lines.
- Discourage the use of turf grass.
- Revise current Tree Ordinance to address tree canopy protection on site to 60% for single family dwellings; 40-50% for mixed use; 20% for industrial

use, and 30-40% for commercial use outside the urban core.

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- Track future changes in land cover in partnership with University of Georgia using NARSAL GIS mapping and inventory.
- Develop environmental education programs that focus on the environmental and sustainability importance of trees and greenspace.
- Develop a dual-use agreement with DeKalb County Board of Education to allow joint use of gyms and playgrounds.
- Establish a Parks Foundation for greater control and flexibility of non-County funding.
- Conduct building water audits of County and school facilities.
- Replace outdated or damaged water fixtures at County and school facilities with state-of-the-art, water conserving devices.
- Upgrade all water and wastewater facilities to maximize LEED Silver or equivalent water conservation credits.
- Educate the community and school children on how to reduce water consumption through rainwater capture and reuse among other best management practices.



- Extend and expand the subscription residential recycling program to all residents served by the County's Sanitation Program.
- Launch a County-wide education program to encourage residents, businesses, government, and educational institutions to adopt the strategy of waste as a resource to be managed.
- Increase composting of yard debris by adding food residue to at least 10% of the DeKalb its operations at Sanitation Seminole Compost Facility including properly permitting and management of this compost operation. Target various institutions with food cafeterias to include public schools colleges and systems, businesses. Offer accelerated compost with the higher nutrient value to businesses and residents at a negative loss pro forma.
- Amend County-wide policies and ordinance (e.g., comprehensive, zoning and/or land-use) to increase sustainable and local food production DeKalb County through in community gardens, backyard local gardens, and farms and appropriate livestock.

- Increase local, fresh food availability in underserved neighborhoods.
- Launch Farm-to-School programs (gardens, cafeteria food, and curriculum).







Complete Communities

For DeKalb County to thrive and prosper, we must ensure that we have complete communities that meet the livability and mobility needs of all DeKalb County residents. Through sustainable land use and transportation policies, DeKalb County can create a balance of environmental preservation, commerce, mobility, and livability.

- Combine the County's Land Use and Transportation Planning Departments into one department to ensure a holistic view of development.
- Adopt design regulations that encourage pedestrian-oriented design and pedestrian amenities as often as possible to encourage walking.
- Focus development around existing transit stations, through appropriate zoning and incentives. Aim for transit-ready development in areas that are not currently served, and coordinate with local transit agencies to establish feasibility and timelines where appropriate.
- Prepare an inventory of vacant,



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- Adopt and implement a Complete Streets policy at every level possible.
- Move away from rigid traditional street hierarchies (e.g., collector and arterials) to more network-oriented context-sensitive solutions.
- Create and promote incentives to encourage County employees to take alternative forms of transportation, including transit and bicycling (e.g., parking cash out, where employees taking alternative transportation get the money that would have subsidized their parking spot).



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In Conclusion

Sustainability is a journey rather than a destination. It requires systems-based decisionmaking that takes into account economic, ecological, and social impacts as a whole.

Moving towards sustainability will require a new consciousness and commitment to do things differently than we have been.



This would require the County to:

- Develop new programs and/ or change existing programs,
- Establish new priorities,
- Commit resources to sustainable causes, and;
- Collaborate with other jurisdictions within the region to achieve sustainability.





The following table provides a list of selected recommendations and where that recommendation will be performed – government, community, or both. A complete listing of recommendations and where their impacts lie can be found in the Appendices of the DeKalb County Long-Range Energy and Sustainability

Plan in the document entitled Goals Template.

Area of Focus	Initiative	Performed by County	Performed by Community
		Government	at Large
	Deve op a mechanism to coordinate and oversee DeKalb	X	x
	County's energy/sustainability initiatives.		
Sustainability	Formulaton sustainability education and outrocch	x	×
Planning	program. • Inclement and build man Ern improved all: Onefemble	Y	v
	purchasing policies.	~	^
	 Reduce energy consumption by eliminating excess use, 	X	
	investing in energy efficiency, reducing the size of the		
	vohic o floot and oncouraging fuol officient driving		
	e transfin and promote leaser politifing energy sources	¥	x
	fe. a., propage fuel for vehicles) and renewable energy	^	^
	sources (e.g., solar, wind, and landfill biogas).		
	 Identity opportunities to capture and reusewaste hear to 	Х	х
Energy	power auxiliary energy generaling turbines, provide heat		
	for industrial purposes and climate control for buildings.		
	 Implement energy conservation measures in all new and indexe of which the server is a server of the server is a server of the ser	X	x
	eosting County (actives, Adversio for comparity in building lower utilities inspiring	v	~
	 Advocate for comparative outlong-teref outloss racking and report on leading to unproved memberspreasmentants. 	~	^
	and reduced energy andwater usage in County and		
	commercial buildings.		
	 Provide opportunities for intergenerational nealthy living 	X	Х
	hrough health and filnessprograms at parks and		
	community centers.	v	
Natural Resources	 Perform building water audits, phonize water conservation amiesta based unan factoria una se amiesta durater. 	X	X
	projects based upon reclossing 1 as projected water estimate and cost of the improvement based on life. or le		
	cost analysis		
	 Foster initiatives to increase the supply, access and 		x
	consumption of ocal and sustainablefood within the		
	County		
Complete Communities	Balance County development by encouraging compact,	X	x
	mbood-use and Iransil-oriented cevelopment (TOD)	V	
	Promote numerous transportation options for all members Af the community	X	×
	or une community. • Dromote transition entities for all one course and income	v	v
		^	Â



Area of Focus	Initiative	Performed by County	Performed by Community
		Government	atLarge
	Develop a mechanism to coordinate and oversee 's	Х	X
Sustainability Plenning	 energy/sustainability initiatives. Formulato a sustainability oducation and outroach program. 	х	x
	 Implement and build upon Environmentally Preferable purchasing policies. 	X	x
Energy	 Reduce energy consumption by eliminating excess use, investing in energy efficiency, reducing the size of the vehicle fleet and encouraging fuel-efficient driving techniques. 	X	X
	 Invest in and promote lesser polluting energy sources (e.g., propane fuel for vehicles) and renewable energy sources (e.g., solar, wind, and landfill biogas). 	X	x
	 Identify opportunities to capture and reuse waste heat to power auditary energy generating turbines, provide heat for industrial purposes and climate control for buildings. 	X	X
	 Implement energy conservation measures in all new and existing County facilities. 	X	x
	 Advocate for comparative building-level utilities tracking and reporting, leading to improved maintenance programs and reduced energy and water usage in County and commercial buildings. 	X	X
Natural Resources	 Provide opportunities for intergenerational healthyliving through health and fitness programs at parks and community centers. 	X	X
	 Perform building water audits, prioritize water conservation projects based upon factors such as projected water savings and cost of the improvement based on life-cycle cost analysis 	x	x
	 Foster initiatives to increase the supply, access and consumption of local and sustainable food within the County. 		x
Complete	 development by encouraging compact, mixed-use and transit-oriented development (TCD); 	X	X
Communities	 Promote numerous transportation options for all members of the community. 	X	x
	 Promote housing options for all age groups and income levels. 	X	X



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Introduction

The sustainability planning process began with the creation of a Sustainability Steering Committee consisting of various County department heads and personnel, elected officials, and community members.¹ Periodic workshops with the Sustainability Steering Committee were held to identify current DeKalb County government and community sustainability initiatives, to formulate a sustainability vision for DeKalb County's government operations and the broader community, to discuss challenges to attaining that vision, and formulate goals and recommendations.



A purpose statement was developed by the Steering Committee that reads: "The purpose of the DeKalb County Long-Range Energy and Sustainability Plan is to identify short- and long-term initiatives that are fiscally responsible and create support for the sustainable use of energy and natural resources."

Assessments of current operations across multiple departments (e.g., materials management and procurement) were conducted. Through meetings with department heads and other personnel, information was obtained regarding the current status of sustainability initiatives as well as the departments' ability to implement additional sustainability programs. A workshop with the broader community garnered additional input that helped inform the DeKalb Long-Range Energy and Sustainability Plan.

¹See Appendix A – Sustainability Planning for a list of Sustainability Steering Committee members.



Sustainability Planning Areas

Sustainability Planning	Natural Resources	Energy	Complete Communities
		Ø	
Plan Implementation Education & Outreach Green Procurement	Water Use Trees & Greenspace Solid Waste Management Local & Sustainable Food	Energy Efficiency Buildings Fleet Management	Land Use & Transportation

The icons above are used throughout this document to designate the particular Sustainability Planning Area.



Part of the planning process involved high-level energy assessments of several County facilities and one DeKalb County school. A low level, more comprehensive assessment was done on the Maloof Administration Building. The results of these assessments are found in Appendix B – Energy. This Sustainability Plan contains information, goals, recommendations, and tools that DeKalb County can use to formalize multi-departmental initiatives, standardize the gathering of metrics, and track performance against the stipulated goals for each of the above four groups. It also contains, in the Appendices, data and technical reports created during this planning process, and templates that the County can further modify.

The templates differentiate goals and recommendations that impact the County operations specifically, and those for the greater DeKalb community. The following narrative contains selected recommendations for each sustainability planning area.

A complete listing of recommendations can be found in each Appendix.



In developing this report, the S. L. King Technologies, Inc. team requested utility data for all DeKalb County government facilities from DeKalb County staff, Georgia Power Company, Snapping Shoals Electric Co-op, and Coweta-Fayette EMC Natural Gas to form the basis for the

energy assessment. The findings in this report are based on the information provided by these entities.





Section A Sustainability Planning



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GOAL: For DeKalb County to thrive and prosper, we must address the energy, mobility, and natural resource challenges faced by the County government and by all DeKalb County residents. To pursue and coordinate County government and community-wide sustainability programs, DeKalb County must establish and fund a Sustainability Office with appropriate staff. Additionally, DeKalb County will implement an Environmentally Preferable Purchasing Policy considering pollutant releases, waste generation, greenhouse gas emissions and energy consumption.

Sustainability Planning – Section Summary

DeKalb County can obtain substantial cost savings (e.g., lower energy bills) and community benefits (e.g., increased greenspace and access to fresh food) by implementing the sustainability goals and recommendations outlined in this Sustainability Plan. Therefore, the Sustainability Steering Committee (Steering Committee) recommends that all necessary resources be put in place to identify a Sustainability Officer that will continue the work begun by the Steering Committee to ensure that the recommendations made in this report are implemented. As funding levels increase and the scope of projects expands, the Steering Committee envisions the Sustainability Office consisting of an Energy Coordinator focused on obtaining <u>even greater cost savings</u> from energy efficiency and energy reduction initiatives, as well as part-time interns from DeKalb County colleges tasked with assisting the Sustainability Officer with data analyses, inter-departmental communication, and community outreach.



The Steering Committee identified the following attributes of the proposed Sustainability Officer.

- Transcends political shifts and changes in leadership;
- **Manages sustainability** policies, procedures, initiatives, incentives, implementation, monitoring, and reporting;
- **Identifies innovative** sustainability technologies and procedures that could work in DeKalb County;
- **Obtains funds** for capital investments and procedural improvements across DeKalb County Departments;
- **Reinvests savings,** across multiple Departments, that result from the successful implementation of sustainability policies and procedures ;
- Fosters cooperation and team building between Departments;
- Interfaces with the community, including DeKalb cities and school system.





Sustainability Office personnel would work with department heads to use the information contained in this Report to articulate department-level action items. The Sustainability Officer would then implement policies and procedures that help DeKalb County meet the Plan's goals and recommendations, monitor compliance with policies and procedures, and track performance. It would also leverage investments and funding for sustainability initiatives, coordinate sustainability programs across departments, and interface with community organizations that promote sustainability across DeKalb County.

Implementation of the Sustainability Plan will provide a shift in the way DeKalb County leverages its buying power to spur a broader sustainable economy.

Implementation of the DeKalb County Sustainability Plan



The valuable input of DeKalb County employees, businesses, and non-profit organizations that comprised the Sustainability Steering Committee (Steering Committee)² along with citizens of DeKalb County formed the foundation of this Sustainability Plan.

Through discussions with department managers and personnel, the Sustainability Steering Committee and the S.L. King Technologies Team (Team) determined that developing, implementing, and monitoring policies and procedures that help DeKalb County meet the Sustainability Goals and Recommendations will require a concentrated effort by dedicated personnel, otherwise DeKalb County risks losing the momentum created by the Sustainability Plan development process. The successful implementation of sustainability and energy management programs is tied to the level of resources that local governments dedicate to them.

² The names of the Steering Committee members can be found in Appendix A – Sustainability Planning



DeKalb County currently has personnel engaged with sustainability measures in multiple departments. For example, County personnel are creating a green procurement policy and finding ways to save fuel in the County's fleet vehicles. The Public Utilities is very active in recycling and very progressive with the use of methane gas generated at the Seminole Landfill. The Steering Committee considered establishing a committee consisting of key County personnel who are already engaged with sustainability measures to oversee the development, implementation, and monitoring of sustainability policies and procedures recommended in this report. However, after further discussion, the Steering Committee determined that existing personnel neither have the time nor the institutional capacity to undertake such comprehensive tasks in a thorough and sustained manner.

These concerns mirror those of the counties that responded to a survey conducted by the National Association of Counties (NACo's) in 2010 regarding nationwide sustainability efforts of local government. Respondent counties indicated that staff time and knowledge of sustainability solutions are main barriers to sustainability strategies.³ The NACo survey shows that there is a trend amongst counties to establish sustainability staff positions. Approximately 34% of the counties that responded to NACo's survey have a staff person to coordinate sustainability initiatives. Seventy percent of the large counties (those with populations over 500,000) that responded to NACo's survey have sustainability staff positions. Only 11% of all counties that responded to NACo's survey have a stand-alone sustainability office.

³ The National Association of Counties and Touchstone Consulting Group. "2010 County Sustainability Strategies" Available Online:

http://www.naco.org/research/pubs/Documents/Infastructure%20and%20Sustainability/2010%20County%20Sustainability%20S trategies%20Publication.pdf. Referenced on May 20, 2011.



Establishing a Sustainability Office

To be a sustainability leader in metro Atlanta, excel compared to its peers, and meet the goals and recommendations outlined in this Plan, the Steering Committee believes that DeKalb County should follow the lead of those counties that have established offices dedicated to sustainability. Therefore, the Steering Committee recommends establishing and funding a formal Sustainability Officer that has the authority to formulate, implement, provide incentives, and enforce sustainability policies and procedures for County government, as well as coordinate community-wide sustainability initiatives. The Steering Committee envisions the Sustainability Office consisting of a Sustainability Officer tasked with coordinating and managing County and community-wide sustainability efforts. As funding levels increase and the scope of projects expands, the Steering Committee envisions the Sustainability Office consisting of the possible additional positions;

- An Energy Coordinator tasked with obtaining <u>even greater cost savings</u> from energy efficiency and energy reduction initiatives for County buildings and fleet vehicles; and,
- Several part-time interns from DeKalb County universities and colleges tasked with assisting the Sustainability Officer and Energy Coordinator with data analyses, inter-Department communication, and community outreach.

Funding the Sustainability Effort

The Steering Committee recognizes that successful funding and operation of the Sustainability Office is critical to the success of this planning effort. The Steering Committee recommends that initial funding for this implementation effort come from sources other than the general fund, which is more susceptible to political shifts. The Steering Committee identified enterprise funds, grants, or a nominal fee attached to the County water/wastewater utility bill as potential initial funding sources.



To ensure that the Sustainability Office is effective, the Steering Committee recommends that the County establish a self-financing Sustainability Office. Initial funding would pay for the Sustainability Office's operational costs (e.g., overhead costs and related staff). Then, cost savings resulting from the Sustainability Office's efforts would be placed in a dedicated fund to finance the Sustainability Office, key capital improvements (e.g., purchase of new equipment and building improvements) that will yield additional cost savings, and/or further DeKalb County's sustainability goals.

Figure A-1 illustrates this model for funding municipal sustainability work.



Figure A-1: Example of Self-Funding Mechanism



Funding Peer Review

Below is a sample of how other municipalities fund their sustainability efforts.

City of Decatur, GA

As a part of the effort to respond to the changing economic climate of the country, the City of Decatur reclassified a position in 2009 to create a Resource Conservation Coordinator (RCC). The specific responsibilities of this position include many traditionally sustainability tasks such as organizing energy audits of all city facilities, implementing programs to reduce municipal utility costs, and serving as the primary contact for environmental initiatives. The RCC is also responsible for working across departments to create a more efficient purchasing system and promoting sustainability among staff and the community. The position is funded by general funds, grant funds, and offsets from savings that the position creates. For example, the Coordinator negotiated a centralized cell-phone contract for the City, saving \$15,000 a year.

City of Charlotte, NC

Charlotte created an Energy and Sustainability Manager using Energy Efficiency and Conservation Block Grant (EECBG) funds. However, the position is only funded through this grant for 2.5 years

Clackamas County, OR

Clackamas County's Sustainability Office is funded through a combination of franchise fees for solid waste and recycling services (a historic function) and general funds. When available, grant funds are also used.

<u>City of Columbia, MO</u>

This Office of Sustainability (OS) received its initial funding through an EECBG. This funding pays for a full-time Sustainability Manager who manages the activities of the



block grant - including energy audits and retrofits of city-owned facilities. There is partial funding from the general fund into this Office for the lifetime of the grant to carry the office until the savings from the energy retrofits are realized. All energy savings from the energy retrofits will go into the operational budget of the OS.

City of Durham, NC

The Sustainability Manager position is funded out of the general fund for both the county and the city (50/50 split). By establishing a joint Sustainability Office, the City of Durham and Durham County have been able to realize economies of scale and a greater level of cooperation on environmental issues than would have otherwise been possible. See Appendix A-Sustainability Planning for funding source.

