ORDINANCE NO. 97010

| | | |
|---|---|---|
| STATE OF SOUTH CAROLINA | ) | AN ORDINANCE PROVIDING FOR A |
| | ) | PLANNED DEVELOPMENT ON THE |
| COUNTY OF CHARLESTON | ) | APPROXIMATELY 243 ACRES OF LAND |
| | ) | DESCRIBED AS THE JORDAN TRACT, |
| TOWN OF MOUNT PLEASANT | ) | TO BE KNOWN AS "I'ON" |

WHEREAS, the Developers of an approximately 243 acre tract of land identified in a document entitled "I'On Impact Assessment" dated January 1997, prepared by The Graham Company, and a document entitled "The I'On Code" prepared by The Graham Company, and the sketch plan map entitled "I'On Technical Plan" dated January 28, 1997, said documents which are attached hereto and made a part hereof as Exhibits "A," "B," and "C," respectively, desire to create a planned development with a mixed use and traditional walking neighborhood built in a manner of older coastal towns like Beaufort, Charleston and the Old Village of Mount Pleasant; and

WHEREAS, the Mount Pleasant Board of Planning and Zoning held a public hearing on January 22, 1996, pursuant to the Mount Pleasant Code of Ordinances, to consider this requested rezoning; and

WHEREAS, the Mount Pleasant Board of Planning and Zoning made the following findings of fact as a basis for a recommendation for approval of this Planned Development Ordinance:

1. This plan is in harmony with the Master Plan which suggests this type of development,
2. That the overall density is less than what would be normal R1 zoning, which allows for more open space,
3. That the traffic has been shown to be within acceptable limits of reasonable traffic study the Engineers and further confirmed by Kimley-Horn, the Town's traffic advisors,
4. That the other impacts within the Impact Assessment are acceptable and,

5. Also with the knowledge that this is a Rezoning and Impact Assessment and a Sketch Plan and that further details will continue to be worked out concerning the roads as well as other technical details,
6. That the developer and his team of Engineers and Planners continue to work with the Town to solve these technical concerns;

WHEREAS, Mount Pleasant Town Council is empowered with the authority to adopt planned development ordinances and make amendments to the Official Zoning Map of the Town of Mount Pleasant, and now desires to do so with respect to the referenced property.

NOW, THEREFORE, BE IT ORDAINED by the Mayor and Town Council of the Municipality of Mount Pleasant, in Council assembled, that the property described as the Jordan Tract, comprising approximately 243 acres of land located on Mathis Ferry Road to be known as "I'On," is hereby zoned PD, Planned Development, subject to the specific requirements of Exhibits "A," "B," and "C" hereto to the extent said requirements are not modified by the hereinbelow requirements, and the Official Zoning Map of the Town is hereby amended to reflect the same.

BE IT FURTHER ORDAINED THAT the I'On Code has further been clarified with respect to the building height requirement, pavement width of the right-of-way type classified as "Road" and the buffer along Mathis Ferry Road as expressed in letters to Joel Ford from The Graham Company, dated February 17, and 18, 1997, respectively, and more fully explained as follows:

1. The maximum building height shall be 30 feet as measured to the eaves of a structure. In no event shall a building be over 38 feet 1 total height.
2. The pavement width requirement for the "Road" thoroughfare type listed in the I'On Code shall hereby be increased from 18 feet in width to 20 feet in width.
3. A twenty-five foot natural undisturbed buffer shall be provided along Mathis Ferry Road. At Town Council's discretion, an eight foot tall wooden fence shall be constructed behind the buffer, and/or additional plantings of eleagnus and wax myrtle installed within sparse areas of the buffer. The wood fence may be stained green to blend in with the existing vegetation.

THIS ORDINANCE SHALL BE EFFECTIVE IMMEDIATELY UPON FINAL READING.

SIGNED, SEALED AND DELIVERED THIS 11th DAY OF March, 1997.

