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

Harry West
Director

March 4, 1998

Honorable Randy Poynter, Chairman
Rockdale County Commission
P.O. Box 289
Conyers, GA. 30012

Re: Development of Regional Impact
McCalla Road Subdivision (Old Salem Township)

Dear Randy:

I am writing to let you know that the ARC staff has completed the Development of Regional Impact (DRI) review of the proposed McCalla Road Subdivision (Old Salem Township). Our finding is that the proposed DRI is in the best interest of the State. For information, this favorable review is based on the developer's contract to purchase the land contingent upon the availability of sewer for the site with the initial takedown being only the forty acres for which wastewater treatment capacity is currently available.

Enclosed is a copy of our detailed review report on this DRI. If you have any questions about the review or need any further information, please call me or Beverly Rhea (404-364-2562).

We appreciate the opportunity to review this proposed development.

Sincerely,

Harry West
Director

Enclosure

c Mr. John Bell, Rockdale County Planning
Mr. Derek Harris, Torrey Homes
Mr. Wayne Shackelford, GDOT
Mr. Harold Reheis, GEPD
Mr. Paul Radford, GDCA

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 PROPOSED TORREY HOMES DEVELOPMENT

Trip Generation Rates (by sq.feet of retail, office, and hotel space)

	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
OFFICE											
Hi-Mid Rise	0	0	0	0	0	0.00	0.00	0.000	0.000	0.000	0.000
Medical	0	0	0	0	0	0.00	0.00	0.000	0.000	0.000	0.000
RETAIL/SERVICE											
	0	0	0	0	0	0.00	0.00	0.000	0.000	0.000	0.000
HOTEL											
	0	0	0	0	0	0.00	0.00	0.000	0.000	0.000	0.000
APT/HOUSE											
	5,457	1,653	3,805	21,485	26,632	53,573.88	44,534.48	0.059	0.049	15.354	12.764
INDUSTRIAL											
Autos	0	0	0	0	0	0.00	0.00	0.000	0.000	0.000	0.000
Trucks	0	0	0	0	0	0.00	0.00	0.000	0.000	0.000	0.000
Impact of Total Development								**0.059**	**0.049**	**15.354**	**12.764**

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

	NOx	VOC
Tons per acre	**0.026**	**0.012**

3/3/98 File #

Assumptions:

1. Auto Emissions factors based on 20% CS for LDGV for a mix of peak and off peak highway speeds for 19

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 development included in the proposed develop

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 hwy emissions factor (speed = 36.8mph)
   Multiply Off-peak VMT by MOBILE5A off peak hwy emissions factor (speed = 55 mph)
   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 hwy emissions factor (speed = 36.8mph)
   Multiply Off-peak VMT by MOBILE5A off peak hwy emissions factor (speed = 55 mph)
   Sum total of peak + off peak to get total NOx emissions in grams per day
8. Derive Emissions totals for NOx in grams per day for retail portion.
   Multiply Peak VMT by MOBILE5A peak hwy emissions factor (speed = 36.8 mph)
   Multiply Off-Peak VMT by MOBILE5A off peak emissions factor (speed = 55 mph)
9. Derive Emissions totals for VOC in grams per day for retail portion.
   Multiply Peak VMT by MOBILE5A peak hwy emissions factor (speed = 36.8 mph)
   Multiply Off-Peak VMT by MOBILE5A off peak emissions factor (speed = 55 mph)
10. Convert to tons per day.
    Divide total emissions derived from step 7 by 907180 for both VOC and NOx
11. Convert to tons per year
    Multiply total emissions derived from step 8 by 260 (number of weekdays in a year)
12. To obtain the impact of the total development sum the emissions generated by each different piece (e.g. office, retail, residential)

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March 3, 1998

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

Dear Ms. Rhea:

Per your request on 3/3/98, I am supplying you with a letter which describes the takedown schedule for Olde Salem Township located in Rockdale County.