Supporting the Sustainability Office

The Steering Committee suggests establishing a Sustainability Board that provides the Sustainability Office with support and guidance. The Sustainability Board should consist of DeKalb personnel who are passionate about sustainability initiatives and would be the personnel charged with implementing policies and procedures in their respective Departments. The Sustainability Steering Committee suggests the Sustainability Board consist of personnel from Keep DeKalb Beautiful and at least the following Departments:

• Sanitation

Procurement

Planning

• Fleet Management

• Finance



The Sustainability Officer would periodically provide updates to and receive input from the Sustainability Board.

Sustainability Recommendations for Plan Implementation

- 1. Establish and fund a Sustainability Office and appropriate staff.
- 2. Develop, implement, and monitor policies and procedures to meet the Plan's goals and recommendations.

A main goal of the Sustainability Office will be to oversee the development, implementation, and monitoring of all policies and procedures that help DeKalb County meet the goals and recommendations listed in this Plan. The goals and recommendations will require each DeKalb County department to complete action items. For example, goals related to County personnel increasing recycling, reducing electricity consumption, and following anti-idling policies will require support from all departments. Therefore, the Sustainability Office staff will have to work with each department head to develop a Department Sustainability Plan.

The Department Sustainability Plan template contained in Appendix A – Sustainability Planning has been created to assist with the creation of department-level action items. The Steering Committee recommends that the Sustainability Office staff work with each department to:

- Create the department's Sustainability Vision/Commitment Statement that establishes the foundation of the Department's Sustainability Plan;
- Summarize the department's responsibilities for those goals and recommendations that affect the Department;

• List action items, the responsible parties, and the measures of success; and,



• Develop the Department's Employee Communication Plan for communicating with department staff regarding the Department Sustainability Plan.

After creating each Department Sustainability Plan, the Sustainability Office staff should work with designated department personnel to populate Reporting Tabs contained in Appendix A – Sustainability Planning, which will list each Department Action Item, its Status, the Results/Outcome, and applicable Notes/Comments. Sustainability Office staff should also review the broad set of performance measurement metrics already included in the Goal Templates contained Appendix A – Sustainability Planning. These performance measurement metrics can help DeKalb County develop a baseline and compare progress against that baseline as a means to assess whether goals have been met. Sustainability Office staff should work with designated department personnel to delete those metrics for which the County cannot obtain data, as well as formulate new metrics for which the County can obtain data.

The Sustainability Office staff should work with designated department personnel to analyze data to set baselines, monitor progress based on performance measurement metrics, and update both the Department Sustainability Plan and Reporting Templates. The Steering Committee recommends that the Sustainability Officer update the Goals Templates to provide a yearly status review to the Sustainability Board, Board of Commissioners, and Chief Executive Officer.

3. Create and Implement an Education and Outreach Plan for the Broader Community



A key to a more sustainable DeKalb County is the education and involvement of its human capital in sustainable community development. This human capital includes the



school system, the business community, the faith community, the environmental community, civic leadership, neighborhood groups, non-profit organizations, and the local government elected officials and staff. Therefore, the Sustainability Office should create an education and outreach program that furthers County and community awareness of initiatives that promote sustainability. The spreadsheet of recommendations found in Appendix A – Sustainability Planning outlines sustainability recommendations and indicates whether the goals and action items are specific to DeKalb County government, the greater DeKalb Community, or both.

To galvanize support for a sustainable community among citizens, elected officials, government staff and all the groups listed above, a clear vision must emerge. The public should be able to visualize what DeKalb would "look like" as a sustainable place. That vision only emerges with comprehensive public education and engagement.

Education Through Visualization

The first step DeKalb County should take in the education process is to organize major sustainable workshops in all Commission districts. These workshops can be conducted in the "charrette" format and require highly trained facilitators who are knowledgeable about community sustainability.

Participants in each district workshop should include representatives from all the human capital groups listed above, and each should be committed to the process in terms of time and participation. There are many ways to organize a workshop but in the case of sustainability, education and goal setting should cover the following:

- Energy, land, and water conservation strategies
- More sustainable and efficient infrastructure
- Different housing types

- Mixed use corridors accessible to all
- Access to natural areas
- Walkability

- Transportation options
- Local food production



Directly or indirectly each item above impacts the three components of sustainability: economic, environmental, and social. In essence, at the end of each district workshop, each group should emerge with a list of actions that will lead to a more sustainable DeKalb County.

Taking Action

At the conclusion of each workshop and based on the recommendations of this Sustainability Plan, an individual from each district workshop should be appointed to the Sustainability Board mentioned earlier that will oversee the community-level implementation of the workshop outcomes. This group should galvanize workshop participants to accomplish activities such as:

- Develop a communications network within neighborhood groups and associations to encourage water conservation measures including drought resistant plantings, and energy conservation measures aimed at using less energy as described in this Sustainability Plan.
- Prepare an energy review of DeKalb County Schools and identify energy conservation measures.
- Develop an education program through the DeKalb County School System to teach sustainable best practices at all levels: elementary, middle and high school.
- Develop a working network of non-governmental organizations that collaborate on how to bring sustainable best practices to families, businesses and industry, eliminating duplication of efforts.
- Work with the Chamber of Commerce to identify businesses in each district that will take the lead in establishing sustainable best practices as they apply to their respective line of work and encouraging their peers to do the same.



- Educate and work with DeKalb Development Authority to promote sustainable best practices in business and industry.
- Work with Georgia Organics to identify affordable community farmers' markets.
- Work with DeKalb Health Department to develop education programs on healthy living.



Introduction

Sustainable procurement is an approach to procurement in which environmental impacts play an important role in purchasing decisions, with procurement officers concerned about more than just price and quality. Companies which pride themselves on environmental stewardship and thoughtful care of the environment utilize sustainable procurement, among many other



tactics, to ensure they do business in an environmentally responsible way.

In 2007, the CEO of DeKalb County Government, Burrell Ellis, and the Purchasing and Contracting Department executed Executive Order 2009-07: *Environmentally Preferable Purchasing Policy*. This policy states that DeKalb County desires to remain fiscally responsible while promoting practices, manufacturers, and vendors who reduce the adverse environmental impact of their production and distribution systems by including environmental considerations in purchasing decisions, along with traditional concerns with price, performance and availability. DeKalb County Government will



implement and build upon the Executive Order by considering, whenever practicable, the following environmental factors when making purchasing decisions: pollutant releases, toxicity, waste generation, greenhouse gas emissions, energy consumption, and depletion of natural resources, recycled content and disposable methods.

As the governing entity of procurement for DeKalb County Government, the Purchasing and Contracting Department has demonstrated sustainable procurement leadership by developing the Sustainable Procurement Policy and the Green Purchasing Initiative. Both serve the purpose of further defining and supporting the Executive Order and are currently being implemented at a phased approach within the department. One of the department's key objectives is to implement a Green Procurement Policy that does not negatively impact local small businesses. Another important objective is to ensure that the Green Procurement Policy does not reflect the influence of a particular interest group.

Current Conditions



As of May 2011, the department manages a total of 742 contracts with a total value of approximately \$2,623,833,691. The department is currently determining the requirements for implementing Oracle eProcurement and Oracle Sourcing in an effort to implement online

contracting as a means to electronically receive responses to solicitations. This technology currently exists as a module within DeKalb County Government's current version of Oracle, there will not be a procurement expense. Additional project resources may be needed to collect, analyze, and test essential procurement data required for the initial implementation. The additional resources may be a potential expense to the department. Given the current reduction in workforce and budget, acquiring additional



temporary or permanent resources may present a challenge. It is anticipated that the implementation efforts will take place later this year.

Moving Forward

In the interim, the Purchasing and Contracting Department has developed a list of Sustainable Procurement goals and has begun the following tasks required to accomplish those goals:

- Data collection, analysis and reporting efforts of all current and new vendors who provide products that are classified as Green, Recycled, Eco-Preferable, etc., has begun. All data will be used for performance reporting. The Eco-Preferable NIGP Codes have been updated within the supplier form as a selection for the vendors when updating their profiles. The director has developed the Memo of Communication, which will be distributed to all vendors requesting an update to the supplier profiles to include applicable Eco-Preferable NIGP Codes.
- The draft of high-level boilerplate sustainability language that will be included in all RFPs, ITBs, RFQs, etc. has been defined for commodities. The purchasing director is reviewing the initial Draft Bid Provision, which will be the included language in Bids for Environmentally Preferred Products. The purchasing director will ensure that all internal manuals and applicable policies and procedures reflect the approved sustainability language.
- The department has developed an inventory of all standard documents to determine the feasibility of using an electronic signature. Over 90% have electronic signatures included. There are some exceptions in which an electronic signature would impact internal guidelines.
- Recycle receptacles have been placed in various locations within the department for recycling of office products including toner cartridges, paper and water bottles.


- Phased Departmental Communication Milestones are being established. The purchasing director has begun the development of various memos, which will be distributed internally to employees (Intranet) and externally to vendors (Internet) during the applicable phases of the Sustainability Plan development.
- Plans are underway to establish an internal Green Procurement Team that would work closely with the sustainability officer to finalize and implement County-wide (departments) procurement goals. The purchasing director will track and communicate the sustainability accomplishments of the Green Procurement Team. The director will also monitor the progress of the accomplishment of the goals.
- The department has begun research and analysis of the top five eco-labels and include in the applicable specifications for commodities, products and services as a pilot.

Policy Implementation

The DeKalb County Government Green Purchasing Initiative is currently being implemented in two phases to effectively support the objectives of the Executive Order and the intended Sustainability Purchasing Policy:

Phase I: Self-Analysis

The department has begun analysis of their current practices and business processes to determine how they can become more sustainable. They identified "quick hits" that could be accomplished immediately with minimal or no expense. Based on their feasibility, these are practices that are being considered in this effort:

• Use electronic signatures on standard forms and standard letters (only on solicitations at this time)

- Order recycled products
- Print duplex documents



- Mitigate junk mail
- Recycle paper, toner cartridges, water bottles, etc.
- Eliminate the use of Styrofoam and non bio-degradable cutlery by asking employees to bring their own mugs , cups and cutlery
- Turn lights off and power down: installed occupancy sensor lighting
- Request responses from vendors via editable PDF

Phase II: Implementation of Sustainable Policy through Policy and Resolution

It is the objective of the department to procure materials, products, or services in a manner that integrates fiscal responsibility, social equity, and environmental factors. The department will utilize the framework of Precautionary Principle as a guide when

evaluating the comparative toxicity of products and services. This principle states that if an action or policy may cause severe or irreversible harm to the public or to the environment, then the burden of proof will fall on those who have taken the action.



The purchasing director will explore options for building

awareness of the Sustainability Policy by encouraging routine training for all employees and disseminating information via the following activities:

- Explore the development of buyer-specific training on sustainable procurement best practices including lifecycle analysis and lifecycle cost.
- Explore the development of buyer competency and communication of the Sustainability Policy to other surrounding counties.
- Explore the development of inter-agency communication among public procurement professionals about sustainable procurement best practices.

Additional recommendations regarding Sustainable Procurement can be found in Appendix A – Sustainability Planning.





Appendix

Sustainability Planning

ARC Green Communities Certification Checklist Status

DeKalb County Procurement Plan

DeKalb County Steering Committee Members

DeKalb County Sustainability Goals Template

Public Involvement Plan

Presentations

Sustainability Steering Committee Members

Sustainability Steering Committee Meeting Agendas

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Sustainability Grants List





Section B

Energy



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For DeKalb County to thrive and prosper, we must ensure that energy use and the performance of our buildings support, rather than detract from, DeKalb County residents' quality of life. Accordingly, DeKalb County will strive for sustainability by incorporating measures that reduce energy consumption and by pursuing cleaner, efficient, and locally-oriented energy strategies.

Energy – Section Summary

Without easily accessible energy, civilization as we know it would not exist. Like the rest of the country, DeKalb County depends on reliable and affordable energy to keep its buildings illuminated and comfortable, traffic lights functional and vehicles mobile. This reliance on energy leads to considerable debate on the sources and pricing of energy supplies. Consumers often advocate lower energy prices; however, low prices do not necessarily lead to low total energy bills if consumers live and work in energy inefficient buildings, drive inefficient cars and/or commute excessive distances. In these situations, increasing energy efficiency measures, rather than decreasing prices, may be a more affordable energy solution for both individual consumers and the greater community.

Given the fiscal challenges faced by all municipalities across the country, energy conservation and energy efficiency should be seen by DeKalb County as a source of revenue in that a dollar saved on utility bills is a dollar saved for the taxpayers. DeKalb County has numerous opportunities to save money on energy bills with no upfront costs.



For example, an energy consumption analysis of five DeKalb County buildings (Gresham Recreation Center, Decatur Library, Fire Station 25, Avondale Middle School, and Maloof Administration Building) yielded the following cost savings opportunities:

Opportunity	Total Estimated Annual Savings	Total Estimated Capital Cost	Estimated Payback Time	Estimated Reduction in CO ₂ Emissions
Optimize Heating and Cooling (e.g., Adjust Temperatures on Heaters, Coolers; Program Thermostats; Eliminate Unnecessary Space Heaters)	\$36,762	\$0	0 Years	743,564 lbs
Use Efficiency Settings for Computers and Monitors (e.g., Sleep Mode and Monitor Power Save)	\$8,951	\$0	0 Years	161,801 lbs
Reduce Equipment Use During Times Building Not Occupied (e.g., Summertime and During the Nights/Weekends)	\$23,058	\$0	0 Years	611,652 lbs
Savings Per Year for the Five Buildings	\$68,771			1,517,017 lbs



By implementing three simple, no-cost policies in five buildings, DeKalb County can save an estimated \$68,771 a year and prevent the emission of over 1.5 million pounds of C0₂, which would be the equivalent of taking approximately 126 cars off of DeKalb County's roads for one year.⁴ These estimated savings are just for the five buildings covered under the remote assessments. Clearly, DeKalb County can obtain tremendous cost savings by implementing policies, many of which do not cost taxpayers any money, across <u>the 300 County-owned buildings</u>.

The savings are not limited to buildings. A fuel consumption analysis of the County's fleet of Crown Victoria sedans revealed that mere 2.5% increase in fuel efficiency across the Crown Victoria fleet would result in about \$80,000 worth of savings per year (based on \$3.54 per gallon of gasoline). A 2.5% increase in fuel efficiency can be achieved with no-cost initiatives such as anti-idling policies. Given that DeKalb County has over 3,000 vehicles, a 2.5% increase in overall fleet fuel economy would yield a considerable amount of cost savings per year. Moreover, these cost savings only increase as the price of gasoline and diesel rise.

Aside from saving the County money, investments in energy conservation and energy efficiency also generate local jobs. The nature of energy conservation projects requires local labor for activities such as improvements to existing buildings, which keeps more local dollars within the community. A 2009 study by the University of Massachusetts-Amherst and the Center for American Progress calculates that one million dollars invested in fossil fuels creates about 5.3 jobs. In contrast, a one million dollar investment in energy efficiency and clean energy creates approximately 16.7 jobs.⁵

⁴ We relied on the calculation used by the American Council for an Energy-Efficient Economy. *See* Furrey, L.A., S. Nadel, and J.A. Laitner. Mar. 2009. "Laying the Foundation for Implementing a Federal Energy Efficiency Resource Standard." Available online: <u>http://www.aceee.org/research-report/e091</u>. Referenced on June 9, 2011.

⁵ Pollin, R., J. Heintz, H. Garrett-Peltier, B. Hendricks, and M. Ettlinger. Jun. 2009. "The Economic Benefits of Investing in Clean Energy." Department of Economics and Political Economy Research Institute, University of Massachusetts, Amherst and Center for American Progress. Available online: http://thecopenhagenstory.files.wordpress.com/2010/04/economic-benefits-of-investing-inclean-energy.pdf. Referenced on June 6, 2011.



Given that energy conservation and energy efficiency saves the taxpayers money and spurs the local economy, the following energy goals have been identified for DeKalb County:

- 1. Eliminate excess energy use and invest in energy efficiency.
- 2. Invest in and promote less polluting energy sources and renewable energy sources (e.g., solar, wind, and landfill biogas).
- 3. Identify opportunities to capture and reuses waste heat.
- 4. Implement sustainability best practices in all new and existing county facilities
- 5. Focus on community-wide green building standards.
- 6. Advocate for comparative building-level utilities tracking and reporting.
- 7. Reduce energy use in water and wastewater treatment plants.
- 8. Increase vehicular fuel efficiency.
- 9. Use alternative vehicular fuels where it is appropriate.

Types of Energy

To discuss sustainable approaches to meeting DeKalb County's energy needs, we must first understand both the sources and consumers of energy. Not all types of energy are the same. Fossil fuels (e.g., coal, oil, and natural gas) and uranium are examples of primary energy sources because they contain energy directly from natural sources. Solar and wind are examples of primary energy sources because they are natural sources of energy. Electricity is a secondary energy source because it is produced from primary sources of energy such as coal, nuclear, natural gas, solar, moving water (hydro), or wind. This distinction is important because it takes a lot of primary energy to generate electricity.

An important distinction should be made between non-renewable and renewable energy sources. Non-renewable energy sources such as coal, oil, natural gas, and



nuclear are finite and will eventually be depleted. By contrast, renewable energy sources such as solar, wind, hydro, and biomass are either unlimited or can be quickly replenished.

Sources of Georgia's Energy

Non-renewable fossil fuel and nuclear energy sources dominate Georgia's energy portfolio. Figure B-1 contains the U.S. Energy Information Administration (EIA) 2009 estimates for Georgia's primary energy sources, i.e., energy for all uses including transportation and the generation of electricity.⁶



Figure B-1: Georgia Energy Consumption Estimates by Primary Sources (2009 EIA Data)

⁶ The Georgia energy consumption estimates listed do not factor the difference between the amount of energy in the electricity sold within Georgia and the energy input at the electric utilities within Georgia. *See* U.S. Energy Information Administration. 2011. "Table C3. Primary Energy Consumption Estimates, 2009." Available online: <u>http://www.eia.gov/state/seds/hf.jsp?incfile=sep_sum/html/sum_btu_totcb.html</u>. Referenced on Aug. 16, 2011.