Cheryll N. Woods-Flowers, Mayor
Town of Mount Pleasant

ATTEST:

Carol J. Hunter
Clerk of Council

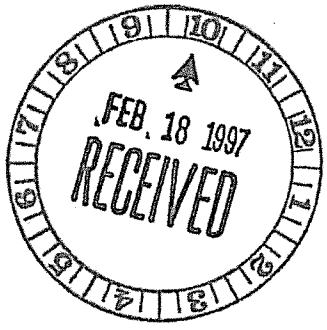
March 11, 1997
Mount Pleasant, SC

Introduced: Feb. 18, 1997
Final Reading: Mar. 11, 1997

APPROVED AS TO FORM:

R. Allen Young
Town Attorney

# I'ON
## Impact Assessment




The Graham Company
935 Houston Northcutt Boulevard, Suite 101
Mt. Pleasant, South Carolina 29464
January 1997

# Table of Contents

## IMPACT ASSESSMENT - Introduction

### General Description and Identification of Impacts

The Graham Company proposes to create a mixed use, traditional walking neighborhood on a 243 acre tract of land in the Town of Mt. Pleasant. I'On will be built in the manner of older coastal towns like Beaufort, Charleston and the Old Village of Mt. Pleasant. The Graham Company will draw heavily upon experience gained in developing the neo-traditional neighborhoods of North Cove in Peachtree City, Georgia, and The Village at Port Royal, Broad Street and Newpoint in Beaufort, South Carolina. These neighborhoods are also built in the manner of the previously mentioned historic towns under Planned Unit Development (PUD) zoning ordinances (similar to Mt. Pleasant's PD Ordinance). Such PUD ordinances enable variations from conventional lot sizes and width requirements, as well as front, rear and side yard setbacks.

The first zoning ordinances were implemented in New York City in 1916 and did not come into widespread use in the South until the 1960's (Mt. Pleasant's first zoning ordinance was adopted in 1979). Because of such ordinances, a change from R1 zoning to Planned Development is essential to build a neighborhood like I'On that emulates the character of the Lowcountry's older towns and villages. While planned for only 3.12 units/acre, lower in density than the historic models, (Beaufort's Old Point is greater than 5 units per acre, the Old Village is 3.78 units per acre and the Charleston Peninsula is as much as 18 units per acre South of Broad Street), I'On will utilize the same principles and traditions that make these neighborhoods so desirable and render extraordinarily high property values.

In developing I'On, the Graham Company will fully comply with the spirit and intent of the goals and objectives listed in the 1992 Redman/Johnston Master Plan, as well as the 1994 document, "Strategic Planning for the Town of Mt. Pleasant - Findings, Recommendations and Action Plans". Specific impacts are identified and discussed in the Impact section to follow.

The 243 acre property is bounded on the north by the marshes and waterways of Hobcaw Creek, to the east by a 70 acre tract of land presently owned by Sonny Mevers, to the south by Mathis Ferry Road, and to the west by Muirhead Road, Hobcaw Point, and a 17 acre tract of land presently owned by Dorothy Ayers and others. Of the 243 acres within the tract, 24.6 acres are man-made lakes. The property has an unusually high elevation for the area, ranging from 7 to 25 feet above sea level with an average elevation of 19 feet above sea level. Soil types are primarily fine loamy sands with excellent permeability.

From the late 1600's to the early 1900's, the land was used for agricultural purposes. Earlier this century, the fields were used to grow tomatoes, cucumbers and pine trees and the water frontage was used as a base for Shelmore Seafood company. More recently, the present owners mined dirt for road building and other construction projects. This mining has enhanced the property's value by creating the aforementioned freshwater lakes.

I'On will consist of a maximum of 759 residential units. In addition, there will be 16,000 s.f. of neighborhood shops and 14,000 s.f. of office space that will accommodate small businesses. The areas for shops and office space have been specifically delineated on the master plan. Uses permitted in those areas are restricted to all uses allowed in Section 156.089 NC, Neighborhood Commercial District of the Mt. Pleasant Zoning Code, except that no automotive oriented businesses will be allowed. Throughout the community, specific sites are designated for civic buildings - neighborhood clubhouses, a scout den hut, churches and other civic uses.

The critical line along the marshes and waters of Hobcaw Creek, and the freshwater wetlands on the site have been delineated and approved by the U.S. Army Corps of Engineers.