Our initial takedown will be forty (40) acres of the total one hundred sixty-one (161) available acres. The county has said that current capacity will handle this particular takedown, however; additional capacity will be have to be added before we can continue to develop the remaining three phases of the project. Our contract to purchase the land is contingent upon the availability of sewer for the site. The contract states that we will not close on any portion of the land until we have received confirmation from the county that sewer is available for the proposed lot. Once we have received such confirmation we will close the land and purchase the sewer taps before developing the land in order to assure that sewer will be provided for each lot within the phases.

I hope this addresses your concern regarding this matter and should you have any additional questions or concerns, please feel free to contact me at (770) 431-8311 ext. 2235.

Sincerely,

Derek Harris
Acquisitions and Development Manager

cc: File

Facility: Torrey Homes McCalla Road Subdivision
Preliminary Report: February 9, 1998
Final Report: March 4, 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. The property is zoned for a much higher density residential use than what is planned (3.94 units/acre) and is designated for multi-family use in the county's Land Use Plan.

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

No inconsistencies were identified in the review.

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

No impacts were identified.

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?

The proposed subdivision could accommodate a population of 1,585 including 460 students according to regional averages. Currently, McCalla Road is unpaved but the county has budgeted and scheduled improvements to it for Summer 1998. The county also plans to increase capacity for wastewater treatment.

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 site is in southeast Rockdale County between Ellington and McCalla Roads.
33°37′/83°59′

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 less than a mile from the Rockdale/Newton boundary.

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.

No.

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?

Not available until specific mix and price of housing units is determined.

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

100

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 subdivision will compete with other nearby developments.

NATURAL RESOURCES

Watershed Protection
The proposed project site is not located within a water supply watershed.

Floodplains
The proposed project is not located on the 100- or 500-year floodplain.

Georgia Erosion and Sedimentation Act / Stream Buffer Requirements
This act requires that a 25 ft. wide natural vegetated buffer be maintained on both sides of streams designated as "State Waters." ARC recommends that the developer work with the state to determine if the intermittent streams located within the proposed site are considered "State Waters," and provide protection measures if appropriate.

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 Torrey Homes Subdivision was estimated by ARC. These estimates 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
Medium Density SF (161ac)	217.35	951.51	6923.00	128961.00	54.74	12.88

If the development is approved, Rockdale 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.

Wastewater and Sewage

The proposed project is within the Snapping Shoals wastewater treatment facility service area. The current permitted capacity of the Snapping Shoals plant is 0.450 millions of gallons per day (MGD) with an average annual flow of 0.449MGD. The proposed development will generate approximately 0.254MGD wastewater. The Torrey Homes project will exceed the permitted capacity of the Snapping Shoals treatment plant, however, current plans to relieve this problem will include the addition of a pumping line to the Quiggs Branch treatment facility (permitted capacity 4.00MGD, average annual flow 2.55MGD). Construction of the pumping line is tentatively scheduled for completion prior to the first phase of the proposed Torrey Homes project. Furthermore, the developer has stated that purchase and development of each phase of the project will be contingent upon available wastewater treatment.

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?

			AM Peak Hour		PM Peak Hour	
Land Use	**Units**	**Weekday**	**Enter**	**Exit**	**Enter**	**Exit**
single family detached housing	634	**5,655**	104	296	371	200

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 1996 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	1996			2010		
	Lanes	Volume	V/C Ratio	Lanes	Volume	V/C Ratio
Salem Rd from Newton County to Flat Shoals Rd	2	17,600	0.7	2	19,216	0.8
Salem Rd from Flat Shoals Rd to I-20	4	22,600	0.4	4	33,518	0.6
I-20 from Salem Rd to SR 20/138	6	60,500	0.5	6	87,200	0.7
I-20 from SR 20/138 to Newton County	6	52,000	0.4	6	90,500	0.8
SR 20/138 from Flat Shoals Rd to I-20	6	41,400	0.5	6	47,100	0.6

This table indicates major area roads have adequate roadway capacity to serve existing traffic. The table also suggests adequate roadway capacity to serve projected 2010 traffic.

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 Interim Atlanta Regional Transportation Improvement Program FY 1998 - FY 2000 (ITIP) as adopted January 28, 1998 includes the following proposed projects in the vicinity of this site:

RO 025C Flat Shoals Rd from Salem Rd to Old Salem Rd. 2 to 4 lanes. PE authorized. local ROW in 1998, CST after FY 2000.