As shown in Figures B-1 and B-2, Georgia relies heavily on non-renewable sources of fuel for its energy and electricity generation.

In addition to non-renewable and renewable energy sources, we should think of energy efficiency as a source of energy. Every kilowatt of electricity saved is a kilowatt that does not have to be generated. Every gallon of





transportation fuel not used is a gallon that does not have to be extracted. By improving energy efficiency, Georgia can reduce demand for electricity, natural gas, and transportation fuels. This reduced demand will allow, for example, Georgia to expand economic growth using the electricity output of its existing electricity generation plants rather than having to construct new plants to meet increased electricity needs. Moreover, the nature of energy conservation projects requires local labor for activities such as improvements to existing buildings, which keeps more local dollars within the community.

Figure B-3 contains 2009 Georgia energy consumption by end-use sector.⁷ The residential end-use sector, which consists of living quarters for private households,⁸ accounted for 24.5% of Georgia's energy consumption. The commercial end-use sector, which consists of office, government, educational, religious, and civic buildings, institutional living quarters, and sewage treatment facilities,⁹ accounted for 18.8% of Georgia's energy consumption. Therefore, buildings and sewage treatment facilities accounted for the largest portion of energy consumed in Georgia. The transportation

<u>http://www.eia.doe.gov/tools/glossary/index.cfm?id=R</u>. Referenced on May 25, 2011. ⁹ U.S. Energy Information Administration. 2011. "Glossary C." Available online:

⁷ U.S. Energy Information Administration. 2011. "Table C10. Energy Consumption by End-Use Sector, Ranked by State, 2009." Available online: <u>http://www.eia.gov/state/seds/hf.jsp?incfile=sep_sum/html/rank_use.html</u>. Referenced on Aug. 30, 2011.

⁸ U.S. Energy Information Administration. 2011. "Glossary R." Available online:

http://www.eia.doe.gov/tools/glossary/index.cfm?id=C. Referenced on May 25, 2011.



end-use sector accounted for 32.3%, followed by the industrial end-use sector, which includes energy used for construction and manufacturing,¹⁰ at 24.4%.



Economic

As evidenced by the fuel supply disruptions and price volatility following Hurricane Katrina in 2005, investment speculation in 2008, and the more-recent geopolitical unrest in the Middle East, transportation fuels are sensitive to both natural and man-made disturbances. For example, the rate DeKalb County pays for gasoline (excluding taxes and applicable discounts) jumped 61% from \$2.0878 per gallon in January 2010 to \$3.3527 per gallon in May 2011.¹¹

Between March 2010 and March 2011, average Georgia electricity rates increased from 9.75¢ to 11.05¢ per kilowatt hour (kWh) for residential consumers and from 9.21¢ to 9.96¢ per kWh for commercial consumers.¹²

¹⁰ U.S. Energy Information Administration. 2011. "Glossary I." Available online:

http://www.eia.doe.gov/tools/glossary/index.cfm?id=I. Referenced on May 25, 2011.

¹¹ Gasoline rate referenced is the "transport gasoline" provided by Shondra Turner on May 10, 2011.

¹² U.S. Energy Information Administration. Jun. 2011. "Table 5.6.A. Average Retail Price of Electricity to Ultimate Customers by End-Use Sector, by State, March 2011 and 2010." Available online: <u>http://www.eia.gov/cneaf/electricity/epm/epmxlfile5_6_a.xls</u>. Referenced on June 13, 2011.



Environmental and Human Health

The use of non-renewable energy for transportation and electricity generation also impacts the environment and human health. For example, burning fossil fuel releases harmful gases that contribute to local air pollution (e.g., sulfur dioxide, nitrogen oxide, and particulates). The American Lung Association gives the Atlanta region including DeKalb County an "F" Ozone Grade due to the high number of days with unhealthy air pollution.¹³ This polluted air causes respiratory ailments and disproportionately impacts the young and elderly, as well as those who already suffer from respiratory disease.

According to analyses performed by the World Resources Institute (WRI), 92% of Georgia's total GHG emissions in 2005 resulted from energy consumption.¹⁴ WRI states that increased emissions from the electricity generation and transportation sectors largely contributed to Georgia's GHG emissions increasing 33% between 1990 and 2005. This pace was about twice as fast as the national average.

Figure B-4 shows the estimated 2008 GHG emissions, in tonnes CO₂e,¹⁵ from DeKalb County's transportation, residential, and commercial and industrial sectors. Appendix B - Energy contains the detailed methodology used to arrive at the 2008 estimated community-wide GHG inventory.

¹³ American Lung Association. 2011. "State of the Air 2011." Available online: <u>http://www.stateoftheair.org/2011/states/georgia/dekalb-13089.html</u>. Referenced on May 25, 2011.

¹⁴ World Resources Institute. Apr. 2009. "Southeast Energy Opportunities: Energy by the Numbers: Georgia." Available at: <u>http://pdf.wri.org/southeast_energy_numbers_ga.pdf</u>. Referenced on May 25, 2011.

 $^{^{15}}$ Tonnes refers to metric tons, which are used for expressing GHG emissions. A metric ton is 2,204.62 lbs (1,000 kg) whereas a short ton, or just ton, is 2,000 lbs (used in the U.S.). Carbon dioxide equivalent (CO₂e) is used as a common unit when other GHGs, such as methane, are included. Other GHGs are converted into their carbon dioxide equivalent.





Figure B-4: Estimated 2008 DeKalb Community-Wide GHG Emissions

DeKalb County Government Greenhouse Gas Inventory Baseline

The base year for this study is 2008, and the baseline energy use is calculated using utility records from Georgia Power Co., Snapping Shoals Electric Co-op, and Coweta-Fayette EMC Natural Gas. To make for a reliable comparison, only those utility accounts with 12 months worth of data for both 2008 and 2009 are included in the baseline. The totals are listed below.

	ELECTRICITY [kWh]	NATURAL GAS [Ccf]
BASELINE	137,509,472	956,112



Not all of the utility accounts included in the baseline are associated with a particular County facility. Traffic lights, water and sewer pumps, and outdoor lighting are examples of energy users that are not associated with a facility. However, to get a reliable metric for comparison of buildings, such as energy use per square foot, it is critical that energy use associated with the operation of a particular facility be accounted for through the correct utility records. Both utility records and facilities in the County inventory are associated with a street address, so this is the primary parameter used to assign a utility record to a facility. The address of the utility account is usually based on the location of the meter, which can be located on a side street, shared between multiple facilities, or simply recorded incorrectly making it impossible to assign the associated energy use to the correct facility. It is also possible that utility accounts associated with a particular facility were not included at all in the information the Team received. For a list of utility accounts that have been associated with facilities and which facilities do not have utility accounts associated with them at all, please see Appendix A-Energy. It is also noted whether the data from the utility account was included in the calculated baseline.

Local Job Growth

Energy efficiency and increased use of renewable energy sources can also spur local economic growth. Georgia spends billions of dollars a year to import all of its fossil and nuclear fuels.¹⁶ Georgia could generate local jobs by diverting some of this expenditure from fossil and nuclear fuels and investing in energy efficiency (e.g., improvements to existing buildings) and renewable energy (e.g., installation of solar panels). A 2009 study by the University of Massachusetts-Amherst and the Center for American Progress calculates that one million dollars invested in fossil fuels creates about 5.3 jobs.

¹⁶ In 2005, Georgia spent over \$1.6 billion in coal imports. In 2004, Georgia spent \$151 million in nuclear fuel imports. *See* Union of Concerned Scientists. 2009. "The Southeastern United States Can Benefit from a National Renewable Electricity Standard." Available online: <u>http://www.ucsusa.org/assets/documents/clean_energy/hr969_southeast.pdf</u>. Referenced on June 9, 2011.



In contrast, a one million dollar investment in energy efficiency and clean energy creates approximately 16.7 jobs.¹⁷

Decreased Pollution

The ACEEE estimates that by reaching year 2020 Energy Efficiency Resources Standard targets, Georgia could reduce emissions of carbon dioxide, a GHG, by 15.2 million tons, which would be the equivalent of taking approximately 2.8 million cars off of Georgia' roads for that year.¹⁸ Moreover, decreased reliance on nuclear energy reduces concerns regarding nuclear waste. **Figure B-1: Energy Sustainability Principles**

Strategies for DeKalb County to Reduce Impact of Energy Consumption

The cheapest energy is the energy not used. Therefore, DeKalb County's sustainable energy policies should first Efficiency
2. Incorporate Renewable Energy Sources
3. Localize Energy Production
4. Capture and Reuse Wasted Energy

1. Primary Focus: Energy Reduction and

focus on energy reduction and efficiency and then on clean renewable energy sources to maximize the impact of its and the community's investments. For example, placing a solar panel on a building that has inadequate insulation will simply waste expensive solar energy. The upfront capital required to purchase and install the solar panel will not yield the expected return because of the inefficiency of the building. However, if that capital is first invested in improving building efficiency, then the resulting savings in utility bills can be leveraged to purchase solar panels, which can further reduce the

¹⁷ Pollin, R., J. Heintz, H. Garrett-Peltier, B. Hendricks, and M. Ettlinger. Jun. 2009. "The Economic Benefits of Investing in Clean Energy." Department of Economics and Political Economy Research Institute, University of Massachusetts, Amherst and Center for American Progress. Available online: http://thecopenhagenstory.files.wordpress.com/2010/04/economic-benefits-of-investing-inclean-energy.pdf. Referenced on June 6, 2011.

¹⁸ We relied on the calculation used by the American Council for an Energy-Efficient Economy. *See* Furrey, L.A., S. Nadel, and J.A. Laitner. Mar. 2009. "Laying the Foundation for Implementing a Federal Energy Efficiency Resource Standard." Available online: <u>http://www.aceee.org/research-report/e091</u>. Referenced on June 9, 2011.



building utility bills and will reduce the community's reliance on non-renewable energy sources. The Sustainability Steering Committee encourages DeKalb County to prioritize its sustainable energy policies to focus on those that result in the <u>greatest energy</u> <u>savings and cost reductions</u> with the <u>least amount of upfront investment</u>. To this end, the Sustainability Steering Committee recommends DeKalb County follow the energy sustainability principles prioritized in Figure B-5 in order to make DeKalb's energy consumption more sustainable.

1. Energy Reduction and Efficiency

DeKalb County should primarily focus on energy efficiency because energy efficiency is cheaper and produces benefits much faster than installing alternate sources of energy. Arguably, the cost of energy efficiency can be zero. It costs nothing to change behavior, for example turning off the lights when leaving the office. Even if we consider energy efficient capital investments, energy efficiency is still the most costeffective source of energy. Based on analysis performed by ACEEE, the U.S. average cost for electricity efficiency is 2.5¢ per kilowatt-hour (kWh), with a Range of 1.6¢ to 3.3¢ per kWh.¹⁹ This is considerably lower than the cost of obtaining electricity from any non-renewable or renewable energy source.²⁰ When considering any renewable energy technology the capital investment and payback period should be considered

¹⁹ Friedrich K., M. Eldridge, D. York, P. Witte, and M. Kushler. Sep. 2009. "Saving Energy Cost-Effectively: A National Review of the Cost of Energy Saved through Utility-Sector Energy Efficiency Programs." Available online: <u>http://www.aceee.org/research-report/u092</u>. Referenced on June 9, 2011.

²⁰ Solar, biomass, wind, coal, and nuclear data obtained from Lazard. *See* "Levelized Cost of Energy Analysis – Version 3.0." Lazard. Feb. 2009. Available online: <u>http://www.cleanenergy.org/images/factsheets/Lazard2009_LevelizedCostofEnergy.pdf</u>. Referenced on June 9, 2011.





 Table B-1: Comparative Cost of Electricity Generation (Cents per kWh)

Moreover, it is much quicker to implement energy efficiency initiatives than install sources of renewable energy. Low cost initiatives like anti-idling and "turn off the light" programs yield immediate energy savings. Governments, businesses, and residents can install energy efficient light bulbs, heating and cooling systems, and insulation in a relatively short amount of time. Obviously, the construction of new coal-fired and nuclear power plants takes much longer. And even though solar panels can be installed relatively quickly, it is far less effective to place a solar panel on an energy inefficient building.

2. Incorporate Renewable Energy Sources

After optimizing energy reduction and efficiency programs, DeKalb County should focus on renewable energy sources such as solar, landfill biogas, and wind. These renewable energy sources could be generated within DeKalb County or other parts of the state/country (e.g., electricity generated from renewable sources outside DeKalb



County). It should choose energy sources to <u>maximize cost effectiveness</u> and <u>minimize</u> <u>environmental impact</u>. Even though non-renewable energy sources may be the cheapest form of energy based on utility rates, DeKalb County should consider the affordability of the final utility bill, as well as the long-term price stability and environmental impact of non-renewable versus renewable sources of energy. Renewable energy systems sometimes have a higher initial cost than non-renewable options but, when coupled with energy efficiency, they can lower the total energy bill and have substantial benefits to a community's environment and human health. Using diverse energy resources will reduce DeKalb County's exposure to price and supply issues resulting from relying on a few energy sources.

3. Localize Energy Production

To reduce energy loss resulting from electricity transmission and distribution, DeKalb County should identify opportunities to locally produce electricity through renewable sources (e.g., solar, landfill biogas, biodiesel, and wind) and highly efficient and cleaner conventional sources (e.g., combined cycle natural gas turbines).

4. Capture and Reuse Wasted Energy

DeKalb County should identify opportunities to capture and reuse waste heat to power auxiliary energy generating turbines, provide heat for industrial purposes, or provide climate control for buildings. To facilitate the capture and reuse of otherwise wasted energy, DeKalb County should foster the co-location of complementary energy production/energy consumption facilities (e.g., industrial parks that use biogas obtained from an adjacent landfill or wastewater treatment plants).



Sustainability Recommendations for Overall Energy Consumption

The sustainability goals for overall energy consumption listed below have been identified through discussions and workshops with the Sustainability Steering Committee, and input for County staff and residents. These overall goals should be viewed as "umbrella" goals that seek to reduce DeKalb County's overall energy consumption. Subsequent portions of this plan focus on specific goals related to buildings and vehicles, which will assist DeKalb County meet the overall energy consumption goals listed below.

1. Eliminate Excess Energy Use and Invest in Energy Efficiency

- By January 1, 2012, identify County policies, codes, ordinances, and development regulations that hinder activities that would promote energy savings.
- By January 1, 2013, reduce DeKalb County government's electricity consumption by 10% from 2008 levels, adjusted for increase in buildings and/or square footage; a more aggressive target would be to reduce DeKalb County government's electricity consumption by 15% from 2008 levels, adjusted for increase in buildings and/or square footage.
- By January 1, 2015, reduce DeKalb County government's electricity consumption by 25% from 2008 levels, adjusted for increase in buildings and/or square footage.
- By January 1, 2013, reduce DeKalb County government's natural gas consumption by 10% from 2008 levels, adjusted for increase in buildings and/or square footage; a more aggressive target would be to reduce DeKalb County government's municipal government natural gas consumption by 15% from 2008 levels, adjusted for increase in buildings and/or square footage.



- Establish links between major DeKalb County government buildings and local public transportation resources (e.g. a shuttle to/from Camp Road complex and Kensington MARTA station).
- Establish incentives for employees to use public transit.

2. Invest in and Promote Lesser Polluting Energy Sources and Renewable Energy Sources (e.g., solar, wind, and landfill biogas).

- Where appropriate, provide priority parking at County facilities for alternative vehicles such as Zip Car, scooters, bicycles, carpools, and electric vehicle recharging spaces.
- Adopt ordinances that incentivize support, and protect business and home owners who install renewable energy generators (e.g., photovoltaic panels, solar water heaters, and small wind turbines).
- Evaluate the economics of constructing a large scale photovoltaic solar array on the County's landfill site to exploit the existing utility interconnection and to utilize a land area that would otherwise not lend itself well to development for other uses.
- Evaluate the economics and environmental benefits of locally available biomass sources; and then incentivize the development of systems that produce power from the identified biomass sources.

3. Identify Opportunities to Capture and Reuse Waste Heat

 By January 1, 2013, DeKalb County should identify sites and opportunities for the co-location of complementary energy production/energy consumption facilities (e.g., industrial parks that use biogas obtained from an adjacent landfill).





County Owned and Operated Buildings

DeKalb County owns and operates over 300 buildings. Building uses are many and varied. There are approximately 55 parks, 26 fire stations, 22 libraries, 15 recreational facilities, 11 pools, 6 water and sewer facilities, 6police stations, 12 maintenance facilities, and a variety of office buildings, health facilities, animal facilities, and buildings for several other uses. These facilities range in age, with build dates from 1823 to 2010. They are located throughout the County with addresses in Atlanta, Avondale, Chamblee, Clarkston, Decatur, Doraville, Ellenwood, Lithonia, Stone Mountain, and Tucker.

An inventory of County-owned buildings, dated July 10, 2010, provided by the County lists the following:

- 271 owned buildings with a combined floor area over 4.9 million square feet;
- 35 more buildings with combined floor area over 250,000 square feet, listed as "REMOVED FROM ORIGINAL LIST", reportedly indicating that they are not managed by the County's Facilities department;
- The "Jail Facility", a complex of buildings encompassing about one million square feet; and,

• "Airport Buildings", with an estimated floor area of about 50,000 square feet.



County Owned and Operated Facilities

In addition to buildings, the County operates and maintains other types of facilities, lighting, and mechanical devises that are not included on this list but appear in the utility billing records, such as:

- Street and traffic lights, signage, and other outdoor lighting;
- Water and wastewater pumping and monitoring stations;
- Greenhouses;
- Sporting fields;
- Residential buildings;
- Sanitation facilities;
- Security and traffic cameras;
- Temporary power at construction trailers; and,
- And metering/monitoring stations.

