Atlanta Regional Commission
200 Northcreek, Suite 300
3715 Northside Parkway
Atlanta, Georgia 30327-2809

Harry West
Director

March 27, 1998

Honorable Crandle Bray, Chairman
Clayton County Commission
Clayton County Administration Building
112 Smith Street
Jonesboro, GA. 30236

RE: Development of Regional Impact Review
Southern Bonded Warehouse Development

Dear Crandle:

I am writing just to formally transmit the resolution the Commission adopted on March 25, 1998, concerning the Development of Regional Impact (DRI) review of the Southern Bonded Warehouse Development. As you know, the Commission found this DRI is in the best interest of the State based on the agreement of the local governments in the Little Cotton Indian Creek Small Water Supply Watershed to develop a watershed protection plan. We greatly appreciate the cooperation of Clayton and Henry Counties and the Cities of Jonesboro and Stockbridge in agreeing to develop this plan to protect the water supply and to include this DRI in the plan.

Along with the Commission's resolution, I am enclosing a copy of our review report. If you have any questions concerning the review or need any further information, please feel free to call me or Beverly Rhea (404-364-2562).

Sincerely,

for Harry West
Director

Enclosures
c Mr. Richard Bray, Clayton County
Ms. Christy Simmons, Rooker & Associates, Inc.
Hon. Jim Joyner, Henry County
Hon. Joy Day, City of Jonesboro
Hon. R.G. Kelley, City of Stockbridge
Mr. Wayne Shackelford, GDOT
Mr. Paul Radford, GDCA
Mr. Harold Reheis, GEPD

RESOLUTION BY THE ATLANTA REGIONAL COMMISSION CONCERNING THE SOUTHERN BONDED WAREHOUSE DEVELOPMENT OF REGIONAL IMPACT

WHEREAS, pursuant to the Georgia Planning Act of 1989 and Georgia Department of Community Affairs Rules for the Review of Developments of Regional Impact (DRI), the Atlanta Regional Commission has reviewed the Southern Bonded Warehouse Development of Regional Impact (DRI) proposed on 50.75 acres between Southlake Parkway and the Southern Railway between Barton and Battle Creek Roads in Clayton County; and

WHEREAS the proposed development would consist of 804,800 square feet of warehouse space of which 512,000 square feet have already been constructed; and

WHEREAS the development is proposed in the Little Cotton Indian Creek Water Supply Watershed, which is classified under Georgia Environmental Protection Division (EPD) criteria as a small (less than 100 square miles) water supply watershed; and

WHEREAS Little Cotton Indian Creek provides water supply for Clayton County; and

WHEREAS Little Cotton Indian Creek also flows into Big Cotton Indian Creek and Large Water Supply Watershed which provides additional water supply for Clayton County; and

WHEREAS the Rules of the EPD require certain measures for protection of small water supply watersheds, including a limit of 25% impervious surface within the watershed; and

WHEREAS the proposed Southern Bonded Warehouse DRI would result in approximately 68% impervious surface; and

WHEREAS EPD Rules allow that criteria different from those in their Rules may be approved provided all the local governments in the watershed agree to a plan that is deemed by EPD to provide an equivalent level of protection; and

WHEREAS the Little Cotton Indian Creek Watershed includes portions of Clayton and Henry Counties and the Cities of Jonesboro, Lovejoy, and Stockbridge; and

WHEREAS at this time the local governments in the watershed have not yet developed a plan for protection of the watershed that would provide an alternative to the EPD criteria but have now all agreed to develop a watershed protection plan and to include the Southern Bonded Warehouse as a part of that plan; and

NOW THEREFORE BE IT RESOLVED that the Commission finds that the Southern Bonded Warehouse DRI is in the best interest of the State.

BE IT FURTHER RESOLVED that the Commission requests that Clayton and Henry Counties jointly initiate this study immediately and that all local governments in the watershed agree not to approve further developments that would have more than 25 percent impervious surface until such time as the plan for protection of the Little Cotton Indian Creek Small Water Supply Watershed is developed and approved by EPD.

SOUTHERN BONDED WAREHOUSE
DEVELOPMENT OF REGIONAL IMPACT

PROPOSED DEVELOPMENT	*804,800 SQ.FT. WAREHOUSE SPACE* *512,000 SQ.FT. ALREADY BUILT*
LOCATION	*WEST SIDE OF SOUTHLAKE PARKWAY BETWEEN BARTON & BATTLE CREEK CLAYTON COUNTY*
DEVELOPER	*ROOKER AND ASSOCIATES, OWNER DAUGHTERS, LLC*

POTENTIAL IMPACT

JOBS	*1,006*
TAXES	*$305,000*
TRAFFIC	*3,304 WEEKDAY TRIPS* *I-75 FM 41 TO JONESBORO RD 1.21*
AIR QUALITY IMPACT	*38.246 TONS NITROGEN OXIDE/YR* *13.291 TONS HYDROCARBONS/YR*
WATER DEMAND	*0.037 MGD*
WASTEWATER GENERATION	*0.032 MGD*
CLAYTON NE WWTP	*6.0 MGD PERMIT, 4.1+/- FLOW*
SOLID WASTE GENERATION	*6 TONS PER YR*
LITTLE COTTON INDIAN CREEK SMALL WATER SUPPLY WATERSHED	*68% IMPERVIOUS SURFACE*

STAFF RECOMMENDATION *IN BEST INTEREST OF STATE (based on agreement of local governments in the watershed to develop a protection plan)*

DEVELOPMENT OF REGIONAL IMPACT

SOUTHERN BONDED WAREHOUSE

Southern Bonded Warehouse, LLC, previously proposed to construct a warehouse development on Southlake Parkway. The originally proposed development was less than 700,000 sq.ft. and, therefore, was not a Development of Regional Impact (DRI).

Two buildings totaling 512,000 sq.ft. were constructed. Southern Bonded Warehouse now proposes to construct a third building with 292,800 sq.ft.. Since the total development would now exceed the 700,000 sq.ft. threshold, a DRI is now required.