RO 035B SR 138/SR 20 - Relocation of Old Salem away from I-20. PE, ROW authorized, CST scheduled for FY 1998.

The long range element of ARC's Regional Transportation Plan: 2010 (1995 update) includes the following projects in the vicinity of this site:

RO 025 Flat Shoals Rd from Salem Rd to SR 20. 2 to 4 lanes.

The Atlanta Region Bicycle and Pedestrian Walkways Plan, 1995 Update includes no projects in the vicinity of this site. However, the Rockdale County 1998 Master Trails Plan includes the following projects, which will be included in the ARC Regional Transportation Plan Major Update:

Sidewalks on Salem Rd (from McCalla to Flat Shoals) and on Flat Shoals Rd.
Bikepaths on SR 20 and Ellington Rd.

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?

The traffic analysis above indicates major area roads have adequate roadway capacity to serve current traffic. The table also suggests adequate roadway capacity to serve 2010 traffic. The developer is encouraged to construct an internal sidewalk network and sidewalks along McCalla Rd to connect to the proposed Salem Rd sidewalk in the Rockdale County 1998 Master Trails Plan. Such improvements would increase the viability of non-motorized modes in the area and help to meet demand for pedestrian and bicycle facilities. Also, they would reduce automobile trips inside the subdivision, and reduce the short automobile trips to and from the subdivision.

TRANSPORTATION AIR QUALITY ANALYSIS

Analysis Methodology

The proposed planned unit development is comprised of single family attached and unattached lots. The emissions analysis for the proposed development is based on trip generation estimates, calculated as a function of both number of housing units and square footage of retail space. These trip estimates are based upon the ITE trip generation manual. The estimated emissions are based on light duty gas vehicles (passenger automobiles) using a mix of peak highway and off peak off off-highway conditions assuming 20% cold starts for each.

Results of Analysis

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

	TONS PER YEAR	TONS PER DAY
Nitrogen Oxides	15.354	0.059
Hydrocarbons	12.764	0.049

The results of the analysis performed indicate that the proposed development generates an acceptable level of harmful emissions. However, the development contributes to sprawling conditions and generates demand for additional trips by single occupant vehicles, providing limited opportunities for the use of alternative modes of transportation or connections to complementary land uses.

Although the project complies with air quality thresholds, several complementary strategies should be incorporated into it's design. Some address the design of the proposed development itself, while others relate to surrounding land uses outside the geographic scope of this DRI.

1. **Encouraging people to walk and bike by designing a pedestrian friendly development.** A study by Reid Ewing (1995) suggests that medium to high density development complemented by a mixture of uses, continuous sidewalks, street oriented buildings, and set backs no further than 25 feet will improve pedestrian circulation and accessibility. The provision of access between housing and retail zones via multi-purpose paths within the development could result in a higher "internal capture rate", in which trips may be satisfied internally (within the PUD) without the use of an automobile.

2. **Develop specialized services to address the commutes generated by the residents of this community.** Carpooling and other ride-share options may be coordinated through a homeowners association, thereby providing alternatives to single occupant vehicle travel. Large scale developments such as this would likely generate critical mass necessary to support specialized services.

INFRASTRUCTURE
Wastewater and Sewage

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

0.2536 MGD

Which facility will treat wastewater from the project?

Snapping Shoals

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

1996 capacity = 0.45 MGD
There is limited wastewater treatment capacity available at the present time. Therefore, the developer has contracted to purchase the property in phases contingent on availability of sewer for the site. The initial takedown will be only 40 acres for which the county has said treatment capacity is available. (See attached March 3, 1998 letter from Torrey Homes.)

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

None.

INFRASTRUCTURE
Water Supply and Treatment

How much water will the proposed project demand?

0.2916

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

The county should have sufficient water.

INFRASTRUCTURE
Solid Waste

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

868 tons

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.)?

Schools will be impacted by the projected 460 students.

HOUSING

Will the proposed project create a demand for additional housing?

No, the development is housing.

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?

N/A

* 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.