County Building and Facilities Energy Consumption

To understand the status of energy use/purchases by the County, the primary sources of information about facilities and utility use available to us were the County's July 10, 2010 facility inventory, and the utility billing records. Because facility addresses from the inventory and service addresses from utility data do not necessarily match, this facility inventory is as complete as possible given the quality of data available.

Electricity Use

Electricity is provided to DeKalb's facilities primarily by two utility companies: Georgia Power Company (GPC) and Snapping Shoals Electric Membership Corporation (SSEMC). Consumption for base year 2008 was approximately 150,166,080 kWh, at a cost of approximately \$15 million.



By far, the vast majority of electricity is supplied by GPC. For 2010, we were provided data for the first three quarters, January through September. A summary of electricity consumption for those months is provided below.

<u>SSEMC Electricity use</u> = 1,591,182 kWh. Charges = \$165,763.

<u>GPC Electricity use</u> = 132,091,215 kWh. Charges = \$13,804,625.

Month	kWh	\$	\$ / kWh
January	8,500,030	\$1,440,916	0.169519
February	16,224,505	\$1,492,628	0.091998
March	14,306,249	\$1,425,907	0.09967
April	13,831,045	\$1,343,743	0.097154
May	14,558,495	\$1,352,996	0.092935
June	15,066,920	\$1,420,282	0.094265
July	15,543,905	\$1,614,358	0.103858
August	17,504,158	\$1,859,500	0.106232
September	16,555,908	\$1,854,296	0.112002
	132,091,215	\$13,804,625	0.104508

If one assumes that these nine months represent 80% of annual electricity use then the GPC totals are estimated to be about 165,114,019 kWh/yr and \$17,255,781/yr.

If so, then 2010 totals (SS + GPC) are estimated to be:

• 166,705,201 kWh/yr. • \$17,421,544/yr.



Natural Gas Use

Natural gas consumption is measured in both energy units and volumetric units. One "therm" is a unit of energy containing 100,000 British Thermal Units (Btus), while one "Ccf" is a volumetric unit containing 100 cubic feet. Natural gas is measured by volume using the facility gas meter. Typically gas is billed by energy units; the conversion factor is the "energy content", a measured value of the energy per unit volume (e.g., 1.01 therms/Ccf). Thus, the consumption in therms is close, but not exactly the same as the consumption in Ccf.

During the baseline year of 2008, natural gas was provided to DeKalb facilities by Coweta-Fayette Electric Membership Corporation (CFEMC). For base year 2008, total County natural gas use = 1,025,538 Ccf/yr, at a cost of approximately = 1.2 million. The volumetric quantity used was approximately: 1,025,538 therms/yr / 1.01 therms/Ccf = 1,015,384 Ccf.

More recently, 40-50 of the County's facilities have been served natural gas by Gas South, according to Utilities Analyses, Inc., the County's utility purchase contractor. For 2010, total County natural gas use = 932,950 therms/yr, and the purchase charges = \$896,289.64. The volumetric quantity used is about: 932,950 therms/yr / 1.01 therms/Ccf = 923,713 Ccf for 2010.



DeKalb County Water and Wastewater Treatment Plant Statistics

DeKalb County has two wastewater treatment plant (WWTP) facilities. Both facilities will be expanded in the near future. The Snapfinger Creek Advanced Wastewater Treatment Facility (Snapfinger Creek Facility) was completed in 1983 and meets the requirements of the Clean Water Act. The Snapfinger Creek Facility is designed to use chemical addition to comply with new nutrient permit requirements and is currently designated to treat 36 MGD of flow. The Snapfinger Creek Facility consumed approximately 52,930 MMBtu in 2008.

DeKalb County has one water treatment plant. The Scott-Candler Water Treatment (Scott-Candler Facility) of the largest fully Facility is one automated and computerized water treatment plants in the southeast. The Scott-Candler Facility officially opened in September 2007 and was designed to use advanced treatment technologies to achieve current and future regulatory requirements, and meet high standards for reliability and risk based redundancy for DeKalb County and its citizens. The new 100 million gallon daily (MGD) Scott-Candler Water Filter Plant was finished in 2006 and includes an administration building with a laboratory, training facilities, and an operator control center that controls the plant through a new state-of-the-art supervisory control and data acquisition system. The Scott-Candler Facility consumed approximately 155,312 million British Thermal Units (MMBtu) in 2008. The "MM" means thousand thousands, or 1000x1000=1 million. It is an English unit, and therefore the M is the Roman numeral M, for thousand.

The Pole Bridge Advanced Secondary Wastewater Treatment Facility (Pole Bridge Facility) was completed in 1990 and was upgraded to 20 MGD with the addition of a biosolids reuse program. The Pole Bridge Facility operates 24 hours a day, 365 days a year. The Pole Bridge Facility consumed approximately 53,158 MMBtu in 2008. The reason we are reporting these totals in MMBtu is because that is a common unit of energy, and can include any source of energy. In this case, it includes both electricity



and natural gas, which have their own individual units (kWh and therms), and which have been converted to the common unit MMBtu.

Table B-2 below shows the electrical efficiency metric for DeKalb's two WWTPs in kWh per million gallons of wastewater processed under existing operation.²¹

WWTP Facility	Electrical Intensity (kWh/MMgal)
Typical, low performing	2,300
Typical, high performing	1,250
Snapfinger Creek, 2008	1,172
Pole Bridge, 2008	2,133

Table B-1: Electrical Efficiency Metric for DeKalb's WWTPs

2008 electricity consumption for the two WWTPs is as follows:

- Snapfinger Creek Facility = 15,408,776 kWh
- Pole Bridge Facility = 15,517,384 kWh

Thus, in 2008 wastewater treatment represented 21% of DeKalb County's total annual electricity use, which was 150,166,080 kWh.

²¹ Based upon approximately 200 assessments of WWTPs, plant electrical energy intensity Ranges from 1,250 to 2,300 kWh per million gallons processed. *See* EPRI. 1994/96. Energy Audit Manual for Water/Wastewater Facilities.



Green Building Ordinances and Incentives

DeKalb County and most cities within DeKalb County, including Atlanta, have ordinances and initiatives pertaining to green buildings. Appendix B-Energy contains details of each municipality's green building incentives, ordinances, and initiatives. Most municipalities that have ordinances (e.g., DeKalb County, Chamblee, Decatur, and Dunwoody) require government and/or commercial buildings over a certain size to meet specified green building standards (e.g., LEED, Green Globes, or EarthCraft).

Only Pine Lake requires that all new homes meet or exceed EarthCraft House, LEED Home, or State of Georgia Energy Code for Residential Structures standards. Those municipalities that have incentives to (e.g., Decatur and Dunwoody) encourage green building by, among other things, offering expedited construction permitting and reduced development fees for achieving green building certification, incorporation of solar energy, use of pervious paving materials, or WaterSense certification. Some municipalities (e.g., Pine Lake and Stone Mountain) offer height variances for LEEDcertified buildings.

Building Energy Assessments

A remote energy assessment provides a high-level analysis of a building's energy usage that can be used to determine the necessity and feasibility of energy conservation measures. Remote energy assessments were performed on the following five buildings selected by DeKalb County personnel and the team of consultants:

- Gresham Recreation Center
- Decatur Library
- Fire Station 25
- Avondale Middle School
- Manuel Maloof Administration Building



For each building, the following steps were taken to perform the remote energy assessment:

- Obtain building operational schedule, building characteristics, utility data, and operational information from building contact;
- Analyze building energy usage based on interval usage data (if available);
- Create a simplified energy model based on the building's details such as age, construction type, occupancy schedule, and heating, ventilating and air conditioning (HVAC) system type.
- Create building benchmarks comparing the reviewed DeKalb County building with similar building types; and,
- Report on operational and retrofit savings opportunities, estimated savings potential, and next steps.

The remote energy assessment can be used to determine which buildings are suitable for a more detailed assessment. Appendix B - Energy contains the remote energy assessment results. Table B-3 shows the opportunities most common among the five buildings.

Opportunity	Total Estimated Annual Savings	Total Estimated Capital Cost	Estimated Payback Time	Estimated Reduction in CO2 Emissions
Optimize Heating and Cooling (e.g., Adjust Temperatures on Heaters, Coolers; Program Thermostats; Eliminate Unnecessary Space Heaters)	\$36,762	\$0	0 Years	743,564 lbs
Use Efficiency Settings for Computers and Monitors (e.g., Sleep Mode and Monitor Power Save)	\$8,951	\$0	0 Years	161,801 lbs
Reduce Equipment Use During Times Building Not Occupied (e.g., Summertime and During the Nights/Weekends)	\$23,058	\$0	0 Years	611,652 lbs
Savings Per Year	\$68,771			1,517,017 lbs

Table B-3: Energy Conservation Opportunities for Remote Building Assessments



By implementing three simple, no-cost policies in five buildings, DeKalb County can save an estimated \$68,771 a year and prevent the emission of over 1.5 million pounds of C0₂, which would be the equivalent of taking approximately 126 cars off DeKalb County's roads for one year.²² These estimated savings are just for the five buildings covered under the remote assessments. Clearly, DeKalb County can obtain tremendous cost savings by implementing policies, many of which do not cost taxpayers any money, across <u>the 300 County-owned buildings</u>.

Detailed Building Energy Assessment

Based on the results of remote energy assessments, the Maloof Administration Building was selected for a detailed building assessment because it is the most energy intensive facility, yielding the greatest energy use per square foot. With the cooperation of DeKalb County's Facilities Management Department (FMD), we performed a more detailed energy survey of the building in order to identify Energy Conservation Measure (ECM) opportunities. From this survey and discussions with the FMD, ECMs for reducing energy costs and/or resolving infrastructure needs were identified, investigated, and recommended. Appendix B - Energy contains the report that provides the results of the detailed building assessment.

²² We relied on the calculation used by the American Council for an Energy-Efficient Economy. *See* Furrey, L.A., S. Nadel, and J.A. Laitner. Mar. 2009. "Laying the Foundation for Implementing a Federal Energy Efficiency Resource Standard." Available online: http://www.aceee.org/research-report/e091. Referenced on June 9, 2011.



Sustainability Recommendations for Buildings and Facilities

Based on discussions with the FMD personnel and the Sustainability Steering Committee, the following sustainability goals for DeKalb County government buildings and facilities are recommended:

1. Implement Sustainability Best Practices in All New and Existing County Facilities

DeKalb County should implement sustainability best practices in all new and existing County facilities by first implementing initiatives that address the following goals:

- Promote a culture of efficiency by adopting policies and prepare guidelines to integrate sustainable building operations and maintenance principles and practices at all County facilities.
- Irrespective of building size, adopt regulations that require all new County buildings meet green building standards appropriate for the building size through green building certification programs such as LEED, EarthCraft, Energy Star, Sustainable SITES Initiative, or Georgia Peach Green Building Rating System.
- Irrespective of whether a building renovation will seek green building certification, adopt a policy and prepare guidelines to integrate sustainable building principles and practices into the renovation of all County facilities, and County-funded renovation projects, to the fullest extent possible.

2. Focus on Community-Wide Green Building Standards

DeKalb County should focus on community-wide green building standards by first implementing initiatives that address the following goals:

• As soon as possible, begin enforcing the 2009 Georgia State Supplements and



Amendments to the International Energy Conservation Code (IECC).²³

- Offer incentives for homes and commercial projects that meet certified energy efficiency standards for buildings and green building certification programs such as LEED, EarthCraft, Energy Star, Sustainable SITES Initiative, or Georgia Peach Green Building Rating System. For example:
 - Expedited permit review;
 - Density or height bonus;
 - Reduced/waived fees; and/or,
 - Free technical assistance.
- Identify residential and commercial projects within DeKalb County that have been recognized through an energy efficiency and/or green building certification program (e.g., LEED, EarthCraft, Energy Star, Sustainable SITES Initiative, or Georgia Peach Green Building Rating System).

3. Advocate for Comparative Building-Level Utilities Tracking and Reporting

DeKalb County should advocate for comparative building-level utilities tracking and reporting, leading to improved maintenance programs and reduced energy and water use by:

 Offering incentives for businesses that meet an ongoing energy efficiency and/or green building performance measure such as ranking in the top ten percent of Energy Start Portfolio Manager and/or LEED Existing Buildings Operations & Maintenance (e.g., business license discounts, reduced sewer charge, and recognition).

²³ The 2009 Georgia State Supplements and Amendments to the IECC can be found at http://www.dca.ga.gov/development/constructioncodes/programs/documents/IECC2011Amendmentseffective_00.pdf.



• Providing historical water use data on the water bill for customers.

After DeKalb County has adequately implemented initiatives to address the abovelisted goals, DeKalb County should implement initiatives that address the following goals in order to defray the County's electricity costs related to water and wastewater treatment:

- Offer incentives for businesses that reduce their water consumption based on historical performance (e.g., business license discounts, reduced sewer charge, and recognition).
- Establish a commercial water rate structure based on use patterns.

The broadest suggested goal is for DeKalb County to offer a property tax discount for businesses that perform at a top-tier for water and electricity performance as compared to national standards such as Energy Star Portfolio Manager.

4. Reduce Energy Use in Water and Wastewater Treatment Plants

DeKalb County should reduce energy use in all County water and wastewater facilities by 15% by 2025 by first implementing initiatives that address the following goals:

- Perform site survey of existing equipment and power utilization to determine replacement needs to reduce energy use for County wastewater facilities.
- Evaluate the feasibility of developing and implementing a demand charge reduction plan.

After DeKalb County has adequately implemented initiatives to address the abovelisted goals, DeKalb County should implement initiatives that promote the use of autolight sensors, high efficiency light fixtures, energy-saving pumps, and other energy saving technologies and management approaches to reduce energy use.



The broadest suggested goals are for DeKalb County to:

- Upgrade all water and wastewater facilities to maximize LEED Silver or equivalent water conservation credits.
- Evaluate the feasibility of developing alternative energy sources such as methane gas collection to electricity, grease to diesel fuel, and wind harvesting at County facilities, in addition to the County's current efforts at the Seminole Landfill.

Fleet and Vehicular Fuels

DeKalb County Fleet Vehicle Statistics

DeKalb County's vehicle fleet consists of a wide variety of vehicles including refuse trucks, police patrol cars, heavy duty trucks, non-emergency cars and light trucks, off-road vehicles (e.g., forklifts), and non-fuel consuming units (e.g., trailers). The analyses covered by this Plan do not include non-fuel consuming units.

The Fleet Management Department (Fleet Management), which has primary responsibility of DeKalb County's fleet vehicles, has a goal to reduce the size of DeKalb County's vehicle fleet by 3% each year. DeKalb County's vehicle fleet totaled approximately 3,600 units in 2008. By the end of 2009, the fleet size had reduced to about 3,525 units and by the end of 2010, to 3,068 units. Fleet Management has a target to reduce the fleet size to the 2,900 unit range.





Figure B-2: Vehicle Units by Fuel Type²⁴

2008, DeKalb County fleet vehicles drove a total of 33,051,315 miles and in 2010, a total of 32,610,573 miles. Therefore, in 2010 the DeKalb County fleet drove almost the same amount of miles as in 2008, but with fewer units. The units Fleet Management removed from the fleet were underutilized so their removal did not reduce fuel consumption. Moreover, fuel efficiency on certain trucks and off-road equipment has declined due to the implementation of new engine emissions standards that reduced fuel efficiency (e.g., a refuse truck that used to get 2 miles per gallon now gets 1.5 miles per gallon).

²⁴ Data provided by Greg Brake (Associate Director, Fleet Management). The Fleet Management department is not able to provide 2008 data by fuel type.




Figure B-3: Gallons Used per Fuel Type²⁵

Fuel costs have increased dramatically since January 2010. For example, DeKalb County's transport gasoline rate (excluding taxes and applicable discounts) jumped 61% from \$2.0878 per gallon in January 2010 to \$3.3527 per gallon in May 2011. Diesel transport rate (excluding taxes and applicable discounts) increased 51% from \$2.1377 per gallon to \$3.2259 per gallon in May 2011.²⁶

DeKalb County's 2011 fuel budget is as follows²⁷:

- Propane: \$174,00
- Gasoline: \$4,428,118
- Diesel: \$6,306,020
- Total: \$10,908,138

²⁵ Data provided by Greg Brake (Associate Director, Fleet Management).

²⁶ Data provided by Shondra N. Turner (Fleet Maintenance Accounting Supervisor) on May 10, 2011.

²⁷ Data provided by Greg Brake (Associate Director, Fleet Management).



Fleet Inventory and Metrics

Fleet Management has the capability of managing DeKalb County's fleet inventory and tracking fleet metrics through the FASTER Fleet Management Software application (FASTER), developed by CCG Systems, and the Fleet Metrics System (Fleet Metrics), which is a database created and maintained by Robert Warren, Financial Management Analyst with DeKalb County's Budget Office. FASTER allows Fleet Management to, among other things:

- Assign an equipment number to each vehicle;
- Assign each vehicle to a cost center, i.e., department; and,
- Group vehicles into Monitor Groups, i.e., types of vehicles.

Fleet Metrics contains, among other things, the actual fuel mileage and maintenance costs of each vehicle in DeKalb County's fleet. Fleet Metrics data goes back to 2007 and allows Fleet Management to parse information by department, cost center, fund, fund class, and vehicle type. Appendix B - Energy contains Fleet Metrics records for 30 Crown Victoria sedans.