Several areas within I'On's boundaries have been identified by a professional archaeologist to be of historic and archaeological significance. Of particular note is a family cemetery plot dating to the early 1700's. Included here among the interred is Jacob Bond I'On, for whom the neighborhood is named. I'On was a celebrated hero in the War of 1812 and a past President of the S.C. Senate. The developers have met with descendants of those buried in the cemetery and are working with them to restore and preserve this significant site. Several other sites may have archeological significance and The Graham Company will conduct further studies to determine their merit. The developer will cooperate fully with the State Department of Archives and History in recording, recovering, and/or preserving important sites.

## IMPACTS

### Water Supply

The daily potable water demand for the proposed 759 dwelling units will be 284,625 gallons based on 375 gallons per day per dwelling unit as prescribed by the Mt. Pleasant Waterworks & Sewer Commission. Water will be supplied by the Mt. Pleasant Waterworks & Sewer Commission and the distribution system will be designed to meet all DHEC (Department of Health and Environmental Control) and Mt. Pleasant Waterworks & Sewer Commission guidelines.

### Wastewater

This project will generate 233,700 gallons of domestic wastewater per day based on the Mt. Pleasant Waterworks and Sewer Commission guidelines of 300 gallons per day per dwelling unit and 6,000 gallons per day for the 30,000 s.f. of small shops and office space. Homes will be served by a system of pump stations and gravity lines to transport the wastewater across Mathis Ferry Road and US 17, through a power easement adjacent to The Groves to Coleman Boulevard. The wastewater will then be transported to the Mt. Pleasant Waterworks and Sewer Commission treatment facility on Center Street for treatment and disposal.

Development Impact Fees are estimated to be approximately $1,791,700 to the Mt. Pleasant Waterworks and Sewer Commission.

### Solid Waste

According to information supplied by the Town, a garbage truck used by the Town has the capacity to serve 1,500 dwelling units. Therefore, I'On will generate a volume of garbage to fill approximately 51% of one truck. This combined with other growth in Mt. Pleasant will necessitate the addition of one truck and requisite personnel at a future date.

### Transportation

Access to I'On is from Mathis Ferry Road. As part of the overall development plan, a connecting road will be built linking Mathis Ferry Road to the Lowcountry Boulevard intersection at US 17. This road will be directly across Mathis Ferry Road from the main entrance to the neighborhood and will greatly improve traffic circulation in the entire area.

A traffic roundabout is planned for the main community entrance at Mathis Ferry Road. A roundabout is a sophisticated traffic channeling device that will serve to "calm" traffic on Mathis Ferry Road as well as preserve the aesthetic character of the road. Further information on these traffic circulation improvements is provided in the Traffic Impact Study following this report.

Internally, the road system is organized into a network grid. Road cross sections have been designed in conformance with state of the art traffic guidelines emphasizing the pedestrian environment and low speed intersection geometrics. The design of roads meets the recommendation of the 1992 Redman/Johnston Master Plan: *"Streets should be built at a human scale and linked with public spaces that fully accommodate cars without being eclipsed by them."*

I'On has 2,488 linear feet of frontage along the section of Mathis Ferry Road designated as a South Carolina Scenic Highway in June of 1988. The developers believe this scenic corridor is a tremendous asset to the Town of Mt. Pleasant. Unfortunately, the quality of the live oak canopy has been severely diminished by past damage from Hurricane Hugo, the present practices of utility companies to cut branches to keep utility lines free of obstruction, and water lines and storm drainage pipes installed within the trees' roots.

Recognizing the importance of Mathis Ferry Road to Mt. Pleasant, the developer intends to enhance this scenic corridor in five distinct ways:

1) Create an easement on I'On property and work with SCE&G and BellSouth to move overhead utility lines off of Mathis Ferry Road into this new easement. This would enable the existing and replacement live oaks on Mathis Ferry Road to branch out and grow without impeding the lines and line maintenance.

Utility lines running through live oaks on Mathis Ferry Road

Enhancement of live oak canopy on Mathis Ferry Road

2) Work with SCDOT and the Town to re-plant live oaks in the right-of-way where trees have died or been removed in order to restore the continuous tree canopy along the road.