BEV
PAH

Clayton County Commissioners

112 SMITH STREET
JONESBORO, GEORGIA 30236
PHONE: (770) 477-3208
FAX: (770) 477-3217

January 30, 1998

Mr. Harry West, Executive Director
Atlanta Regional Commission
200 Northcreek, Suite 300
3715 Northside Parkway
Atlanta, Georgia 30327-3809

Dear Mr. West:

Please let this letter serve as notice of Clayton County's commitment to develop a Cooperative Watershed Protection Plan with all the jurisdictions in the watershed. The Southern Bonded Warehouse Project will be considered a part of that plan and will include storm water pollution control to further mitigate its impact.

We ask that this project be allowed to proceed on the basis of our commitment to creating the watershed protection plan.

Should you have any questions concerning this please call us.

Sincerely,

C. Crandle Bray

C. Crandle Bray, Chairman
Clayton County Commission

CCB/kd

Clayton County
Commissioners
112 SMITH STREET
JONESBORO, GEORGIA 30236
PHONE: (770) 477-3208
FAX: (770) 477-3217

September 4, 1997

Mr. Harry West, Executive Director
Atlanta Regional Commission
200 Northcreek, Suite 300
3715 Northside Parkway
Atlanta, Georgia 30327-3809

Dear Mr. West:

Please let this letter serve as notice of Clayton and Henry Counties' commitment to develop a Cooperative Watershed Protection Plan with all the jurisdictions in the watershed. The Southern Bonded Warehouse Project will be considered a part of that plan and will include storm water pollution control to further mitigate its impact.

We ask that this project be allowed to proceed on the basis of our commitment to creating the watershed protection plan.

Should you have any questions concerning this please call us.

Sincerely,

C. Crandle Bray, Chairman
Clayton County Commission

Joy Day, Mayor
City of Jonesboro

under separate letter
Jim L. Joyner, Chairman
Henry County Commission

under separate letter
R. G. Kelley, Mayor
City of Stockbridge

CCB/JD/JLJ/RGK/kd

HENRY COUNTY 1821
THE JEWEL OF THE SOUTHERN CRESCENT

BOARD OF COMMISSIONERS

JIM JOYNER, Chairman

December 17, 1997

Mr. Harry West, Executive Director
Atlanta Regional Commission
200 Northcreek, Suite 300
3715 Northside Parkway
Atlanta, GA 30327-2809

RE: Development Review - Southern Bonded Warehouse Development on Southlake Parkway (Clayton County)

Dear Harry:

This is to confirm that I, and our county staff, have met with Clayton County concerning the planned addition to the Southern Bonded Warehouse project between Southlake Parkway and the Southern Railroad. The development impacts of this planned expansion from 512,000 square feet (under construction) to 804,800 square feet on watersheds in both counties has been reviewed.

I have further discussed the watershed issues with our Board of Commissioners, and we have agreed to work with Clayton County to work jointly on land use planning in the Cotton Indian Creek Basin for impervious surface regulation and to prepare watershed protection regulations.

Based on these agreements, we support the Southern Bonded Warehouse project in Clayton County.

Sincerely,

Jim L. Joyner, Chairman

345 PHILLIPS DRIVE - McDONOUGH, GEORGIA 30253 - (770) 954-2400 - FAX (770) 954-2418

City of Stockbridge

4545 North Henry Boulevard • Stockbridge, Georgia 30281
Phone: (404) 389-7900 • Fax: (404) 389-7912

January 28, 1998

Mr. Harry West, Executive Director
Atlanta Regional Commission
200 Northcreek, Suite 300
3715 Northside Parkway
Atlanta, GA 30327-2809

Re: **City of Stockbridge**

Dear Mr. West:

The representatives of the City have had ongoing discussions with Clayton County's representatives concerning the Southern Bonded Warehouse Development project and the impact the planned expansion will have on the Cotton Indian Creek Basin Watershed area.

Based upon the agreements reached with Clayton County, the City of Stockbridge has no objections to the Southern Bonded Warehouse Development project that is to be located between Southlake Parkway and the Southern Railway in Clayton County, Georgia. The City will also work with Clayton County and Henry County to develop a watershed protection agreement for the Cotton Indian Creek Basin.

Sincerely,

R.G. Kelley
Mayor

JLJ/ab

cc: Henry County Board of Commissioners
Crandle Bray, Chairman, Clayton County Board of Commissioners
Jim Risher, County Manager
Cal McShan, Director, Community Development

Facility: Southern Bonded Warehouse
Preliminary Report: July 14, 1997
Final Report: March 27, 1998

DEVELOPMENTS OF REGIONAL IMPACT

REVIEW REPORT

GENERAL

According to information on the review form or comments received from potentially affected governments:

Is the proposed project consistent with the host-local government's comprehensive plan? If not, identify inconsistencies.

Yes, according to information submitted with the review.

Is the proposed project consistent with any potentially affected local government's comprehensive plan? If not, identify inconsistencies.

No inconsistencies were identified.

Will the proposed project impact the implementation of any local government's short-term work program? If so, how?

No on Clayton County.

Will the proposed project generate population and/or employment increases in the Region? If yes, what would be the major infrastructure and facilities improvements needed to support the increase?

According to regional average, the 804,800 square feet of warehouse could accommodate 1,006 jobs.

What other major development projects are planned in the vicinity of the proposed project?

None.

Will the proposed project displace housing units or community facilities? If yes, identify and give number of units, facilities, etc.

No.

Will the development cause a loss in jobs? If yes, how many.

No.

LOCATION

Where is the proposed project located within the host-local government's boundaries?

The warehouse site is on the west side of Southlake Parkway and is between Mount Zion Road and Battle Creek Road. 84°20'30"/33°33'30".

Will the proposed project be located close to the host-local government's boundary with another local government? If yes, identify the other local government.

The site is in the vicinity of Morrow, Jonesboro, Riverdale, and Henry County, but not contiguous to any.