Vehicle Selection and Retirement Process

During the vehicle selection process, Fleet Management considers sustainability factors, i.e., durability and fuel efficiency. Fleet Management must work within some constraints that limit its ability to select the most fuel efficient vehicle. For example, the DeKalb Police Department requires Ford Crown Victoria patrol cars because they have already built their operations around the Crown Victoria. A change in patrol car would have administrative cost implications for the DeKalb Police Department. Based on a replacement vehicle's usage and if they have flexibility, Fleet Management will select a vehicle that has better fuel economy. The Sustainability Officer could work with Fleet Management, user Departments, and the Purchasing Department to make sure that



DeKalb County purchases the most sustainable options, taking into account life-cycle costs, while still meeting the user Departments' needs.

Comparison of Fuel Efficiency for Ford Crown Victoria Sedans

Changing driving behavior is the cheapest and most effective way to increase fuel efficiency and reduce fuel costs. Fleet Metrics, the database created and maintained by DeKalb County personnel, enables the analyses of fuel consumption and cost savings. Once initiatives are implemented to reach the goals recommended in this Plan, the County can use Fleet Metrics to track and compare results amongst similar sets of vehicles. For example, Fleet Metrics data was used to extrapolate driving behavior's impact on fuel efficiency by comparing the yearly fuel efficiency of 30 County Crown Victoria sedans²⁸ from 2007 to January-March 2011. All 30 Crown Victoria sedans are from model years 2003 to 2009. Ten are Police patrol cars, ten are Police administrative cars, and ten are Marshal's cars.²⁹

Prior to analyzing the data, it was expected that Police patrol cars would get lower gas mileage than the administrative cars because patrol cars must accelerate quicker and drive faster than administrative cars. However, patrol cars also idle considerably more than administrative vehicles, which contributes to patrol cars' lower average miles per gallon. The results of the analysis³⁰ confirm the expectation that the ten selected patrol cars get comparatively lower yearly average miles per gallon (MPG) than the 20 selected administrative cars.

²⁸ We selected Crown Victoria sedans for this comparison because it is easier for people to understand the uses related to a sedan as opposed to a specialized truck.

²⁹ Personnel from Fleet Management randomly selected Fleet Metrics reports for ten Police administrative cars, 15 Marshal cars, and 12 Police patrol cars. We then selected the ten Marshal cars and Police patrol cars that had the most complete data (e.g., most number of years of data).

³⁰ See Appendix A for detailed information.



Selection of Ten Vehicle Types	2007	2008	2009	2010	2011
Police Admin Cars	16.46	17.84	17.07	15.86	16.88
Marshall Cars	11.69	11.54	10.87	11.11	11.63
Police Patrol Cars	9.27	9.56	9.40	9.64	10.05

Table B-4: Yearly MPG Averages for Selected Group of Vehicles*(2011 only shows data from Jan-Mar)

Figure B-8: Comparative Fuel Efficiency of 30 Crown Victoria Sedans





The ten selected Marshal cars get considerably lower yearly average MPG than the ten selected Police administrative cars even though both sets of cars have the same maintenance schedules and comparative, non-emergency uses (e.g., going to meetings and delivering official documentation). However, it should be noted in addition to the similar administrative functions, the Marshall's vehicles respond to emergency calls to support police activity. One of the major factors contributing to the lower MPG of Police patrol cars and Marshall's vehicles is driver behavior, particularly idling.

Comparisons of the ten selected Police administrative cars and ten Marshal's cars reveals that improved driving behavior can dramatically increase fuel efficiency of Crown Victoria administrative sedans, ranging from 41% to 57% better average MPG.



Table B-5: Police Administrative Cars' % Better Gas Mileage than Marshal's Cars (2011 only shows data from Jan-Mar)

	2007	2008	2009	2010	2011
Police Admin Cars' % Better Gas Mileage Than Marshal Cars	41%	55%	57%	43%	45%

To determine the costs savings DeKalb County could have achieved in 2010 through fuel efficiency improvements in its fleet of approximately 500 Crown Victoria sedans,³¹ we analyzed January 2010 to December 2010 Fleet Metrics data for the Crown Victoria Fleet. Table B-6 below shows actual 2010 statistics for DeKalb County's Crown Victoria fleet.

Approximate Number of Vehicles	515
Miles Driven	9,699,440
Gallons of Gasoline Consumed	925,345
Average MPG of the Entire Crown Victoria Fleet	10.48
Average 2010 DeKalb County Cost of Gasoline (provided in the January 2010 to December 2010 Fleet Metrics data)	\$2.3200
2010 Cost of Gasoline Consumed by Crown Victoria Fleet	\$2,146,703

Table B-6: 2010 Crown Victoria Fleet Fuel Analysis

Using the actual 2010 statistics for DeKalb County's Crown Victoria fleet, we extrapolated the cost savings that would have resulted from increases in fuel efficiency

³¹ Driving modifications can also yield tremendous savings in other types of vehicles.



brought upon by modifications in driving behavior (e.g., no idling). As shown in Table B-7 below, even slight improvements in fuel efficiency would have resulted in tremendous savings in gasoline costs during 2010.

Table B-7: 2010 Costs Savings That Would Have Resulted From Increased FuelEfficiency in Crown Victoria Fleet

(Based on Average 2010 Cost per Gallon of Gasoline)

Increase in Fuel Efficiency For Entire Crown Victoria Fleet	Resulting Average MPG for the Entire Crown Victoria Fleet	Resulting Reduction in Gasoline Consumed	Resulting Savings Based on \$2.32 Per Gallon of Gasoline		
2.5%	10. 74	22,569 gallons	\$52,361		
5%	11.01	44,064 gallons	\$102,229		
10%	11.53	84,122 gallons	\$195,164		
15%	12.05	120,697 gallons	\$280,017		
20%	12.58	154,224 gallons	\$357,800		
25%	13.10	185,069 gallons	\$429,360		

The savings calculated above were based on the average 2010 DeKalb County Cost per gallon of gasoline provided in the January 2010 to December 2010 Fleet Metrics data for the Crown Victoria Fleet. However, fuel costs have increased dramatically during 2011.



If we calculate savings based on DeKalb County's May 9, 2011 transport gasoline rate of \$3.535311, which <u>includes</u> taxes and applicable discounts,³² the savings resulting from increased fuel efficiency in the Crown Victoria Fleet become even greater, as shown in Table B-8 below.

Table B-8: 2010 Costs Savings That Would Have Resulted From Increased Fuel Efficiencyin Crown Victoria Fleet

Increase in Fuel Efficiency For Entire Crown Victoria Fleet	Resulting Savings Based on \$3.535311 Per Gallon of Gasoline
2.5%	\$79,790
5%	\$155,780
10%	\$297,398
15%	\$426,702
20%	\$545,230
25%	\$654,276

(Based on May 9, 2011 Cost Per Gallon of Transport Gasoline)

³² Data provided by Hilary W. Jordon (Senior Accounting Technician – DeKalb County Fleet Maintenance) on May 13, 2011.



As demonstrated by Tables B-7 and B-8 above, slight improvements in the fuel efficiency of DeKalb County's fleet vehicles will yield tremendous savings. According to Fleet Management personnel, DeKalb County can achieve a 2.5% increase in overall fuel efficiency for its entire vehicle fleet without making capital investment by requiring department heads to enforce the existing anti-idling policy,³³ which applies to the County's non-public safety/non-emergency vehicles and states that employees must turn off vehicles after five minutes of idling. However, attaining 5% (or higher) increases in overall fuel efficiency for the County's entire vehicle fleet will require the Public Safety Department to establish an anti-idling policy for its vehicles that lowers fuel consumption while still allowing for the Public Safety Department to perform its mission.

The Sustainability Officer can work with Fleet Management and the Public Safety Department to craft an anti-idling policy specifically for the Public Safety Department. In addition, the Sustainability Officer can develop department-specific initiatives designed to best reduce fuel consumption for each department. The Sustainability Officers can use the FASTER and Fleet Metrics databases to track actual fuel consumption and test the efficiacy of various techniques used to reduce fuel consumption (e.g., incentive versus punitive approaches).

Current Sustainability Practices and Initiatives

Fleet Management uses an anti-idling software device in 650 County vehicles to enforce the anti-idling policy. However, drivers can bypass the software's control mechanisms by tapping onto the brake or applying gas while the vehicle idles. Therefore, this software solution has had varying levels of effectiveness based on whether department heads encourage their personnel to adhere to the County's current anti-idling policy. In addition, Fleet Management tries to get DeKalb County personnel to use the most fuel efficient vehicle while still meeting their application (e.g., if the employee will only use

³³ Executive Order 09-05, DeKalb County, Georgia's Policy for Idling of County Vehicles, effective July 1, 2009.



a vehicle to get to and from a meeting, then the employee should use the most fuel efficient vehicle because there is no requirement to carry a heavy load).

Fleet Management has a goal to reduce diesel consumption by 5% and gasoline consumption by 2.5% by the end of 2011. In the past, Greg Brake (Associate Director) spoke to department heads about enforcing the County's anti-idling policy. Robert Gordon (Fleet Service Superintendant) has made a presentation regarding the Fleet Metrics system that shows the impact of idling on fuel efficiency. However, the proactive measures taken by Fleet Management personnel has had limited success in part because Fleet Management personnel neither have the time to perform numerous presentations nor the authority to incentivize or force a reduction in idling.

The Sustainability Officer can assist all departments reach DeKalb County's fuel efficiency goals by, among other things, implementing initiatives designed to reduce fuel consumption, analyzing each department's vehicular MPG and fuel consumption, identifying vehicles that seem to excessively idle, and providing cost savings for each department that could result from increases in that department's overall vehicular fuel efficiency.

For its natural gas fleet vehicles, rather than using natural gas obtained from sources outside Georgia, Fleet Management has an agreement with DeKalb County's Waste Management Department to use the natural gas produced by DeKalb County's Seminole Road Landfill. Therefore, DeKalb will reduce transportation impacts associated with importing natural gas. According to the DOE,³⁴ the most immediate benefit of natural gas vis-à-vis gasoline and diesel is reduced emissions of carbon monoxide, as well as volatile organic compounds and particulate matter, which are major contributors to smog. By burning natural gas, DeKalb County is reducing smog-creating emissions. Moreover, because DeKalb County will obtain the bulk of its

³⁴ U.S. Department of Energy. Jan. 28, 2011. "Alternative & Advanced Vehicles: Natural Gas Emissions." Available online: <u>http://www.afdc.energy.gov/afdc/vehicles/emissions_natural_gas.html</u>. Referenced Mar. 25, 2011.



natural gas for fleet vehicles from its Seminole Road Landfill, DeKalb County will greatly minimize the potential of consuming natural gas obtained through the <u>controversial hydraulic fracturing process</u>.

DeKalb County already has two electric hybrid bucket trucks and four Ford Hybrid Escapes in the County vehicle fleet. With the additional hybrid system cost at \$60,000, the hybrid bucket trucks are more expensive upfront than conventional bucket trucks. However, because the buckets get a lot of use and run off the battery as opposed to the diesel engine, the County will save substantial amounts in fuel costs during the vehicles' operational life. Fleet Management personnel also test software applications that increase fuel efficiency of DeKalb's vehicles. For example, Fleet Management is testing a software application that limits the full-throttling of refuse trucks.



Based on our discussions with Fleet Management personnel and the Sustainability Steering Committee, the following sustainability goals for DeKalb County's fleet vehicles are recommended.

1. Increase Vehicular Fuel Efficiency

The following goals have been reviewed and approved by Associate Director of Fleet Management, the Police Chief, the Fire Chief, the Sanitation Department Head, and the Watershed Department Head:

• In addition to the goal of reducing total diesel consumption by 5% by the end of 2011, further reduce total diesel consumption in County government vehicles by:

• An additional 2.5% by January 1, 2013 from 2012 levels; and,



- A further decrease of 2.5 by January 1, 2014 from 2013 levels.
- In addition to the goal of reducing total gasoline consumption by 2.5% by the end of 2011, further reduce gasoline total consumption in County government vehicles by:
 - An additional 2.5% by January 1, 2013 from 2012 levels; and,
 - A further decrease of 2.5 by January 1, 2014 from 2013 levels.

According to Fleet Management personnel, reaching this goal will require participation in anti-idling initiatives by the Public Safety Department.

- Establish an anti-idling policy for Public Safety Department vehicles that lowers fuel consumption while still allowing for the Public Safety Department to perform its mission.
- For vehicles that run on routes, create a routing system to reduce overall vehicle miles travelled and increase overall efficiency.

2. Use Alternative Vehicular Fuels Where Appropriate

Where it is appropriate, DeKalb County should promote the use of natural gas, propane,³⁵ and other alternative fuel vehicles (e.g., hybrid and electric vehicles) for specific County fleet vehicles. According to Fleet Management, propane is a cheaper option as compared to diesel and gasoline³⁶ and the DOE provides a rebate for propane. According to Greg Brake, propane conversion costs typically are \$5,000 regardless of vehicle type, and therefore it is best to select high-usage vehicles for the propane conversion. Based on DOE data,³⁷ converting to propone from gasoline or diesel reduces emissions of carbon monoxide and particulate matter.

³⁵ Propane is also known as liquefied petroleum gas (LPG).

³⁷ U.S. Department of Energy. Jan. 28, 2011. "Alternative & Advanced Vehicles: Propane Emissions." Available online: <u>http://www.afdc.energy.gov/afdc/vehicles/emissions_propane.html</u>. Referenced Mar. 25, 2011.





Appendix B

Buildings and Energy

Accounts not Included in Baseline

Baseline Description List

DeKalb County DRAFT Capital Maintenance Plan

DeKalb Community Greenhouse Gas Emissions Baseline

DeKalb County Facilities Inventory

DeKalb County Green Building Resolution

DeKalb County Green Building Initiatives

DeKalb County LEED Policy

DeKalb Sustainability Goals Template

Preliminary Findings for Utility Data

Remote Energy Assessments

Maloof Administration Building

Gresham Recreation Center

Decatur Library

Avondale Middle School

Maloof Administration Building Audit

2011 Capital Maintenance Priorities





Section C

Natural Resources



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Natural Resources

GOAL: For DeKalb County to thrive and prosper, we must meet the needs of our growing County without burdening the natural resources upon which the economy and livelihood rely. Environmentally sustainable approaches to the management of trees, greenspace, local water systems, as well as waste stream, will help ensure the protection of vital natural resources. Moreover, DeKalb County must embrace a sustainable, local food system, which can enhance human health, promote environmental renewal, foster local economies, and link communities throughout the County.

Introduction

Sustaining our natural resources and safeguarding our environmental assets for future generations is an important 21st century challenge that must be accomplished while promoting economic growth and maintaining a high quality of life.

Stewardship of our natural resources not only adds aesthetic value for the community, but it also provides habitat for wildlife and enhances the earth's ability to absorb air pollutants, including particulate matter, ground level ozone and carbon dioxide. An



"unsustainable situation" occurs when natural capital (the sum total of nature's resources) is used up faster than it can be replenished.

In this section, information related to DeKalb County's water system, trees and greenspace program, solid waste management plan, and local sustainable food program are discussed. The section includes DeKalb's current practices in each area and improvements that will support the County's sustainability goals. The information



provided in this section is based on a thorough review of County plans and policies provided by DeKalb County staff and discussions with County Department Managers.

Trees and Greenspace

According to the U.S. Census, the year 2010 population in DeKalb County was 691,893. The County's total land area was 268.3 square miles, translated into a population density of approximately 2,579 people per square mile. During the past ten-year period, development in DeKalb County spread south and eastward from the Atlanta metropolitan area into the more rural undeveloped portions of the County. This trend is continuing, placing increased pressure on the County's open space and forested resources.

Creating sustainable green spaces can begin with parks, as they offer a host of ways to reduce the environmental impact of poorly designed cities. In 2001 and then again in 2005, DeKalb County citizens approved two Parks and Greenspace Bond Issues for a total of \$230 million. Approximately 52% of the amount bonded was to go toward acquisition of open space lands and the remaining portion to be used for parks and greenspace development. That funding has been supplemented by additional public and private sector funds bringing the total County greenspace program to more than \$247 million.

Since the program's inception, the County has been active in expanding it parks system and greenspace acquisitions. The County has a property nomination and review process to determine if properties are eligible for parks and greenspace funding. The County's emphasis for establishing greenspace is on protecting important natural resources, including forested areas as nature preserves, protecting cultural resources, and creating greenway connections between parks, schools, and other destinations.





DeKalb County has taken a proactive approach for protection of its greenspace resources for more than a decade since deciding in mid-2000 to participate in the State's Greenspace Program. This decision was followed by preparation of the Joint DeKalb County/Municipal Greenspace Program that sets a goal of protecting 22% of County land as greenspace. County officials and residents

recognized that the County was rapidly becoming urbanized and that natural resources were being lost to urban and suburban development. DeKalb County established an Office of Parks Bond and Greenspace to direct all County efforts associated with greenspace acquisition. ³⁸

The current inventory of park and greenspace acquisitions in DeKalb County, as of June 2010, indicates that park expansions have occurred at 29 locations totaling 2,065 acres at a cost of \$52.62 million³⁹. New parks and greenspace acquisitions have occurred at 36 locations totaling 955 acres at a cost of \$40.81 million. In total, the County contains approximately 115 parks and greenspace areas totaling more than 6,445 acres.

DeKalb County's Comprehensive Plan 2005-2025, confirms citizen concerns expressed over the loss of open space resources in the County⁴⁰.

Despite progress on protecting and conserving the County's trees and greenspace, the Comprehensive Plan presents a series of goals and actions in recognition that more needs to be done in protecting County resources. According to the Community Agenda section of the Comprehensive Plan:

³⁸ DeKalb County Parks and Recreation Master Plan 2010-2020

³⁹ DeKalb County Parks and Recreations Master Plan 2010-2020

⁴⁰ DeKalb County Comprehensive Plan 2005-2015



- 100% of surveyed citizens agree that too many trees are being lost to development;
- 80% agree current development practices are not sensitive to natural and cultural resources;
- 80% agree farmland and rural scenery are disappearing; and
- 80% agree that there is not enough greenspace or parkland in the County.