3) Construct a traffic calming roundabout with landscape feature in the middle..

4) Refrain from building large signage monuments identifying the neighborhood. Instead, utilize understated brick columns and white rail fencing to designate entryways to I'On.

5) Maintain and enhance the opaque screening effect by providing a 25' natural buffer along the 2,488 feet of frontage as recommended by the Planning Board in their Mathis Ferry Road Plan.

These improvements are in accordance with the 1992 Redman/Johnston Master Plan, the recommendations of the Urban Landscape Issue Committee, as well as the more recent Mathis Ferry Road Plan. They will enhance the scenic nature of Mathis Ferry Road. For a more complete discussion of traffic, please see the Traffic Impact Study following this report.

**Drainage**

The property currently drains overland to three lakes on the property, a large wetland at the headwaters of Molasses Creek, and the adjacent salt marshes.

I'On will make extensive use of the three lakes and the existing freshwater wetlands to limit storm water runoff to pre-development rates and contain non point runoff from entering the salt marsh.

The extensive park system planned along the highlands above the marshes and waters of Hobcaw Creek, together with other best management practices will serve a dual purpose of providing storm water control and serving as an amenity for residents. Storm water facilities will be designed to meet all DHEC-OCRM and Town of Mt. Pleasant guidelines.

**Recreation**

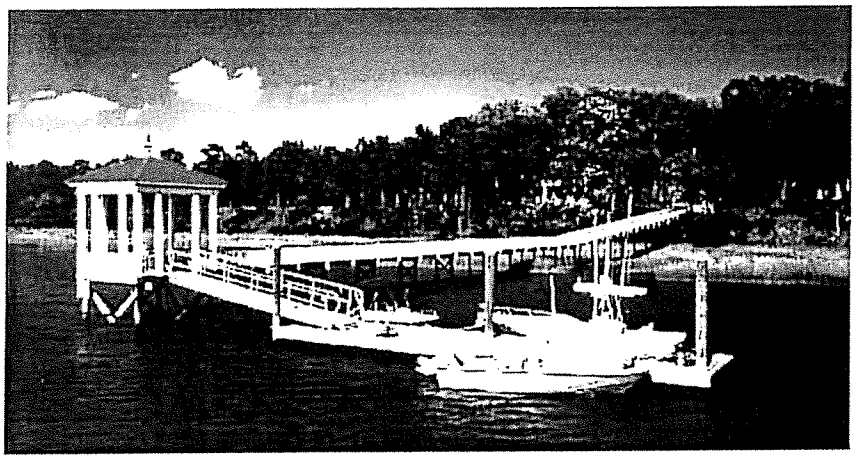
A traditional walking neighborhood entails smaller individual homesites with significant areas devoted to parks, formal greens and other open spaces for use by the residents. In keeping with these principles, the plan for I'On calls for at least one park within a 3 minute walk of every homesite.

I'On has approximately 2.1 miles of marsh and deep water frontage along Hobcaw Creek. It also has 1.46 miles of frontage along the above mentioned lakes. Rather than divide up this premium frontage among a relatively few private lots, the developers believe that the value of the neighborhood as a whole is significantly enhanced if all residents have access to these amenities. They base this approach on their experience at Newpoint and Broad Street, in Beaufort, South Carolina and North Cove, in Peachtree City, Georgia as well as observation and study at places like historic Charleston, Beaufort and the Old Village where all residents have access to the waterfront at road endings and in established parks.

Therefore, over 75% of the marsh, water frontage and lake frontage has been planned as parks providing access to all residents of the neighborhood.

A park on Middle Street in the Old Village

There will be no private docks in the neighborhood. Instead, I'On residents will be able to use seven community docks which will provide access to the marsh and waters of Hobcaw Creek for fishing and boating. These docks will range from small crabbing docks to a larger community dock reminiscent of the dock pavilion at Newpoint or at the Sea Island Yacht Club in Rockville. Two of the lakes will be connected with a canal and will be available to non-motorized boat traffic for fishing and other activities. The third lake will be preserved as a wildlife sanctuary.