Will the proposed project be located close to land uses in other jurisdictions that would benefit or be negatively impacted by the project? Identify those land uses which would benefit and those which would be negatively affected and describe impacts.

See natural resources section concerning watershed protection.

ECONOMY OF THE REGION

According to information on the review form or comments received from potentially affected governments:

What new taxes will be generated by the proposed project?

$305,000 according to information submitted with the review.

How many short-term jobs will the development generate in the Region?

75.

Is the regional work force sufficient to fill the demand created by the proposed project?

Yes.

In what ways could the proposed development have a positive or negative impact on existing industry or business in the Region?

The development will compete with other warehousing in this portion of the region.

NATURAL RESOURCES

Watershed Protection

The proposed project site is located within the Little Cotton Indian Creek watershed, a small water supply watershed, and is located outside a seven mile radius of the water supply intake. No perennial streams, as indicated by a solid blue line on U.S.G.S quad sheets, exist within the proposed development site. However, a perennial headwater stream of Reeves creek, a tributary to Little Cotton Indian Creek, is located near the project site. The exact location of this headwater stream and proximity to the project site should be determined in the field. The following DNR minimum protection criteria shall apply:

1. A buffer shall be maintained for a distance of 50 feet on both sides of perennial streams as measured from the stream banks.

2. No impervious surface shall be constructed within a 75 foot setback on both sides of the perennial streams as measured from the stream banks.

3. Septic tanks and septic tank drainfields are prohibited in the setback area of (2) above.

4. The impervious surface area, including all public and private structures, utilities, or facilities, of the entire water supply watershed shall be limited to twenty-five (25) percent, or existing use, whichever is greater.

5. New facilities which handle hazardous materials of the types and amount determined by the Department of Natural Resources, shall perform their operations on impermeable surfaces having spill and leak collection systems as prescribed by the Department of Natural Resources.

When ARC staff initially received this DRI the local governments in the Little Cotton Indian Creek small water supply watershed had not agreed to develop a protection plan. However, they have now agreed.

Floodplains/Wetlands

The project is not within an area of 100 year floodplain, nor do any wetlands exits within the proposed site.

Storm Water / Water Quality

Steps should be taken to limit the amount of pollutants that will be produced during and after construction. During construction, the project should conform to the County's erosion and sediment control requirements. After construction, water quality can be impacted without storm water pollution controls. The amount of pollutants that will be produced after construction of the proposed Southern Bonded Warehouse Development was estimated by ARC. These estimates are based on some simplifying assumptions for typical pollutant loading factors (lbs\ac\year). The loading factors are based on the results of regional storm water monitoring data from the Atlanta Region. The following table summarizes the results of the analysis.

Estimated Pounds Of Pollutants Per Year

Land Coverage	Total Phosphorus	Total Nitrogen	BOD	TSS	Zinc	Lead
Light Industrial (approx. 50 ac)	64.6	856.4315.5	5,700	35,400.1	74.1	9.5

If the development is approved, the County should take steps to mitigate potential impacts. The Interim Regional Storm Water Quality Management Guidelines, adopted by the Atlanta Region, provide suggestions for addressing storm water quality. These guidelines offer general guidance for the control of post-development pollution in storm water (find attached).

Structural Storm Water Pollution Controls

Clayton County should require that the developer submit a storm water management plan as a key component of the Plan of Development that includes location, construction and design details and engineering calculations for all storm water quality control measures. Atlanta Regional Commission staff recommends that the County require that any structural controls be maintained at an 80% - 90% total suspended solids removal efficiency.

The Plan should also include a monitoring program to ensure storm water pollution control facilities function properly. Atlanta Regional Commission recommends that structural controls be designed to accommodate the installation, operation and maintenance of automatic equipment at inlet and outlet locations for the monitoring of flow rates and water quality. It is recommended that the monitoring program consists of the following minimum elements:

- monitoring of four storms per year (1 per quarter);
- collection of a flow weighted composite of the inflow to the structure during the entire storm event;
- collection of a flow weighted composite of the outflow from the structure - the sampling period should include the peak outflow resulting from the storm event;
- analysis of inflow and outflow flow weighted composite samples for biochemical oxygen demand (BOD), total suspended solids (TSS), zinc, lead, total phosphorus (TP) and total nitrogen (TKN & NO_3); and,
- collection of grab samples at the inlet and outlet locations during the periods of peak inflow and outflow for pH, dissolved oxygen (D.O.) and fecal coliform bacteria.

Clayton County Transportation and Development should finalize the number and size of storms to be monitored as well as who should be responsible for conducting the monitoring. Monitoring should be conducted at the developer's and owner's expense. Analysis should conform to EPA standards. Specific monitoring procedures and parameters analyzed may change in the future based on continuing storm water runoff and water quality studies.

The storm water plan should require the developer to submit a detailed, long-term schedule for inspection and maintenance of the storm facilities. This schedule should describe all maintenance and inspection requirements and persons responsible for performing maintenance and inspection activities. These provisions and the monitoring program should be included in a formal, legally binding maintenance agreement between the County and the responsible party.

In addition to inspections required in the storm water management plan, the formal maintenance agreement between the developer and Clayton County should allow for periodic inspections of the storm water facilities to be conducted by appropriate County personnel. If inadequate maintenance is observed, the responsible party should be notified and given a period of time to correct any deficiencies. If the party fails to respond, the County should be given the right to make necessary repairs and bill the responsible party.

The County should not release the site plans for development or issue any grading or construction permits until a storm water management plan has been approved, and a fully executed maintenance/monitoring agreement is in place.

HISTORIC RESOURCES

Will the proposed project be located near a national register site? If yes, identify site.

No.

In what ways could the proposed project create impacts that would damage the resource?

N/A.

In what ways could the proposed project have a positive influence on efforts to preserve or promote the historic resource?

N/A.

INFRASTRUCTURE
Transportation

How much traffic (both average daily and peak am/pm) will be generated by the proposed project?