Recent County Trends

The urban forest is a key contributor to sustainability. Trees provide environmental and ecological benefits through improved air quality by storing carbon dioxide that would otherwise contribute to global warming, improving water quality by naturally filtering overland runoff, reducing flood risk through bank stabilization and increased water storage, and providing bird nesting habitat. The urban forest contributes economic benefits by increasing property values and lowering building energy use by providing incidental shade. Trees improve public health and well-being by reducing ultra violet (UV) radiation exposure and converting CO₂ to oxygen.

Data obtained from the University of Georgia, College of Agricultural and Environmental Sciences, Natural Resources Spatial Analysis Lab (NARSAL) website indicate a declining trend in tree canopy cover in DeKalb County. This trend has been occurring for at least the past twenty years. Simultaneously, the County has been experiencing a significant increase in impervious surfaces confirming the trend towards urbanization throughout the County. Between 1991 and 2005, the acreage of tree canopy cover decreased 7% from 51% in 1991 to approximately 44% of the County in 2005 as below. This is a loss of more than 11,000 acres of tree canopy in less than 15 years.



Table C-1 Change in Tree Canopy in DeKalb County

1991	2001	2005
87,367 acres	81,007 acres	76,264 acres
51% tree canopy	47% tree canopy	44% tree canopy
1991 to 2001 change	2001 to 2005 change	1991 to 2005 change
-6,361 acres or 8% loss	-4,743 acres or 6% loss	-11,104 acres or 13% loss

University of Georgia NARSAL Data 2010

During this same time period the amount of impervious surface increased 8% to approximately 22% of the County as shown on C-Table 2. More recent data from 2008 suggests that this percentage may be approximately 25% or more, which indicates an annual rate of increase in impervious surfaces of approximately 1%. The trends in both canopy loss and impervious surface have significant implications on air and water quality, increased stormwater management issues, increased energy use for air conditioning, and changes in community aesthetics and quality of life.

Table C-2 Change in Impervious Surface in DeKalb County

1991	2001	2005
23,500 acres	31,495 acres	38,122 acres
14% impervious	19% impervious	22% impervious
1991 to 2001 change 7.995 acres or 35% increase	2001 to 2005 change	1991 to 2005 change 14.622 acres or 63% increase

University of Georgia NARSAL Data 2010

Changes in land cover data for the County over a 30-year period between 1974 and 2005 also indicate significant decline in the County's forested areas and greenspace.



Deciduous forest acreage decreased by 66% over this time period and evergreen forest decreased by 35%, both losses attributable to increased urbanization of the County.

Land Cover Class	1974	1991	2001	2005
Clear-cut, Sparse	3,782 acres	5,765 acres	5,073 acres	6,290 acres
Deciduous Forest	56,392 acres	35,846 acres	19,606 acres	18,955 acres
Evergreen Forest	36,036 acres	30,174 acres	31,236 acres	23,329 acres
Mixed Forest	2,669 acres	4,473 acres	1,293 acres	1,888 acres
Crops & Pasture	26,225 acres	6,738 acres	3,567 acres	4,188 acres
Forested Wetland	4,299 acres	3,255 acres	2,920 acres	2,716 acres

Table C-3 Change in Select Land Cov	ver Types in DeKalb County
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University of Georgia NARSAL Data 2010

Urban forests and tree canopy cover are important indicators of environmental quality and the ecological health of a community due to the ability to moderate the adverse effects of urbanization particularly on air and water quality and the use and



conservation of energy. According to a 2001study that included all of DeKalb County, it was determined that there are significant implications associated with the loss of urban forest in the Atlanta metro region. For a 22-year study period between 1974 and 1996, for example, the study



determined that the loss of trees alone resulted in a 33% increase in stormwater runoff in the region from each 2-year peak storm event. This translated into almost 600 million cubic feet of water. At an average cost of \$2/cubic feet of storage, the cost to construct stormwater management facilities to intercept the runoff was estimated at \$1.18 billion. ⁴¹

The study also determined the summertime energy savings provided by shade trees. This was estimated at \$2.8 million and reduced air emissions by 658,000 tons per year in electricity generation due to lower energy use. The tree canopy that was lost in the metro region would have removed 11 million pounds of air pollutants annually valued at \$28 million in control costs. Vegetation lost over the 22 year period would have "stored" (held by the tree) 11.3 million tons of carbon and "sequestered" (removed) carbon at a rate of 14,000 tons per year.⁴²

From a statewide perspective, Georgia's overall tree canopy cover averages 52%. Tree cover in urban and other developed community areas are estimated at about 42% with 12% impervious surface cover. Statewide, developed community areas alone in Georgia contain an urban forest estimated at 293 million trees which store approximately 56 million tons of carbon (\$1.3 billion in control costs), annually sequester 1.8 million

⁴¹ Coder, Dr. Rim D. 1996. Identified Benefits of Community Trees and Forests. University of Georgia.

⁴² American Forests. 2000. Urban Ecosystem Analysis, Union City, Georgia, Calculating the Value of Nature. Washington, D.C.



metric tons of carbon (\$42 million) and remove an additional 49,670 metric tons of air pollutants (\$410 million).⁴³

General Benefits of Increased Tree Cover and Greenspace

As the benefits of trees and greenspace become better known communities are undertaking initiatives to preserve and enhance tree canopy as part of their sustainability plans. In 2006, the U.S. Conference of Mayors created a Trees Task Force which undertook a survey of 135 cities including three communities in Georgia. These included Albany, Athens and Savannah, Georgia. Eighty-four percent of the cities surveyed considered the protection of trees as an important component of community sustainability. Ninety-five percent have adopted one or more tree management and care ordinances and of those, 85% require new development projects to retain trees on site, plant new trees, or pay into some form of a mitigation fund, such as a tree bank. Nearly one-half of communities surveyed have made enlarging the tree canopy of their municipality a stated goal of their ordinances and long-term management plans. ⁴⁴

Significant potential energy savings and pollution prevention benefits are derived from DeKalb County's tree and greenspace resources. Trees and greenspace are known to improve air quality and reduce pollutants by reducing energy demand especially for air



conditioning, resulting in reduced greenhouse gas emissions. Numerous studies have found that site temperatures may be 20 degrees F or more cooler due to the effects of shade trees and that a 20% tree cover over a house can lower its cooling costs by 8 to 18%. Additionally,

⁴³ Nowak, David J. et al. 2010. Sustaining America's Urban Trees and Forests. United States Department of Agriculture, Forest Service. General Technical Report NRS-62, A Forests on the Edge Report.

⁴⁴ University of Georgia College of Agricultural and Environmental Sciences. Natural Resources Spatial Analysis Lab. 2010. Georgia Land Use Trends – DeKalb County Data.



trees can lower energy use in a house by another 10% when air conditioning equipment is shaded. A one-fifth acre residential lot with 30% vegetation cover can dissipate as much heat as running two central air conditioners and one acre of vegetation can transpire as much as 1600 gallons of water on a warm sunny day. ⁴⁵

Trees and greenspace resources efficiently cool surrounding environments. For example, 65% of the heat generated by full sun on trees is dissipated by evaporation through its leaf surfaces, cooling the area that can result in significant energy savings in building cooling costs. It has also been determined that autos parked in full sun can have interior temperatures 20 to 30 degrees F hotter than when they are parked in full shade, thus requiring greater air conditioning time to cool down the interior, which results in higher engine air emissions. It has also been found that shade can lower exterior car temperatures especially over their gas tanks. The reduced temperatures reduce evaporative emissions of volatile organic compounds (VOCs) into the air.

Urban forests provide significant pollution reduction that improves air quality. Street trees can result in a 60% reduction in street level particulates. For example, one sugar maple, one foot in diameter along a roadway can remove 60 mg cadmium, 140 mg chromium, 820 mg nickel and 5200 mg of lead from the environment over one growing season. ⁴⁶

Shade provided by dense tree canopy can also reduce pavement deterioration and can therefore, lower maintenance costs of roads and parking areas. Shade on hard pavement surfaces can reduce resurfacing costs of residential streets, by 15 to 60%. ⁴⁷

⁴⁵Nowak, David J. et al. 2010. Sustaining America's Urban Trees and Forests. United States Department of Agriculture, Forest Service. General Technical Report NRS-62, A Forests on the Edge Report.

⁴⁶ American Forests. 2000. Urban Ecosystem Analysis, Union City, Georgia, Calculating the Value of Nature. Washington, D.C.

⁴⁷ Pennsylvania Department of Conservation and Natural Resources and Pennsylvania State University Cooperative Extension Service. 2008. Borough of Columbia, Pennsylvania. Community Tree Management Plan and Canopy Goals.



Trees "store" and "sequester" carbon and carbon dioxide. A single healthy tree can store an average of 13 pounds of carbon or about 2.6 tons per acre each year or enough carbon dioxide equal to driving a car 26,000 miles.⁴⁸Trees sequester carbon dioxide from the atmosphere during photosynthesis to form carbohydrates by removing the carbon and storing it as cellulose and releasing oxygen. One acre of trees generates enough oxygen each day for 18 people. ⁴⁹

Recommendations for a Sustainable Trees and Greenspace Program <u>Tree City USA</u>

DeKalb County has considered member status in Tree City USA, which is sponsored by the Arbor Day Foundation. The County's status as a member would be similar to Athens-Clarke County, Georgia, which has been a member for ten years. Three of the eight fully incorporated municipalities within DeKalb County are members of Tree City USA. Avondale Estates has been a member for 26 years. Pine Lake has been a member for two years and Doraville for one year. The City of Atlanta, which partially falls within the County, has been a member for 24 years.

Four standards must be met for Tre City USA membership including:

- Establishment of a Tree Board or Department,
- A Tree Care Ordinance
- A Community Forestry Program with an annual budget of at least \$2/capita

• Arbor Day Observance and Proclamations

⁴⁸ Nowak, David J. Benefits of Community Trees. n.d. USDA Forest Service General Technical Report.

⁴⁹ Georgia Forestry Commission. 2001. Georgia Model Urban Forest Book.



Tree Protection

DeKalb County's current Tree Ordinance, Chapter 14 Article II, Section 14-39 – Tree Preservation and Replacement Requirements, is intended to regulate the protection and preservation of trees in connection with land development in the County. The ordinance was originally adopted in 1991 and underwent revision in 1999. The ordinance addresses private property development and includes buffer and landscaping requirements as well as permitting requirements and information on tree species. There is discussion about further revising the ordinance.

In general a review of the current ordinance in comparison to other municipalities in Georgia reveals some improvements that DeKalb County should consider at the time of the next revision.

- Specifically address tree protection, management or canopy cover on public property, including public rights-of-way, institutional uses, or County-owned lands.
- Establish a tree board, tree commission or committee, or other type of advocacy group designated to address tree-related issues or assume responsibility for implementing a County forestry management plan.
- Emphasize consideration of enhancing tree canopy size and diversity as part of land development requirements as well as the intent to protect public trees in promoting a healthy community forest.
- Establish a Tree Commission or other advocacy group by ordinance with responsibility for carrying out the legislative intent of the ordinance; creating an inventory mechanism to establish existing tree canopy cover baseline information; creating a tree maintenance and replacement program; and formulating a community outreach process to educate the public on the importance of trees, urban forests and healthy canopy cover in communities.
- Provide funding for an ongoing County urban forest management plan; a comprehensive tree planting, maintenance, care and replacement program; and expanded tree planting and care community outreach programs.



- Establish tree canopy and greenspace goals in the Tree Ordinance as well as the County Comprehensive Plan and Greenway Master Plan.
- Once baseline tree cover data are known, establish, for example, ten-year tree canopy cover percent goals to achieve or maintain no less than, for example, a 40% canopy cover or greater for the County.
- Consider establishing tree canopy protection standards during the development process by land use category and zoning designation. The Fulton County Tree Preservation Ordinance for example, requires maintenance of trees on site to provide a minimum 20% canopy cover for residential and mixed-use developments. Commercial and industrial developments are required to protect a total of 15% canopy cover or greater. Community ordinances could establish higher requirements for example, 60% for residential single family, 40-50% for mixed-use residential, 20% industrial and 30-40% for general commercial areas outside of urban core areas and downtowns.
- Enhance tree planting and maintenance requirements in the ordinance with soil amendment standards that can support enhanced canopy cover.
- Revisit existing parking lot tree planting and landscaping requirements to require trees to be planted at an increased rate, for example, for each 8 to 10 parking spaces.
- Revision should indicate that the location of tree cover can be more important that percent cover and density. Buildings low enough to be shaded and large paved and impervious surfaces, such as parking lots should be considered prime areas for improving tree canopy cover to cool buildings, vehicles and provide for enhanced stormwater runoff quality and reduced quantity. ⁵⁰
- Develop and implement a community outreach process to educate homeowners and developers about the importance of canopy cover and greenspace health and diversity

⁵⁰ Georgia Forestry Commission. 2001. Georgia Model Urban Forest Book.



using native tree and vegetation species and selection of appropriate planting locations considering site conditions that promote long-term tree health, canopy care and that provide effective shading for reduced energy use and stormwater management.

- Encourage removal of invasive species that destroy tree canopy and replace with native vegetation.
- Promote increased awareness of effective local tree protection techniques through shade tree ordinances and review of existing policies and codes to reverse present trends in canopy loss and encourage participation in Tree City USA membership among municipalities in the County.
- Encourage local tree farms and nurseries, perhaps in partnership with local property owners/farmers and public agencies, to develop plant sources of relatively inexpensive native tree species that can be used to enhance a diverse tree canopy cover throughout the County.
- Track future changes in land cover by working in partnership between County Planning and University of Georgia using NARSAL GIS mapping and inventorying of land cover and land use data with remote sensing.

DeKalb County Comprehensive Plan

The County's Comprehensive Plan is another opportunity for stating County policy and goals towards protection of sustainable urban forests and enhanced tree canopy cover. The County has an opportunity to consider the following:

- Measureable goals and objectives for protecting canopy cover and enhancing healthy canopy diversity of native species;
- "No net loss of trees" policy for County property;
- Identification of County property where trees and/or canopy need to be protected, managed, replanted or enhanced, as well as possibly identifying specific locations as tree banks and native species tree nurseries for County use;



- Enhanced tree canopy size and diversity long-term by updating the County Comprehensive Plan to include stated policy goals and guidance to communities with provisions for: the conservation of trees; replacement of trees that are lost to development, drought, disease, etc;
- Land development requirements on public lands intended to improve and protect urban forest canopy and greenspace function and quality. DeKalb County stream buffers are established at 25 feet which is less than, for example, Fulton County which establishes a 75 foot pervious surface stream buffer requirement to protect water quality; and
- Long-term Urban Forestry Management Plan as a Comprehensive Plan goal that will provide long-term and short-term strategies, goals, policies, technical standards and action items to protect, manage and enhance the County's urban forests.





Green infrastructure is the system of land and vegetation comprising a community's ecosystem that can be used to help offset negative environmental impacts of human habitation, such as stormwater runoff and the urban heat island effect. When it rains in undeveloped areas, the falling water seeps into the ground and through the natural filtering process, makes its way to the nearest river or stream. In areas that are heavily paved, such as DeKalb County, the rainwater cannot be absorbed into the ground and instead must literally "run off" the pavement picking up oil, gas, pet waste and other pollutants. The runoff is referred to as stormwater runoff. These pollutants eventually find their way into rivers and streams and often scour the stream bank and elevate the temperature of the water, harming aquatic species.

The primary types of green infrastructure include:



- Parks
- Community Gardens
- Botanical Gardens.
- Trails

- Greenways
- Right-of-Way Corridor



Table C-4, below adapted from the Center for Neighborhood Technology, illustrates the benefits derived from green infrastructure.

	Reduc	es Storn	nwater R	unoff								Imp	oroves C	Commun	ity Livab	oility		
Benefit	Reduces Water Treatment Needs	Improves Water Quality	Reduces Grey Infrastructure Needs	Reduces Flooding	Increases Available Water Supply	Increases Groundwater Recharge	Reduces Salt Use	Reduces Energy Use	Improves Air Quality	Reduces Atmospheric CO ₂	Reduces Urban Heat Island	Improves Aesthetics	Increases Recreational Opportunity	Reduces Noise Pollution	Improves Community Cohesion	Urban Agriculture	Improves Habitat	Cultivates Public Education Opportunities
Practice	Í		Statt	-	,T	5	05	-	~	• *	ı Âi	۲	2	-))	i	\bigcirc	S	D
Green Roofs	~	~	1	~	X	X	X	~	~	~	~	1	?	~	?	?	~	~
Tree Planting	~	~	~	~	X	?	X	~	~	~	~	~	~	~	~	?	~	~
Bioretention & Infiltration	~	~	~	~	?	?	X	X	~	~	~	~	~	?	?	X	~	~
Permeable Pavement	~	~	~	~	X	?	1	?	~	~	~	X	X	1	X	X	X	1
Water	1	1	1	1	1	2	X	2	?	?	X	X	X	X	X	X	X	1

Green Infrastructure Benefits and Practices

Tree canopy cover and greenspace enhance stormwater management and improve water quality by intercepting and filtering rainwater and pollutants. Almost 50% of surface pollutants are removed by trees in the first 15 minutes of a rain event. For every 5% of tree cover, stormwater runoff is reduced by 2%. Stormwater volume can be reduced 7% for each six-hour storm flow and by 17% (or about 11.3 million gallons) from a 12 hour storm through the tree canopy of a medium size city, this avoiding more than \$225,000 in stormwater management costs. ⁵¹

Green infrastructure is a critical part of sustainable stormwater management. It can also be used as a public amenity when it is merged with park space. The City of Atlanta recently completed the Historic Fourth Ward Park in Atlanta that includes a large basin

⁵¹ Coder, Dr. Rim D. 1996. Identified Benefits of Community Trees and Forests. University of Georgia



that can detain the stormwater for more than a 500 year storm. All the while it provides a resource for the community and raises property values.