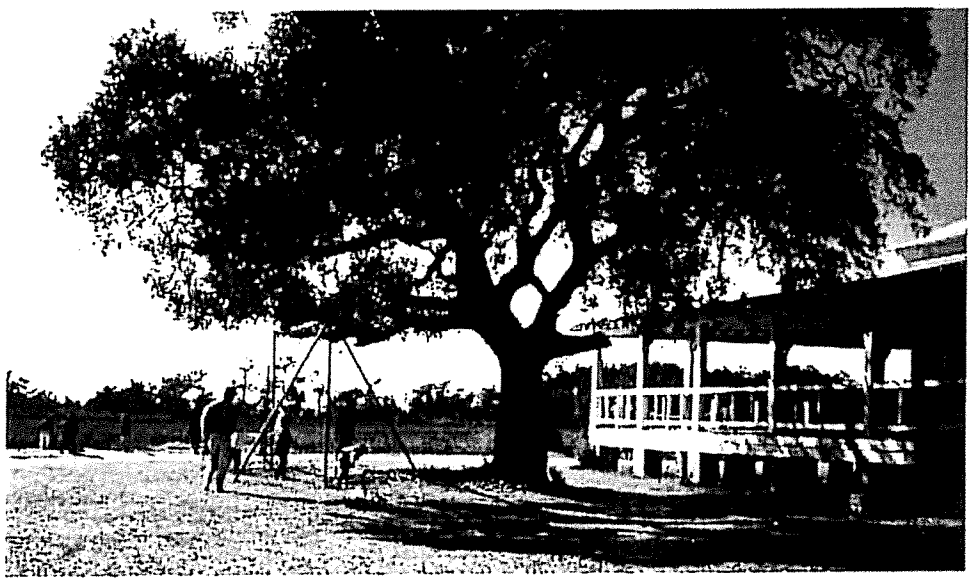


Community dock pavilion at Newpoint

Open spaces in the more dense areas of the development will be organized into parks and squares. Sidewalks, bike paths and walking trails will be built throughout the neighborhood. In all, more than 12 miles of these walks and paths will be built to promote the pedestrian nature of the development.

Small play grounds will be scattered throughout the neighborhood. There will be at least five tennis courts and two pools. All parks, docks and other community facilities will be administered by the property owners association and private clubs. Acreage throughout I'On has been reserved for ball fields and other private recreational uses for the owners in the neighborhood.

Clubhouses in I'On will be modeled after traditional structures like the Sea Island Yacht Club in Rockville, SC



The Town of Mt. Pleasant Subdivision Regulations requires 5.5 acres of land per 1,000 population be set aside and dedicated for public park and recreational facilities. If existing or proposed facilities are in close proximity to proposed developments, the payment of a fee in the amount of the assessed value of the required recreational land in lieu of dedicating the property is usually acceptable. In the case of I'On, the fee would be based on the following acreage calculations:

Recreational Land Required = 759 D.U. x $\frac{2.50 \text{ persons}}{\text{D.U.}}$ x $\frac{5.5 \text{ acres}}{1000 \text{ persons}}$

= 10.44 acres

The Plan indicates recreational facilities and passive open space comprising 36.2 acres of land. Since this open/recreation space exceeds that calculated above, the developer requests a 50% credit towards the recreation land requirement, and to pay the fee rather than dedicate this open space to the Town. The Recreation Fee is based on the appraised value of the property in its predeveloped state. Based on assumed current appraised value of $28,000.00 per acre, the Recreation Fee for the 5.22 acres of land would be $146,160.00 or $192.57 per lot.

Tom O'Rourke, the Director of Recreational Services, has indicated he has no objection to this development.

**Education**

Lynda F. Davis, Area Superintendent for the Charleston County School District discussed the mobile classroom situation being used in Mt. Pleasant. She mentioned a new middle and elementary schools will open in August 1998 and 1999 respectively. She further stated that the school system in Mt. Pleasant would be able to handle I'On's educational needs.

**Police**

The Chief of Police, Thomas Sexton, has indicated the Town of Mt. Pleasant Police Department will be able to adequately supply police protection to the neighborhood. Crime Prevention Officer, E.J. German, will provide training and organization for neighborhood watch programs and information on protection of civic property.