Land Use	Acres Sq. Feet Units	Weekday	AM Peak Hour Enter	AM Peak Hour Exit	PM Peak Hour Enter	PM Peak Hour Exit
Warehouse (Bldg A)	292,800	1,420	134	57	76	142
Warehouse (total - includes 292,800 above)	804,800	3,304	279	108	164	304

The above trip generation figures were calculated using the Institute of Traffic Engineers Trip Generation (5th Edition) manual.

What are the existing traffic patterns and volumes on the local, county, state and interstate roads that serve the site?

The following volumes are based on 1995 GDOT coverage counts from area facilities that will likely provide the primary routes for traveling to the proposed development. 2010 volumes for these facilities were obtained from the ARC transportation model.

Facility	1995 Number of Lanes	1995 Volume	1995 V/C Ratio	2010 Number of Lanes	Forecast 2010 volume	2010 V/C Ratio
Morrow Industrial Boulevard between SR 3 and Jonesboro Rd (STA 1263)	4	22,880	0.52	4	36,000	0.82
Mount Zion Road Jonesboro Rd and Mount Zion Blvd. (STA 1265)	2	16,330	0.71	4	25,700	0.56
Battlecreek Road between SR 3/US41/Old Dixie Hwy. and Jonesboro Rd (STA 1352)	2	6,010	0.25	4	20,100	0.17
Battlecreek Road between Jonesboro Road and Mount Zion Blvd. (STA 1354)	2	5,250	0.23	4	17,300	0.37
Jonesboro Road between Battlecreek and Interstate 75 (STA 1078)	4	36,080	0.80	4	58,500	1.29

Interstate 75 between US 41 and Jonesboro Road (STA 1189)	6	106,550	1.01	8	127,800	1.21
Interstate 75 between Jonesboro Road and SR 138(STA 414)	8	80,220	0.54	8	116,200	0.78

The above table indicates that roads in the vicinity of the site operate either at capacity or greatly exceed capacity.

What transportation improvements are under construction or planned for the Region that would affect or be affected by the proposed project? What is the status of those improvements (long or short range or other)?

The ARC's adopted Atlanta Regional Transportation Improvement Program FY 1996 - FY 2001 (TIP), as amended September 25, 1996, includes the following proposed projects in the vicinity of this site:

CL 017 Battle Creek Road from Southlake Parkway to Valley Hill Road. Two to four lanes. Construction scheduled for FY 1999.

CL 019 Mt. Zion Blvd. from South Lake Parkway to Lake Harbin Road. Two to four lanes. Construction scheduled sometime after 2001.

CL-AR-31 I-75 at Jonesboro Road (SR 54). Interchange improvement, including railroad bridge over I-75. Construction scheduled for FY 1998.

CL 078 Morrow Road at Jesters Creek. Bridge improvement. Construction scheduled for 1996.

The long range element of ARC's Regional Transportation Plan: 2010 includes the following projects in the vicinity of this site:

CL 017 Widening Valley Hill Road/ Battle Creek Road from US 41/19 to Upper Riverdale Road from 2 to 4 lanes. No work is scheduled to begin until FY 2002 or later.

Cl 063 Widening Jonesboro Road (SR 54) from SR 138 Spur to Oxford Drive from 4 to 6 lanes. No work is scheduled to begin until FY 2002 or later.

CL 068 Constructing Mt. Zion Parkway from Fielder Road to the Henry County line from 0 to 4 lanes. No work is scheduled to begin until FY 2002 or later.

CL 087 Widening Southlake Parkway from Mt. Zion Blvd. to Mt. Zion Road from 2 to 4 lanes. No work is scheduled to begin until FY 2002 or later.

CL-R 090 Widening US 41/19 from I-75 to SR 54 from 6 to 10 lanes. No work is scheduled to begin until FY 2002 or later.

The Atlanta Region Bicycle and Pedestrian Walkways Plan, 1995 Update includes the long term projects. These projects have not been scheduled for construction.

Morrow Industrial Blvd. from Tara Blvd. to Jonesboro Road (SR 54). Sidewalk.

Battlecreek Road from Valley Hill Road to Mount Zion Blvd. Sidewalk.

Morrow Industrial Blvd. from Morrow Industrial to Forest Parkway. Multi-use trail.

Will the proposed project be located in a rapid transit station area? If yes, how will the proposed project enhance or be enhanced by the rapid transit system?

No.

Is the site served by transit? If so, describe type and level of service.

No.

Are there plans to provide or expand transit service in the vicinity of the proposed project?

No.

What transportation demand management strategies does the developer propose (carpool, flex-time, transit subsidy, etc.)?

None.

What is the cumulative generation of this and other DRIs or major developments? Is the transportation system (existing and planned) capable of accommodating these trips?

While the majority of streets and highways operate at an acceptable level of service throughout the day, the level of service deteriorates at many intersections during the morning and evening peak hours.

In order to reduce the impact of this development and ensure the integrity and efficient operation of the Atlanta Region's transportation facilities, the developer and County officials should work with ARC, MARTA and the Georgia Department of Transportation to identify appropriate transportation projects and programs that can be formulated and included in local and regional transportation plans to mitigate the impact of this development on the street system. For example, Southlake Parkway is planned to have future sidewalk.

Consideration should be given to sidewalk being installed at the time of construction of the building, or the appropriate cost of constructing the sidewalk placed in escrow until such time that it is actually constructed.

INFRASTRUCTURE

Wastewater and Sewage

How much wastewater and sewage will be generated by the proposed project?

Regional averages would suggest .032 MGD for the entire 804,800 square foot development.

Which facility will treat wastewater from the project?

Clayton's Northeast Plant.

What is the current permitted capacity and average annual flow to this facility?

6.0 = Permitted capacity.
4.1 = Current average flow.

What other major developments will be served by the plant serving this project?

None.