More recommendations regarding Trees, Greenspace, and Green Infrastructure can be found in Appendix C-Natural Resources.



Public water systems are organized around three major water uses: drinking water, wastewater, and storm water systems. All three systems share a common infrastructure based on watershed geography. Local governments across the country are experiencing an emerging water crisis that includes:

- Increasing population size is putting a strain on already-taxed water supplies.
- Electric bills are rising as water supply dwindles and increases in value.
- Jurisdictions are fighting over the rights to shared water sources.
- Expansion of water treatment facilities and distribution pipes is causing a rise in capital construction costs and operation and maintenance budgets.

Local governments across the metropolitan Atlanta region are experiencing these came challenges. The DeKalb County Department of Watershed Management was established in 1942. In addition to the estimated 5,000 miles of pipe in the distribution and collection systems, major facilities operated and maintained by the department include the Scott Candler Filter Plant, Pole Bridge Advanced Wastewater Treatment Plant, Snapfinger Advanced Wastewater Treatment Plant, and DeKalb County Raw Water Pumping Station.



Ensuring an Adequate Water Supply for DeKalb County

DeKalb County relies on surface water from the Chattahoochee River as its sole source of drinking water for all residents, commercial, industrial and institutions. The system also has interconnects with Gwinnett, Rockdale, Henry and Clayton Counties as well as the City of Atlanta (MNGWPD, May 2009). Because local officials were cognizant that anticipated population growth will result in increased water supply and energy needs, DeKalb County recently constructed a water treatment plant capable of producing up to 150 million gallons of water per day (MGD). The County is also activity involved in various water conservation efforts and tiered water conservation pricing that have resulted in a significant decrease in water use over time from 93 MGD to the average current average daily demand of approximately 75 MGD (MNGWPD, January 2011). This trend is expected to continue in the future as the cost of providing a reliable source of clean water increases.

Statewide/Regional Water Plan

The 2004 Comprehensive State-wide Water Management Planning Act authorized the development of the State Water Plan. The State Water Plan in turn, calls for state-wide regional water planning to provide the necessary local and regional perspectives to ensure each of Georgia's ten water planning region's water resources are sustainably managed through at least 2050 (www.georgiawaterplanning.org). DeKalb County is a member of the Metropolitan North Georgia Water Planning District (MNGWPD) which was created by the Georgia General Assembly in 2001 to establish policy⁵², create plans and promote intergovernmental coordination of all water issues in the District from a regional perspective. The Metro Water District includes 15 counties and over 90 cities within the metro Atlanta region (http://www.northgeorgiawater.com).

⁵² Water Supply and Water Conservation Management Plan, Metropolitan North Georgia Water Planning District, May 2009



Current Initiatives in DeKalb County

The Scott Candler Water Treatment Plant came on line in September 2007.⁵³ It is a modern treatment facility designed to take the County well into the future. It is a modular construction so that only the processes required to treat the required water have to be on line thus saving energy when compared to the old plant which had to have the complete treatment train on line at all times. This plant also has zero discharge as all water used in the process is treated and returned to the reservoirs so there is no waste.

The John A. Walker Memorial Raw Water Pump Station came on line in 2010 with a more energy efficient design than the old facility which was initially constructed in 1942. A series of improvements is underway now to make this even more efficient from both a cost and energy savings position. Control system software is being enhanced to allow remote operation during times of lower energy cost.

Numerous initiatives designed to educate county residents and businesses about how to conserve water and lower utility bills are on-going. Examples may be found on <u>www.DeKalbwatershed.com/conservation.html</u>.



Recommendations for a Sustainable Water System

The DeKalb County Sustainability strategy includes two sustainability goals designed to reduce water use by municipal facilities and operations as well as the community-atlarge. The two categories and specific goals are listed below.

1. Prioritize and conduct building water audits; prioritize water conservation projects based upon factors such as projected water savings and cost of the improvement based on a life-cycle cost analysis.

⁵³ DeKalb County Department of Watershed Management



- Conduct building water audits of County and school facilities.
- Modify bills to show historical use and feature water conservation tips.
- Conduct feasibility study on the use of greywater at County facilities, including the use of potable/greywater treatment systems for new facilities.
- If feasible, require dual plumbing for greywater and potable water at new County facilities.
- Install individual water meters at each school building to measure water use and encourage conservation within and between each school complex.
- Conduct a feasibility study to evaluate the use of rainwater capture at existing and new municipal facilities for irrigation, cooling tower makeup water, and other uses.
- Include language in County bond measures requiring new facilities to maximize LEED Silver or equivalent water conservation credits.
- 2. Reduce Water Use in all County Facilities by 15% by 2025.
 - Replace outdated or damaged water fixtures at County and school facilities with state-of-the-art, water conserving devices. Residential homes constructed prior to 1995 are already required to retrofit fixtures upon purchase or plumbing/electrical permit application.
 - Track water consumption and water utility expenses separately for each County facility on a regular and ongoing basis.
 - Educate the community and school children on how to reduce water consumption through rainwater capture and reuse among other best management practices.



- Utilize xeroscaping and rain sensor shut-off switches at all County and school facilities.
- Facilitate technology transfer of ideas and successes among the industrial and commercial sectors to promote water use reduction.
- Evaluate County schools to identify water efficiency opportunities such as improved irrigation systems, low-flow water fixtures, and up-to-date air conditioning systems.

Solid Waste Management

Introduction

In 2004, the County prepared a Joint Solid Waste Management Plan (SWMP) for the 10year period 2005-2014, for the Planning Area consisting of the unincorporated areas of

the County, as well as the cities of Avondale Estates, Chamblee, Clarkston, Decatur, Doraville, Lithonia and Pine Lake. The Solid Waste Management Act of 1990 required that SWMPs that indicate reliance on a landfill have a program in place to reduce per capita



disposal by 25 per cent from the base year of 1992. The SWMP noted that the 1992 base year per capita disposal rate for municipal solid waste (MSW) is 6.66 pounds per person per day. Between 2000 and 2004, the annual MSW disposal rate varied from 3.12 to 3.56 pounds per person per day, or an average of 3.44 pounds per person per day. Based on the average, this represents a 48 percent reduction from the base year.


Current Practices

In the unincorporated areas, the DeKalb County Sanitation Division provides standard municipal solid waste collection and disposal requirements for its residents and businesses. Businesses that require nonstandard collection services that are not available from



the Sanitation Division are able to utilize private sector companies. In addition, residents and businesses are able to utilize open subscription agreements for the collection and disposal of construction and demolition (C&D) waste.⁵⁴

Waste Collection

The Sanitation Division provides collection of household garbage twice per week in the unincorporated areas of the County and the City of Lithonia.⁵⁵ Currently, this collection service is provided to an estimated 165,000 residential households, a few home-based and small businesses. 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. Residential collection and disposal fees are levied annually as a special assessment on the property tax notice.

⁵⁴ DeKalb County Solid Waste Management Plan

⁵⁵ http://www.co.DeKalb.ga.us/publicwrks/sanitation/san_Residential_Special_Pickup.html accessed on 11/19/10.



Recycling Service

The County offers three types of recycling services for residential customers. ⁵⁶

1. Basic Service- The County provides weekly residential curbside recycling service for newspaper and aluminum cans. Aluminum cans are collected on the first collection day of the week and newspapers on the 2nd collection day of the week. These items must be bundled and tied. These materials are collected along with residential waste in saddlebag containers placed on the residential waste collection trucks.

2. **Comprehensive Subscription Curbside Recycling Program-** This program allows residents to participate on a voluntary basis in a comprehensive dual stream recycling program consisting of weekly collection of mixed paper and commingled bottles, cans and plastic containers. This program started in January 2007 servicing 11,214 housing units. As of the end of September 2010, the program has expanded to service over 30,000 residential units. For the 4- year period from 2006 through 2009, this program has an average recovery of 850 lbs of recyclable materials per residential subscriber.

During the calendar year 2009, 29,622 tons of recyclable materials were collected.⁵⁷ Assuming an average household size of 2.6 persons, recyclable recovery from the curbside subscription program in 2009 amounted to 0.88 lb/person/day. While this is lower than the 1.37 lb/person/day recyclable recovery rate anticipated in the SWMP document (page 20), these recovery levels have been consistent throughout the four full years (2006-2009) that the program has been in effect.

3. Recycling Drop-off-locations- Mixed paper containers are located at all DeKalb County Fire Stations and many DeKalb County public buildings. All mixed papers may be dropped off at these locations including newspapers, phone books, magazines, catalogs, office paper, cardboard, chipboard, and junk mail.

⁵⁶ http://www.co.DeKalb.ga.us/publicwrks/sanitation/san_Residential_Special_Pickup.html accessed on 11/19/10

⁵⁷ Data provided by DeKalb County Sanitation Division



DeKalb County recently opened a new recycling drop-off center for residents to support the County's ongoing green initiatives. Keep DeKalb Beautiful (KDB), in conjunction with DeKalb County Sanitation Division and Atlanta Recycling Solutions, offers north and central DeKalb residents a permanent site to recycle their old electronic items as 3643 Camp Circle in Decatur becomes the second permanent recycling drop-off site in DeKalb County.

Equipment that will be accepted includes stereos, microwave ovens, computer equipment, copiers, telephones, CD players, video machines, CB radios, fax machines, projectors, speakers, modems, portable radios, cameras, cell phones, VCRs, record players and UBS battery back ups. Items not accepted include televisions, vacuum cleaners, refrigerators, washers, dryers and freezers.

The cost of these residential recycling services are included in the annual solid waste assessment, although subscription recycling service requires payment of a one-time fee (\$15) for purchase of a blue bin for mixed paper, and a periodic fee (\$15) to purchase 100 blue bags which are used for collection of the co-mingled containers.

Commercial Recycling Service



The County also provides recycling services to commercial establishments which contract with the Sanitation Division. As of September 2010, 430 business establishments were being service by this program. For the calendar year 2009, at total of 2,398 tons of material were recovered for recycling as part of this program.⁵⁸ This material tonnage also includes recyclables

that are collected from the recycling drop-off centers noted above.

⁵⁸ Data provided by DeKalb County Sanitation Division



Yard Waste Services

The County provides curbside collection and recycling of yard waste weekly to all residents within the County service area.⁵⁹ Customers are allowed to place an unlimited amount of containerized and properly prepared yard waste at the curb for manual collection using rear loading vehicles.

Yard waste collected curbside includes leaves, grass, branches, shrubs, brush, vegetation, twigs, and limbs. These materials are collected and transferred to the County Yard Waste Composting Facility for processing into high grade mulch, compost and soil products, and are available to residents at no additional charge. The County uses some of the compost as daily cover at the landfill facility where is displaces the need for virgin soil cover and serves as a biofilter to control odor.

The cost of curbside yard waste collection services is included in the annual residential solid waste assessment. Special collection services are available, for a fee, to residents with large amounts of improper un-containerized accumulations of yard waste. In the calendar year 2009, the County collected 75,403 tons of yard waste for composting and mulch. This represents about 0.59 lb. per person per day for the entire County service area.

Waste Disposal

DeKalb County owns and operates the Seminole Road Landfill, which has two separate permits allowing the operation of a MSW landfill and a Construction and Demolition



landfill (C&D). The landfill only accepts MSW deliveries from sources in the County. C&D material accepted from disposal are also restricted to in-County sources and there

⁵⁹ http://www.co.DeKalb.ga.us/publicwrks/sanitation/san_Residential_Special_Pickup.html



are also two privately-owned C&D landfills operating in DeKalb County. The division of Sanitation is developing an innovative project at the Seminole Road Landfill whereby landfill gas that is collected will be processed for use as a compressed natural gas (CNG) to fuel some of the Division's waste collection vehicles.⁶⁰ In 2009, the Seminole Road Landfill accepted nearly 461,000 tons of MSW and nearly 48,000 tons of C&D for disposal.⁶¹

Trends

Both the public sector and the private sector of the solid waste management industry have been trendsetters in sustainable practices for the past 30 years. Current trends that will drive future practice changes include efforts to further increase waste

reduction and recycling, reduce solid waste disposal, and reduce greenhouse gas emission. Four of the more notable trends that could be applicable to DeKalb County are listed below.



Zero Waste Movement - While there is no single agreed upon definition, the "zero waste" philosophy aims to minimize waste and resource consumption in

order to conserve energy, mitigate climate change, reduce water usage, prevent toxics creation, and minimize ecosystem destruction. With almost one-third of greenhouse gas emissions attributed to the acquisition of materials, reducing consumption has the potential to significantly affect climate change.⁶² As more and more local governments and businesses commit to achieving zero waste, innovative techniques to reach this goal are being piloted across the country. From source reduction to product re-design to

⁶⁰ Personal communication with William Malone on November 22, 2010.

⁶¹ Data provided by DeKalb County Sanitation Division

⁶² http://www.epa.gov/osw/rcc/web-academy/2009/sep09.htm (12/10/10)



reuse to eliminating incentives for raw material extraction and landfilling, the path to zero waste requires moving beyond recycling to a more integrated and holistic resource management system.

Diversion of Organic Waste from Landfill – The three main types of municipal organic waste collection are:

- Source Separation: Requires residents to separate designated materials from their solid waste for curbside collection or drop-off producing a clean stream of organic material. The process requires intensive public education and outreach, efficient collection, and adequate processing facilities.
- **Mixed or Single Stream:** Does not require residents to separate their solid waste in order to isolate organic materials. Requires more intensive processing to remove all non-compostable items.
- Onsite / Backyard Composting: Allows residents to operate on-site composting of organic waste. Avoids the need for a separate sorting and collection, but requires resident training, and typically involves subsidized bin distribution.

Many states, including Georgia, are now promoting increased diversion of organic waste from disposal facilities, and spurring the need to develop new local and/or regional capacity for composting facilities or anaerobic digesters for source separated organic waste.



As noted previously, DeKalb County already diverts

yard waste from landfill disposal. In the calendar year 2009, the County collected 75,403 tons of yard waste for composting and mulch. This represents about 0.59 lb. per person per day for the County service area. It also represents about 13% of the



total quantity of MSW that is disposed of or recycled, or about half of the 25.8% organic fraction of waste for DeKalb County. Further reduction in waste disposal can be achieved by targeting the remainder of this organic fraction, largely food waste, for composting or other suitable diversion.

- **Single stream recyclables** Single stream recycling refers to a system in which all recyclable paper fibers and containers are mixed together in a collection truck, instead of being sorted into separate categories by the resident and handled separately throughout the collection process. Proponents of single stream note several advantages:
- Reduced sorting effort by residents may mean more recyclables are placed at the curb and more residents may participate in recycling;
- Reduced collection costs because single-compartment trucks are cheaper to purchase and operate, collection can be automated, and collection routes can be serviced more efficiently;
- Greater fleet flexibility allows single compartment vehicles to be used for refuse or recycling, providing greater fleet flexibility and reducing the number of reserve vehicles needed.

Many of the nation's largest waste companies are developing single stream collection and recycling capabilities. One of North America's top recycling companies, Waste Management nearly tripled the volume of material processed in its single-stream recycling facilities, from about 722,000 tons in 2002 to more than 2 million tons in 2006.⁶³ DeKalb County Sanitation currently engages in a recyclables collection program which has elements of the single stream program. Both recyclable paper and containers are

⁶³ <u>http://www.wm.com/WM/ThinkGreen/recycling/singlestream.asp</u> (11/4/08).



collected from residents in the same single compartment trucks that are used to collect yard waste.

Recommendations for Sustainable Solid Waste Management

While the County has already achieved significant results with its waste reduction and recycling programs, continued program expansions will further reduce the amount of waste which is sent for landfill disposal.

- The County should continue to extend subscription Residential Recycling Program. At existing recovery rates, with increase participation of 5,000 units per year, each year waste disposal will be reduced by an additional 2,100 tons per year. Incremental implementation of this program would result in the annual reduction of per capita MSW disposal of about 0.16 lb/person/day each year (2009 basis).
- The Sanitation Division has proposed an alternative which involves extending what is now the subscription recycling service to all residents of the service area. This would be funded by the cost savings associated with reducing the frequency

of residential waste collection service to once a week. Extending the expanded residential recycling program to all residents served by County waste collection, and achieving existing recovery rates exhibited by the subscription program would result in the recovery of



nearly 70,000 tons of recyclable material annually, and a reduction of an additional 59,000 tons compared to disposal in 2009. Recovery of this material would result in the reduction of per capita MSW disposal by about 0.46 lb/person/day (2009 basis). Program convenience is essential for high



participation and thus high waste reduction. Weekly collection of recyclables and yard trimmings puts recovery programs on par with weekly trash pick-up.

 Promoting food waste reduction and composting at large commercial and government facilities and institutions (e.g. schools, colleges, hospitals, supermarkets) can result in a significant decrease in the amount of



organic material that is delivered to the landfill for disposal. The County could partner with the Sustainability Division of the Georgia Department of Natural Resources (P²AD) to advance this effort. As new organic waste composting infrastructure is brought into service for these large waste generators, the County could consider expanding these programs incrementally to service the residential sector. Assuming that half of the remaining organic waste fraction can be reduced or recovered for recycling (approximately 30,000 tons per year), per capita MSW disposal could be reduced by about 0.3 lb/person/day (2009 basis).

Contemporal Sustainable Food

Introduction

There are many environmental and social benefits of local sustainable food programs. Local farms and gardens can use the County's organic wastes for compost, helping to reduce the burden on local landfills, and home-grown food reduces packaging waste and energy consumption. Very importantly it expands opportunities for people to have access to personal green space and wholesome food.



Though many Americans have access to a cornucopia of cheap food, the US food production and access system have major hidden costs. Long-distance, industrialized food system outsources food production to distant agribusinesses that produce abundant food, but often with significant costs to the environment, small farm communities, and the taste, diversity and quality of food.