AIR QUALITY ANALYSIS

Methodology

The emissions analysis for the proposed Southern Bonded Warehouse in Clayton County was based on trip generation estimates for the facility broken into respective automobile and commercial trip elements. The analysis was performed using building square footages to drive trip generation.

The estimated emissions for automobiles are based on light duty gasoline vehicles (passenger automobiles), with a mix of peak and off peak travel and 20% cold start conditions. The commercial trips associated with the warehouse portion are based on a mix of light duty gas and diesel vehicles and heavy duty diesel trucks. The estimates of truck trips have been produced using ITE trip generation estimates and are assumed for purposes of this analysis. However, characteristics of anticipated truck activity were not readily available so a regional average of truck trip length by vehicle type was assumed for the purpose of this analysis.

Results
Estimates for both hydrocarbons and nitrogen oxides resulting from this development are presented in the following table.

Total Development

	TONS PER YEAR	TONS PER DAY	TONS PER ACRE
Nitrogen Oxides	38.246	0.053	2.079
Hydrocarbons	13.291	0.028	0.722

Building A only

	TONS PER YEAR	TONS PER DAY	TONS PER ACRE
Nitrogen Oxides	17.308	0.023	0.941
Hydrocarbons	5.936	0.012	0.323

This analysis does not show levels of emissions which exceed acceptable thresholds for the Atlanta nonattainment area.

INFRASTRUCTURE
Water Supply and Treatment

How much water will the proposed project demand?

Again, according to regional averages the entire development could have a demand for 0.037 MGD of water.

How will the proposed project's demand for water impact the water supply or treatment facilities of the jurisdiction providing the service?

Minimal impact.

INFRASTRUCTURE
Solid Waste

How much solid waste will be generated by the project? Where will this waste be disposed?

Information submitted indicates 6 tons annually.

Other than adding to a serious regional solid waste disposal problem, will the project create any unusual waste handling or disposal problems?

No.

Are there any provisions for recycling this project's solid waste.

None stated.

INFRASTRUCTURE
Other facilities

According to information gained in the review process, will there be any unusual intergovernmental impacts on:

- Levels of governmental service?
- Administrative facilities?
- Schools?
- Libraries or cultural facilities?
- Fire, police, or EMS?
- Other government facilities?
- Other community services/resources (day care, health care, low income, non-English speaking, elderly, etc.)?

No.

HOUSING

Will the proposed project create a demand for additional housing?

Slight demand.

Will the proposed project provide housing opportunities close to existing employment centers?

No.

Is there housing accessible to the project in all price ranges demanded?

Yes.

Is it likely or unlikely that potential employees of the proposed project be able to find affordable* housing?

Likely.

* Defined as 30 percent of the income of a family making 80 percent of the median income of the Region. 1996 median family income of $52,100 for Atlanta MSA.

May 22, 1995

ARC Storm Water Management Task Force
INTERIM STORM WATER QUALITY MANAGEMENT GUIDELINES

Introduction

The following are suggested interim guidelines for local governments that want to protect and improve water quality by minimizing the potential harmful impacts generated by pollution in storm water runoff from urban land uses. These guidelines are focused on practices to minimize long-term impacts of developed areas on water quality. In general, the objectives of these interim guidelines include minimizing imperviousness, providing areas to capture overland flow of storm water and allow it to infiltrate into the soil, treating other runoff that leaves a developed site and designing sites to protect water quality.

Although many pollutants in storm water runoff must be considered in storm water design, one of the primary pollutants used as a design parameter is total suspended solids, or TSS. The following table is provided as information on post-development characteristics of average annual TSS loads (pounds per acre per year) associated with various land uses and development types. The source of this information is based on storm water samples collected for the Atlanta Region Storm Water Characterization Study and is supplemented with national data for the non-urban land uses.

Land Use	TSS (lbs/ac/yr.)
Forest/Open	235
Agriculture/Pasture/Cropland	327
Large Lot Single Family (>2ac)	355
Low Density S.F. (1-2ac)	447
Low-Medium Density S.F. (0.5-1.0ac)	639
Medium Density S.F. (0.25-0.5ac)	801
Townhouse/Apartment	605
Commercial	983
Office/Light Industrial	708
Heavy Industrial	795

The Atlanta Region Storm Water Management Task Force is working to develop a detailed manual of Best Management Practices (BMPs) for reducing TSS and other pollutants in storm water runoff from urban areas. The Task Force generated the following protection measures as interim recommendations to be used until the BMP manual is completed. This guidance document includes a variety of recommended practices which are presented below as options for developers and engineers to consider in designing controls for storm water runoff quality from developed areas. These practices are options and may be used alone or in combination - selection of appropriate controls will be site-specific.

Practice 1: Minimize Impervious Surface

This option may be most appropriately applied to larger sites. Minimizing the amount of impervious surface on a site allows for more infiltration of storm water into the ground, thereby reducing both pollutants and the runoff from the site. This approach to managing storm water runoff does not require extensive maintenance. Therefore, when possible, limiting impervious surface on a site should be encouraged. This basically involves leaving part of a site undeveloped to achieve lower percentages of impervious surface. It is recommended that impervious surface on a site be limited to the impervious surface equivalent to medium density, single family residential (approximately 1/4 - 1/2 acre average lot sizes) development. This type of development typically has 25% or less impervious surface. If a developer restricts impervious surface to these levels, construction of structural controls for water quality would probably not be necessary. Any development more dense than medium density single family residential should employ structural controls (see Practice 2 below).

The development site should be planned so that open space areas act as a pollutant filter and buffer for storm water flow from the site. Environmentally sensitive portions of a development site such as river and stream corridors and wetlands should be targeted for the undeveloped, "open space" or "greenbelt" areas. Local governments can encourage the concept of "cluster development," which allows higher levels of impervious (over 25%, for example) on portions of a site if sensitive areas are left undeveloped and maintained as undisturbed open space and they function to reduce the pollutant load in storm water runoff. Provisions should be made so that any open space areas are maintained in their natural state. If any development in these areas occurs in the future, the site would have to be re-reviewed, for storm water quality purposes, by the local government.

As a general guideline to local governments, several studies indicate that watershed-wide impervious surface amounts should not exceed 10-25% of the total land area in a water supply watershed.

Practice 2: Structural Controls

If the developer selects storm water management options which involve structural controls, it is important for local governments to require that the developer submit a Storm Water Management Plan as a key component of the Plan of Development. The storm water plan should include the location, construction and design details and all engineering calculations for all storm water quality control measures.

Wet Ponds

This practice recommends that structural controls be designed to control water quality in addition to the quantity controls typically required by local governments. At this time, the preferred approach to achieve water quality goals is construction of wet ponds. However, wet ponds may be more appropriately suited for larger developments or a group of developments. To develop an appropriate wet pond, additional storage provided above the permanent pool, combined with an appropriately designed outlet control structure, could give the necessary control for both storm water quality and quantity. Other structural control methods such as constructed wetlands could be explored as long as they were shown to achieve the desired pollutant removal.

As an example, the following design guidelines typically achieve a TSS reduction of 65%.

- Keep pond shape simple for good circulation.
- Inlets should be widely spaced from the outlets to avoid short-circuiting.
- Length should be three to five times the width.
- At least three, and preferably six to seven feet of permanent pool depth is needed for the majority of the pond.
- An underwater shelf (approximately 6"-12" deep and at least 3' wide) around the perimeter of the pond should be planted with rooted aquatic plant species.
- The pond should be designed with a sediment forebay which is easily accessible for maintenance and periodic cleaning. The forebay should be designed so as to minimize the resuspension of previously deposited sediments. The forebay storage capacity should be about 10% of the permanent pool storage to accommodate sediment accumulations over a 10- to 20-year period.
- The pond surface area should correspond to approximately 1% of the total drainage area. The minimum drainage area is 20-25 acres; the maximum is 100-300 acres depending on the level of imperviousness in the drainage basin.
- For water quality benefits, the pond should provide storage for runoff depths as listed below. The pond volume above the normal pool required for water quality may be calculated by multiplying the runoff depth by the contributing drainage area.

	Inches of Runoff	
Land Use	Sandy Soil	Clayey Soil
Freeways	0.35	0.40
Totally Paved Area	1.10	1.10
Industrial	0.85	0.90
Commercial	0.75	0.85
Schools	0.20	0.40
Low Density Res.	0.10	0.30
Medium Density Res.	0.15	0.35
High Density Res.	0.20	0.40
Developed Parks	0.50	0.60

- Storage for flood control should be provided above the level of storage provided for water quality benefits.
- The ratio of outlet flow rate to pond surface area for each stage value needs to be at the most 0.002 cfs/ft^2 for the water quality portion.

Extended Detention with Wetland Plantings

For smaller sites, with a drainage area less than 20-25 acres, it may be appropriate for the developer to use the option of a detention facility system established to provide water quality improvement through much longer detention times in contact with wetland plantings. Research has shown that storm water impounding areas which capture the first flush of runoff in a wetland setting for several days, in concert with an outlet control system for extending the detention times of larger storms, demonstrate measurable improvements in water quality. As an example, the following general design guidelines typically achieve a TSS reduction of between 45 and 80%.

If this type of system is desired, the pond area should follow the 1% of drainage basin rule presented above. The first flush capture should be at least 1/2 inch runoff from all impervious surfaces. The bottom of the pond should be cultivated with plantings indigenous to local wetlands. The first flush should be held so as to prevent its complete release in less than a 48 hour period. Each pond should provide the forebay sediment storage area already presented, as well as layout to prevent short circuit. Water velocity through the pond should be kept as low as possible with a maximum goal of 1/2 fps. Where possible, the outlet control system should be located adjacent to a public street to allow maximum access.

Maintenance of Structural Controls

If structural storm water controls are not maintained properly, they will provide no benefit. The developer's Storm Water Management Plan should require the developer to submit a detailed, long-term schedule for inspection and maintenance of any structural storm water facilities included. This schedule should be consistent with the maintenance policy of the local government and should describe all maintenance and inspection requirements and persons responsible for performing maintenance and inspection activities. Provisions should be made for the local government to inspect the facilities during and after construction.

Practice 3: Other Controls

Many of the following suggested controls are applicable to all developments. In general, the objectives of the following storm water runoff controls include minimizing imperviousness, providing areas to capture overland flow of storm water and allow it to infiltrate into the soil, reducing sediment flows, and avoiding directly connected impervious surface areas.

Building/Site Design

- Direct roof downspouts away from direct connection with impervious surfaces.
- Use grassed swales/vegetative filter strips whenever feasible for the drainage collection system (eliminate curb and gutter). Because of decreased storm water runoff, a reduction in pollutant loads will also be realized.
- Landscape with terraces rather than aggressive slopes.
- Encourage the use of bioengineering practices to rehabilitate unstable stream channels resulting from impacts of urbanization.
- Protect and maintain natural, undisturbed buffers adjacent to streams.
- Keep development out of wetland and floodplain areas. Encourage incorporating wetlands into landscaping, upgrading wetlands where possible.
- Design and locate buildings, roads, parking and landscaping to conform with the natural terrain and to retain natural features.
- Minimize impervious surface in river and stream corridors.

Erosion and Sediment Controls

- Leave generous buffers or natural areas between bare land areas.
- Regrass/landscape bare soil.
- Check for volume transfer and velocities of water downstream of project to protect downstream areas from increased erosion and to prevent streambank and natural area destruction.
- For controls during construction, refer to the State Erosion and Sediment Control Act and pending State construction permit.

Recommended References

- United States Environmental Protection Agency, January 1993. Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters.

- Schueler, Thomas R., Department of Environmental Programs, Metropolitan Washington Council of Governments, July 1987. Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs.

- Georgia Soil & Water Conservation Commission, Metro Atlanta Association of Conservation Districts, USDA Soil Conservation Service and Georgia Environmental Protection Division, 1994. Guidelines for Streambank Restoration.