The U.S. population is increasingly overweight and diabetic, and is often detached from cultural food traditions that offer a sense of place, history, and meaning. Projects such as farmers' markets, farm-toschool initiatives, and urban agriculture deliver



major cultural benefits that address all three dimensions of sustainability (environmental, economic, and social). Developing a strong, local food system is an exciting opportunity for DeKalb County that has the potential to deliver a multitude of benefits:



- Promote healthy eating
- Reduce petroleum consumption
- Preserve greenspace and farmland
- Reduce harmful environmental impacts
- Minimize pesticide exposure
- Build local economies
- Create new jobs
- Strengthen the social fabric
- Celebrate our food heritage

Figure C-1 Locally Farmed Food Resources in DeKalb County



Current Initiatives in DeKalb County

There are numerous sustainable foods initiatives in DeKalb County. A recent inventory and mapping project identified a total of 133 locally farmed feed resources in DeKalb County that can be seen here. These local food resources are organized into fourteen categories including: Community Gardens; Farmers Markets; Farm to School Programs; Restaurants; Grocery Stores; Urban Farms; etc. A comprehensive database of these resources is included in the Appendix C-Natural Resources.

Many of these food resources are located in the northern portion of the County. Preliminary analysis of locations of locally farmed food resources and mass transit routes indicates that there exist local food deserts within DeKalb County, especially in the western and southern portions of the County. Eighteen farms are located within one mile of a MARTA Station; many more are located near bus routes. The illustration here shows the food resources and their proximity to transit.



Figure C-2 Food Resources and Mass Transit Access

A growing body of research is investigating what effects a lack of access to healthy foods has on overall public health. One such effort by Policy Link and The Food Trust, "The Grocery Gap: Who Has Access to Healthy Foods and Why It Matters," finds that people who live near grocery stores and other places that sell fresh produce have a lower risk for obesity and other diet-related diseases. The study also finds that the neighborhoods that lack access (living within one mile) to mainstream grocery stores are more likely to be low-income and communities of color. The DeKalb County Board



of Health recently received a grant from the Centers for Disease Control to address obesity and diabetes in the County by encouraging the production, distribution and procurement of local, affordable and healthy food.

A growing number of programs exist in DeKalb County that enhance supply, access,



and consumption of local fresh foods. The County Parks and Recreation Department sponsors a "Garden in the Parks" program (seen at left) that provides opportunities for community groups to operate a garden in County parks. The program requires groups to submit a simple proposal that outlines how the garden will function. Over ten community

gardens currently reside in DeKalb County parks, and the number is growing. In addition, several school districts are involved in "Foods to School" programs. Most notable are the programs at numerous schools in the City of Decatur and more recently at Henderson Mill Elementary School in DeKalb County. These very successful programs teach children how to grow vegetables and incorporate fresh foods into the lunch program. Many other examples of successful local foods programs exist in DeKalb County such as Wonderland Gardens, a 501(c) (3) nonprofit organization committed to stewardship of the earth through programs that actively promote organic gardening, green education, recycling and healthy living in communion with nature.

Recommendations for a Local Sustainable Food Program

Seven sustainability goals have been identified to increase the supply, access, and consumption of local and sustainable food within the County.

 Amend County-wide policies and ordinance (e.g., comprehensive, zoning and/or land-use) to increase sustainable and local food production in DeKalb County through community gardens, backyard gardens, and local farms, and appropriate livestock.



- Establish a baseline of local food resources and track the number, type, and location of resource over time.
- Launch Farm-to-School programs (gardens, cafeteria food, and curriculum).
- Expand cooking skills for simple dishes made from fresh, locally produced foods including vegetables, meats, and dairy.
- Develop local food purchasing guidelines and incentives for governments, hospitals, and DeKalb County institutions.
- Increase local, fresh food availability in underserved neighborhoods.
- Increase and promote local food in grocery stores, farmers' markets, restaurants, and other food outlets.

Various policies and programs can be developed and implemented over time by DeKalb County alone and in conjunction with the community (including the school districts) to reach these important goals. Demand for locally grown food raised with sustainable and organic methods has skyrocketed,



and the demand for local foods is not currently being met by the limited supply. A sustainable strategy that includes an increasing supply, access, and consumption of fresh foods will require dynamic cooperation among DeKalb County's public and private groups, strong leaders, and active citizens. The benefits of building a more independent, locally-based food system are many and well worth pursuing.





Appendix

Natural Resources

DeKalb County Sustainability Goals Template DeKalb Community Water Supply/Conservation Management Plan DeKalb County Wastewater Treatment Facilities Matrix DeKalb County Stormwater Management Plan DeKalb County Sustainability Local Food Database DeKalb County Community Gardens and Farmers Markets DeKalb County Local Foods Map Links to DeKalb County Natural Resource Documents





Section D

Complete Communities



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Cor

Complete Communities

GOAL: For DeKalb County to thrive and prosper, we must ensure that we have complete communities that meet the livability and mobility needs of all DeKalb County residents. Through sustainable land use and transportation policies, DeKalb County can create a balance of environmental preservation, commerce, mobility, and livability.

Introduction

Complete communities are important to DeKalb for two main reasons. The first is affordability. The chart to the right shows a large portion of DeKalb is unaffordable when considering housing and transportation together. This lack of workforce housing limits the economic growth of the county, increases traffic, and increases resources spent on social programs. Complete communities emphasize compact walkable and bikeable development, which can decrease transportation costs significantly, opening up more of DeKalb as an enjoyable affordable place to live. The second reasons Complete Communities are important is that they increase quality of life. Walkable human-scale communities where people spend more time enjoying themselves and less time commuting can increase community satisfaction and investment, both socially and financially. The following sections go into more detail about how complete communities function and how DeKalb might implement them, but the benefits of implementing them are clear.



Integrating Land Use and Transportation Planning

Introduction

Questions of transportation and land use lie at the heart of sustainable urban planning, and are fundamentally interlocked. Transportation policy and infrastructure decisions go hand in hand. When a community gives the green light for a construction project – whether it is a housing complex, an apartment building, an office



park, or a shopping center – it must also consider how people can get to or from the new premises. If it decides to build a perimeter highway, on the other hand, developers will be eager to benefit from the improved access offered by the new transportation link, as demonstrated by the industrial and commercial zones that ring most U.S. cities.

The recommendations in this section illustrate how future population growth can be accommodated in a way that will reduce the consumption of open space, reduce auto dependency and greenhouse gas emissions, improve air quality, and provide a greater variety of choices for people to live and work.

To better understand how land planning and transportation relate to sustainability, some basic planning concepts are helpful. First, land use in this context refers to the broad category of intended use for individual parcels of land, often shown in a county's



land use plan. For instance, a particular parcel may be labeled as "commercial" in a land use plan. That means commercial uses such as a bookstore, coffee shop, or tax attorney's office would all be appropriate for that piece of land.



When different land uses are close together, it is known as mixed-use. For instance, a restaurant or bookstore below an apartment or next to a single family house would be considered mixed-use. Finally, when a development is within a walkable distance to some form of mass transit station, such as a MARTA rail stop, and enables people to more

easily use that transit, it can be considered a Transit Oriented Development (TOD). Often TOD's are mixed-use and compact to maximize the number of riders for the transit station.

The Role of Complete Communities in Sustainability

The role of land use and transportation is extremely important to overall sustainability. Communities that integrate land use planning with transportation planning evolve into places that are well connected, easy to traverse, provide housing for diverse people and income, all combining into a Complete Community.

Land use and transportation have some of the longest lasting effects on development and activity patterns, which in turn, affect environmental impact. Their long-term influence stems from the fact that streets and blocks tend to change very slowly or all at once, usually as a result of a larger scale plan. Simply stated, to achieve real sustainability, we must build better communities and provide mobility choices that are easy and efficient to use, with the goal of reducing the vehicles miles traveled and their associated carbon emissions.



Community sustainability requires a transition from sprawl to land use planning practices that create and maintain efficient infrastructure, ensure close-knit neighborhoods and sense of community, and preserve natural systems.

Transportation patterns go hand in hand with land use patterns. In particular, low density development, hierarchical street patterns, generous road and parking capacity, and automobile oriented site design tend to increase automobile dependency, leading to high levels of per capita motor vehicle mileage and a reduction in the quality of travel alternatives (e.g., transit, biking, walking). The following table illustrates from of the impacts transportation patterns have on sustainability.

Economic	Social	Environmental
Traffic Congestion	Inequity of Impacts	Air Pollution
Mobility Barriers	Mobility	Climate Change
	Disadvantaged	
Crash Damages		Habitat Loss
	Human Health Impacts	
Transportation		Water Pollution
facility costs	Community Cohesion	
		Hydrologic Impacts
Consumer	Community Livability	
Transportation		Noise Pollution
Costs	Aesthetics	
Depletion of Non-		
Renewable		
Resources		

Table D-1 Impacts of Transportation Patterns on Sustainability



The modern city is based on mobility. The railway, and later the automobile, made the vast expansion of cities into metropolitan areas possible. Because transport was fast, efficient and cheap, households could afford to leave the city and enjoy life in the suburbs or countryside and still travel to work in the city. Only much later did retail, services and manufacturing follow their customers and employees to the suburbs creating the fragmented urban-rural landscape surrounding most of our cities today. The price for the suburban design we see today is high: declining city centers, loss of open space, long travel times, and growing emissions of greenhouse gases, air pollutants and traffic noise. Moreover, it ignores the imperative to reduce greenhouse gas, and it ignores the fact that cheap mobility will not be here forever.



When blocks are large, not well connected, and contain car-oriented uses, people are less likely to walk unless they must, and therefore end up driving more. On the other side of the spectrum is compact development. Compact development is the name given to development that is close enough together

to allow a person to easily walk to many, if not all, of their daily needs.

Complete communities are compact, appropriately mixed-use, and often transitoriented where car drivers, pedestrians, and bicyclists feel comfortable. These complete communities are the most effective at reducing automobile trips compared to standard development.

Generally compact development includes a network of well-connected streets with ample sidewalks to allow different routes creating a diversity of transportation options. Because people can meet their needs without a car, they are more likely to walk or bike or take public transit. In fact, studies show that compact development reduces the number of automobile miles traveled, which in turn reduces vehicular emissions.



Evidence on land use and driving shows that compact development will reduce the need to drive between 20 and 40%, as compared with development on the outer suburban edge with isolated homes, workplaces, and other destinations. It is realistic to assume a 30% cut in vehicle miles traveled (VMTs) with compact development. ⁶⁴

Transportation has a huge impact on sustainability. T he energy used by moving vehicles, passengers, and cargo from one place to another is a substantial amount of total energy used in the US. In addition vehicles release harmful emissions through the process of driving, even if it is indirectly at the power plant as is the case with electric vehicles. Even more, cars increase the need for parking spaces, which use land inefficiently in a way that makes unpleasant areas with few other uses.

Considering the slow change of land use and transportation infrastructure and the large environmental impact caused by transportation, policy changes to create complete communities can lead to large and long-term reductions in emissions from vehicles and reduced energy use overall. In addition to reducing vehicular emissions and energy use, complete communities can be more profitable to the County and can increase lively pedestrian life. Perhaps most importantly, complete communities are vibrant areas where people want to live and visit.

Current Conditions



The largest portion of unincorporated DeKalb County is primarily low density residential development, with lots larger than ¹/₄ acre and a large number of culde-sacs. However, there are also hubs of more compact development such as Perimeter Center,

Northlake Mall, the MARTA Station area in Chamblee shown here, as well as many neighborhood centers identified in the most recent Comprehensive Plan. Many of these

⁶⁴ American Planning Association Climate Change Policy Findings



hubs are good foundations to continue future compact development where it is most appropriate.

The latest population projections suggest that DeKalb County will continue to grow as well as grow older on average. Some may suggest that the only way to accommodate this growth is continue development into undeveloped areas, the results of which may be encroaching on natural infrastructure. Alternatively, development that is more compact preserves those valuable areas and further focuses on vibrant complete communities.

The growing aging population in DeKalb County and throughout the country face many mobility problems in car-oriented development, particularly when they choose or are forced to give up driving.



Complete communities present an alternative where the elderly can be more independent as they walk at their own pace to take care of their daily needs. When uses such as drugstores, groceries, libraries, and even medical offices are clustered together, blended with the residential development and

connected by a strong sidewalk network, people of all ages benefit from this pedestrian environment. Complete communities also allow people to age in place and enjoy their neighborhoods throughout their life, maintaining the integrity of the community over time.

Currently DeKalb County lacks adequate affordable housing. The lack of diverse housing choices lead to what is often referred to as "drive to qualify." Housing costs are generally less the farther away the house is from activity centers, which forces people to commute long distances to work. Not only does this lead to an increase in traffic and vehicular miles traveled and associated greenhouse emissions, but the simple cost of



gasoline and maintenance of the car often negates any savings that may have occurred by being further away from the center of activity. Including affordable housing in compact development diminishes car trips for these working families and makes for more economic sense.

The Housing + Transportation Affordability Index (H+T) created by the Center for Neighborhood Technology is an innovative mapping tool that measures the true affordability of housing by estimating not just the cost of the housing itself, but also the costs of transportation.



H+T has been developed as a more complete measure of affordability beyond the standard method of assessing only housing costs. By taking into account both the cost of housing as well as the cost of transportation associated with the location of the home, H+T provides a more complete understanding of affordability. Dividing these costs by representative regional incomes illustrates the cost burden placed on a typical household by H+T expenses.

While housing alone is traditionally deemed affordable when consuming no more than 30% of income, CNT has defined an affordable Range for H+T as the combined costs consuming no more than 45% of income. The following map created by the Center for Neighborhood Technology illustrates the H+T expenses in DeKalb County.

Based on this 45% benchmark, a larger portion of DeKalb is not affordable with some areas impacted more than others. Without transportation choices, households are forced to spend more of their disposable income on fuel as the price of gasoline increases.



The lack of compact mixed-use development is illustrated in the following tables derived from U.S. Census Data for DeKalb County. These tables illustrate the results of development that is primarily auto-centric. It should be noted, however, that DeKalb County has made strides in encouraging more compact, mixed use development. As the County grows denser and a variety of housing types are available, the commute times should decrease.









Introduction

Public transportation in DeKalb County is provided by the Metropolitan Atlanta Regional Transit Authority (MARTA). MARTA provides rail service, fixed route bus service, and para-transit service throughout the County. In addition, there are several private transportation providers that serve specific transit market segments within DeKalb County.

There are 54 MARTA bus routes in DeKalb County that cover nearly 400 miles, 10 rail stations. More than 410,000 DeKalb County residents live within ¹/₄ mile of a MARTA

bus route or transit station. The regional travel demand model estimates that there are currently over 70,000 transit trips per day in the County. Figure D-2 presents the total number of passenger trips per year on the entire MARTA system between 1995 and 2009.



Source: American Public Transit Association (APTA) Transit Ridership Reports



As Figure D-2 illustrates, total MARTA ridership peaked in 2000 and then suffered a decline through 2004, but is back on the increase again. Although Figure D-2 presents total MARTA ridership, it is likely that ridership within DeKalb County has followed the same pattern.



Current Initiatives

Land use in the County is regulated by the Zoning and Development Codes. These documents explain in detail how land in the County should be moved and used. These codes offer the best opportunity for DeKalb County to prepare the way for sustainable best practices by the community-at-large.

The County's efforts to address complete communities are mostly channeled through the Planning and Sustainability Department. To accomplish its goals the department



can benefit from additional support and awareness from government leaders as well as the public.

One of the largest initiatives currently underway is the proposed zoning code update, which is currently under review. The update has many elements that support sustainability, including rules that allow more compact development in appropriate locations in support of the community-backed Comprehensive Plan. The Comprehensive Plan itself also has many elements that encourage sustainable compact development including identifying areas that are appropriate for complete communities and making it easier to build those communities from a policy perspective.

Recommendations for Sustainable Complete Communities

To successfully develop complete communities, DeKalb County needs to further its sustainability efforts in the following ways:

1. The County should balance development by encouraging compact mixed-use and transit-oriented development that focuses around the activity centers named in the Comprehensive Plan, particularly building on existing successes.

- Community buildings such as libraries and County offices should be located in well-connected areas to allow for easy access without a car.
- The County should also strive to encourage transit-oriented development in collaboration with local transit agency where transit does not already exist.

2. As a complement to compact development, the County should continue to build a robust well-connected network of complete streets that support a Range of transportation options from cycling to walking to driving.



- Prioritize building roads and road repair to increase overall connectivity especially considering sidewalk improvements and bicycle lanes.
- Adopt maximum block sizes and other streetscape improvements to increase pedestrian friendly development.
- Adopt and implement a complete streets policy at every level possible.

3. DeKalb County should work closely with MARTA in supporting a more efficient and effective regional transit system.

4. DeKalb County policy makers should promote numerous transportation options for all members of the population, so that everyone can choose the transportation options that best meet their needs.

- Through community input and analysis, the County can identify strategies to improve intermodal transportation alternatives, i.e., links among different transportation resources that provide increased rider choice, to encourage riders to select more sustainable modes.
- Provide on-site bike parking, showers, and lockers at County buildings to encourage bicycling by employees and visitors. Encourage commercial employers to do the same.
- Provide discounted passes to public transit and find other ways to make alternative transportation more accessible and attractive to County employees.

5. The County should continue to promote housing options for all age groups and income levels particularly in newer complete communities to encourage equity and reduce vehicle trips.



- Ensure that there are housing options for a range of incomes at existing and planned transit oriented developments.
- Create and retool communities so that people can age in place gracefully and so that people with disabilities can live as active members of the community.
- Develop or support a Housing Trust Fund to incentivize the construction of workforce housing.

Additional recommendations can be found in Appendix D - Complete Communities.





Appendix D

Complete Communities

DeKalb County Sustainability Goals Template

DeKalb Community Shared Parking Ordinance

Links to DeKalb County Planning and Sustainability Documents