- Pitt, Dr. Robert E. Excerpts from Detention Pond Design to Control Quality and Quantity, University of Alabama, Birmingham Continuing Education Workshop. For more information, contact David Eckhoff, Director of Engineering Professional Development, (205)934-8268.

- Camp Dresser & McKee, prepared for the Atlanta Region Storm Water Task Force, Atlanta Region Storm Water Characterization Study, 1993.

DRI AIR QUALITY ANALYSIS FOR SOUTHERN BONDED WAREHOUSE

	Total Trips	Peak Trips	Off-peak Trips	Peak VMT	Off-peak VMT	NOx G/D	HC G/D	NOx T/D	HC T/D	NOx T/Y	HC T/Y
APT/HOUSE											
	0	0	0	0	0	0.00	0.00	0.000	0.000	0.000	0.000
WAREHOUSE											
Warehouse(A)	1,004	650	354	8,450	2,478	14,008.90	10,078.54	0.015	0.011	4.015	2.889
Warehouse (LD)	1,656	1,073	584	16,055	8,735	33,993.50	15,313.41	0.037	0.017	9.743	4.389
Warehouse (MD)	253	164	89	3,254	1,770	7,090.89	3,854.59	0.008	0.004	2.032	1.105
Warehouse (HD)	391	253	138	5,769	3,138	78,353.59	17,129.48	0.086	0.019	22.456	4.909
INDUSTRIAL											
	0	0	0	0	0	0.00	0.00	0.000	0.000	0.000	0.000
Impact of Total Development								**0.053**	**0.028**	**38.246**	**13.291**

* Reductions for passby trips, if any, based on ITE Trip Generation passby descriptions.

	NOx	VOC
Tons per acre	**2.079**	**0.722**

8-Aug-97

File #R707141

Assumptions:

1. Auto Emissions factors based on 20% CS for LDGV for a mix of peak and off peak highway speeds for 1999.
2. Average commute trip length in region = 13 miles
3. Average Non-work trip length in region = 7 miles
4. Reasonableness threshold = 50 tons per year
5. Average Heavy Duty Truck Trip = 22.78 miles (Atlanta Area Commercial Vehicle Survey 1/97)
6. Average Light Duty Truck Trip = 14.97 miles (Atlanta Area Commercial Vehicle Survey 1/97)
7. Average Medium Duty Truck Trip = 19.86 miles (Atlanta Area Commercial Vehicle Survey 1/97)
8. Estimations of average vehicle speeds for freeways developed using GDOT speed monitoring program
9. Estimations of average vehicle speeds for arterials developed using ARC travel time modeling

Calculations:

Perform each of the following steps for each different type of land use included in the proposed development

1. Total trips derived from Trip Generation Manual based upon development type and number of units and square footages.
2. Trip generation estimates are divided into AM and PM peak based on entries and exits.
   The total of peak (AM+PM)*2.5 entries and exits = peak period auto trips
3. Reduce PM Peak trips to account for passby and internal trips as per percentages noted in ITE Trip Generation Manual
4. Peak VMT derived by multiplying peak trips by average commute distance in region
5. Off peak VMT derived by multiplying off-peak trips by average non-work trip in region
6. Derive Emissions totals for NOx in grams per day
   Multiply Peak VMT by MOBILE5A peak off hwy emissions factor (speed = 21.1mph)
   Multiply Off-peak VMT by MOBILE5A off peak off hwy emissions factor (speed = 26.8mph)
   Sum total of peak + off peak to get total NOx emissions in grams per day
7. Derive emissions totals for VOC in grams per day
   Multiply Peak VMT by MOBILE5A peak off hwy emissions factor (speed = 21.1mph)
   Multiply Off-peak VMT by MOBILE5A off peak off hwy emissions factor (speed = 26.8mph)
   Sum total of peak + off peak to get total NOx emissions in grams per day
12. Convert to tons per day
    Divide total emissions derived from step 7 by 907180 for both VOC and NOx
13. Convert to tons per year
    Multiply total emissions derived from step 8 by 260 (number of weekdays in a year)
14. To obtain the impact of the total development sum the emissions generated by each different piece (e.g. office, retail, residential)

Land Use	Sq. Feet or Units	Weekday Trips	AM Peak Hour Enter	AM Peak Hour Exit	PM Peak Hour Enter	PM Peak Hour Exit
Office Space						
Medical Office						
Retail Space						
Hotel						
Multi-Family						
Single Family						
Residential						
Townhomes						
Warehouse (A)		*1004*	*85*	*33*	*50*	*92*
Warehouse (LD)		*1656*	*140*	*54*	*82*	*153*
Warehouse (MD)		*253*	*21*	*8*	*13*	*23*
Warehouse (HD)		*391*	*33*	*13*	*19*	*36*
Industrial						

Trip Generation estimates obatined from ITE Trip Generation Manual

Total Peak Period	AM Enter+Exit	PM Enter+Exit	Reduced PM Passby*
Office Space	0	0	0
Medical Office	0	0	0
Retail Space	0	0	0
Hotel	0	0	0
Multi-Family	0	0	0
Single Family	0	0	0
Residential	0	0	0
Townhomes	0	0	0
Warehouse (Auto)	295	355	355
Warehouse (LD)	485	587.5	587.5
Warehouse (MD)	72.5	90	90
Warehouse (HD)	115	137.5	137.5
Industrial	0	0	0

* Reduction for passby trips, if any, based on ITE Trip Generation passby descriptions.

	Total Trips	Total Peak Trips	% Peak Trips	% Off-Peak Trips
Office Space	0	0	0%	0%
Medical Office	0	0	0%	0%
Retail Space	0	0	0%	0%
Hotel	0	0	0%	0%
Multi-Family	0	0	0%	0%
Single Family	0	0	0%	0%
Townhomes	0	0	0%	0%
Total Residential	0	0	0%	0%
Warehouse (A)	1004	650	65%	35%
Warehouse (LD)	1656	1072.5	65%	35%
Warehouse (MD)	253	162.5	64%	36%
Warehouse (HD)	391	252.5	65%	35%
Industrial	0	0	0%	0%

DRI AIR QUALITY ANALYSIS FOR SOUTHERN BONDED WAREHOUSE
Building A only

	Total Trips	Peak Trips	Off-peak Trips	Peak VMT	Off-peak VMT	NOx G/D	HC G/D	NOx T/D	HC T/D	NOx T/Y	HC T/Y
APT/HOUSE											
	0	0	0	0	0	0.00	0.00	0.000	0.000	0.000	0.000
WAREHOUSE											
Warehouse(A)	362	260	102	3,380	714	5,104.60	3,773.62	0.006	0.004	1.463	1.082
Warehouse (LD)	762	548	214	8,204	3,204	15,731.67	7,144.28	0.017	0.008	4.509	2.048
Warehouse (MD)	116	85	31	1,688	616	3,272.73	1,796.73	0.004	0.002	0.938	0.515
Warehouse (HD)	180	130	50	2,961	1,139	36,281.71	7,995.78	0.040	0.009	10.398	2.292
INDUSTRIAL											
	0	0	0	0	0	0.00	0.00	0.000	0.000	0.000	0.000
Impact of Total Development								**0.023**	**0.012**	**17.308**	**5.936**

* Reductions for passby trips, if any, based on ITE Trip Generation passby descriptions.

	NOx	VOC
Tons per acre	**0.941**	**0.323**

8-Aug-97

File #R707141

Assumptions:

1. Auto Emissions factors based on 20% CS for LDGV for a mix of peak and off peak highway speeds for 1999.
2. Average commute trip length in region = 13 miles
3. Average Non-work trip length in region = 7 miles
4. Reasonableness threshold = 50 tons per year
5. Average Heavy Duty Truck Trip = 22.78 miles (Atlanta Area Commercial Vehicle Survey 1/97)
6. Average Light Duty Truck Trip = 14.97 miles (Atlanta Area Commercial Vehicle Survey 1/97)
7. Average Medium Duty Truck Trip = 19.86 miles (Atlanta Area Commercial Vehicle Survey 1/97)
8. Estimations of average vehicle speeds for freeways developed using GDOT speed monitoring program
9. Estimations of average vehicle speeds for arterials developed using ARC travel time modeling

Calculations:

Perform each of the following steps for each different type of land use included in the proposed development

1. Total trips derived from Trip Generation Manual based upon development type and number of units and square footages.
2. Trip generation estimates are divided into AM and PM peak based on entries and exits.
   The total of peak (AM+PM)*2.5 entries and exits = peak period auto trips
3. Reduce PM Peak trips to account for passby and internal trips as per percentages noted in ITE Trip Generation Manual
4. Peak VMT derived by multiplying peak trips by average commute distance in region
5. Off peak VMT derived by multiplying off-peak trips by average non-work trip in region
6. Derive Emissions totals for NOx in grams per day
   Multiply Peak VMT by MOBILE5A peak off hwy emissions factor (speed = 21.1mph)
   Multiply Off-peak VMT by MOBILE5A off peak off hwy emissions factor (speed = 26.8mph)
   Sum total of peak + off peak to get total NOx emissions in grams per day
7. Derive emissions totals for VOC in grams per day
   Multiply Peak VMT by MOBILE5A peak off hwy emissions factor (speed = 21.1mph)
   Multiply Off-peak VMT by MOBILE5A off peak off hwy emissions factor (speed = 26.8mph)
   Sum total of peak + off peak to get total NOx emissions in grams per day

12. Convert to tons per day
    Divide total emissions derived from step 7 by 907180 for both VOC and NOx
13. Convert to tons per year
    Multiply total emissions derived from step 8 by 260 (number of weekdays in a year)
14. To obtain the impact of the total development sum the emissions generated by each different piece (e.g. office, retail, residential)

Trip Generation for Building A only

Land Use	Sq. Feet or Units	Weekday Trips	AM Peak Hour Enter	AM Peak Hour Exit	PM Peak Hour Enter	PM Peak Hour Exit
Office Space						
Medical Office						
Retail Space						
Hotel						
Multi-Family						
Single Family						
Residential						
Townhomes						
Warehouse (A)		*362*	*34*	*15*	*19*	*36*
Warehouse (LD)		*762*	*72*	*30*	*41*	*76*
Warehouse (MD)		*116*	*11*	*5*	*6*	*12*
Warehouse (HD)		*180*	*17*	*7*	*10*	*18*
Industrial						

Trip Generation estimates obatined from ITE Trip Generation Manual

Total Peak Period	AM Enter+Exit	PM Enter+Exit	Reduced PM Passby*
Office Space	0	0	0
Medical Office	0	0	0
Retail Space	0	0	0
Hotel	0	0	0
Multi-Family	0	0	0
Single Family	0	0	0
Residential	0	0	0
Townhomes	0	0	0
Warehouse (Auto)	122.5	137.5	137.5
Warehouse (LD)	255	292.5	292.5
Warehouse (MD)	40	45	45
Warehouse (HD)	60	70	70
Industrial	0	0	0

* Reduction for passby trips, if any, based on ITE Trip Generation passby descriptions.

	Total Trips	Total Peak Trips	% Peak Trips	% Off-Peak Trips
Office Space	0	0	0%	0%
Medical Office	0	0	0%	0%
Retail Space	0	0	0%	0%
Hotel	0	0	0%	0%
Multi-Family	0	0	0%	0%
Single Family	0	0	0%	0%
Townhomes	0	0	0%	0%
Total Residential	0	0	0%	0%
Warehouse (A)	362	260	72%	28%
Warehouse (LD)	762	547.5	72%	28%
Warehouse (MD)	116	85	73%	27%
Warehouse (HD)	180	130	72%	28%
Industrial	0	0	0%	0%