**Fire Protection**

Home construction will meet or surpass all building and fire codes so as to have no adverse effect on the Town's ISO rating. The water system will be engineered to provide pressure at hydrants of at least 1000 gallons per minute. Chief Steve Mims has indicated the Town of Mt. Pleasant Fire Department will be able to serve this development.

**Environmental Resources**

I'On consists largely of open fields and relatively young (+/- 25 years old) hardwood growth. There are also many specimen live oaks scattered throughout the property. These oaks have suffered some hurricane damage, but are still significant and will be cared for in an ongoing forest management program. Per property owner association (POA) documents, all builders and homeowners will be encouraged to save as many trees as practically possible when building individual homes. Permission will be required before cutting any tree larger than 6 inches in caliper. An extensive tree planting program along all streets in the neighborhood will be undertaken as part of the infrastructure improvements.

The design for the thoroughfares will guarantee the planting of more than 1200 trees along I'On streets.

I'On's outstanding water resources and the Mathis Ferry Road Scenic Corridor are discussed in the Recreation and Transportation sections of this document.

## Fiscal Consideration

The number of units allowed is 759. Assuming a fair market value of $225,000 for each home, the total value created is $170,775,000. Using an assessment ratio of 4 percent for each unit, produces an assessment value of $6,831,000. Based on the current Town of Mt. Pleasant millage rate of 59.5 and the county rate of 197.8, the total annual property tax revenue generated from I'On would be $406,444, to the Town of Mt. Pleasant and $1,351,171 to Charleston County.

## Housing

In accordance with the specific recommendation made on page 29 of the 1992 Redman/Johnston Master Plan for the Mathis Ferry Road site, I'On is planned primarily as a detached single family neighborhood. Home prices will range from $150,000 to well over $500,000.

Homesites in I'On will be sold to individuals and contractors who will build homes in accordance with established architectural guidelines which promote a traditional Lowcountry style of architecture with raised foundations, classic proportions and deep porches. All lots will be developed with roads, drainage, sewer, water, electricity, telephone, and cable TV lines installed.

Traditional houses like the shown here in Newpoint will be built in I'On

I'On is located within one of the best school districts in Charleston County and is conveniently located near the Town's Center, the Mark Clark Expressway, shopping and the Cooper River Bridge. The neighborhood will offer Mt. Pleasant residents a desirable alternative in a close in location.

The extraordinarily high cost of housing in places like downtown Charleston and the Old Village demonstrates the popularity and demand for homes in these types of traditional neighborhoods. Together with Mt. Pleasant's very strong growth potential, this community will help meet the already solid demand for quality housing and development in the area.

## SPECIAL CONSIDERATIONS

The Graham Company initiated the planning and development of I'On largely because of the strong correlation between their own concept for the property and the Town of Mt. Pleasant's vision for new development as expressed in the 1992 Master Plan and 1994 Strategic Plan. As a private developer, The Graham Company believes these documents to be far-sighted and responsible planning tools that with continued enlightened leadership, will enhance the vitality and quality of the Town of Mt. Pleasant.

As part of Section S154.50 "Subdivision Application Checklist" required for the subdivision development process each applicant must include those special considerations detailing "the relationship of the proposed development to the Town's Master Plan, objectives and policies," the "relationships to existing or proposed public facilities," and "any relationship to special land use or development areas".

Below are a sampling of passages from the Town's Strategic Plan, Master Plan and the Mathis Ferry Road Plan. These excerpts indicate the strong correlation between the development concept for I'On and the vision for development expressed in the Town's plans.

**Reprinted from the Redman/Johnston and Associates Town of Mt. Pleasant Master Plan adopted by Town Council, March 1992:**

The Community Character Context (pages 6 and 7 of the Master Plan):

*The rich quality of its historic built environment, coupled with the unique and beautiful local natural environmental features and amenities, are the most dominant and positive underlying qualities of Mount Pleasant's community character. More recently, these qualities have been overshadowed by standardization and national techniques of commercial strip development - a type of development which is not sensitive to the existing character of the community, forcing the built environment to accommodate the perceived tastes of the market place.*

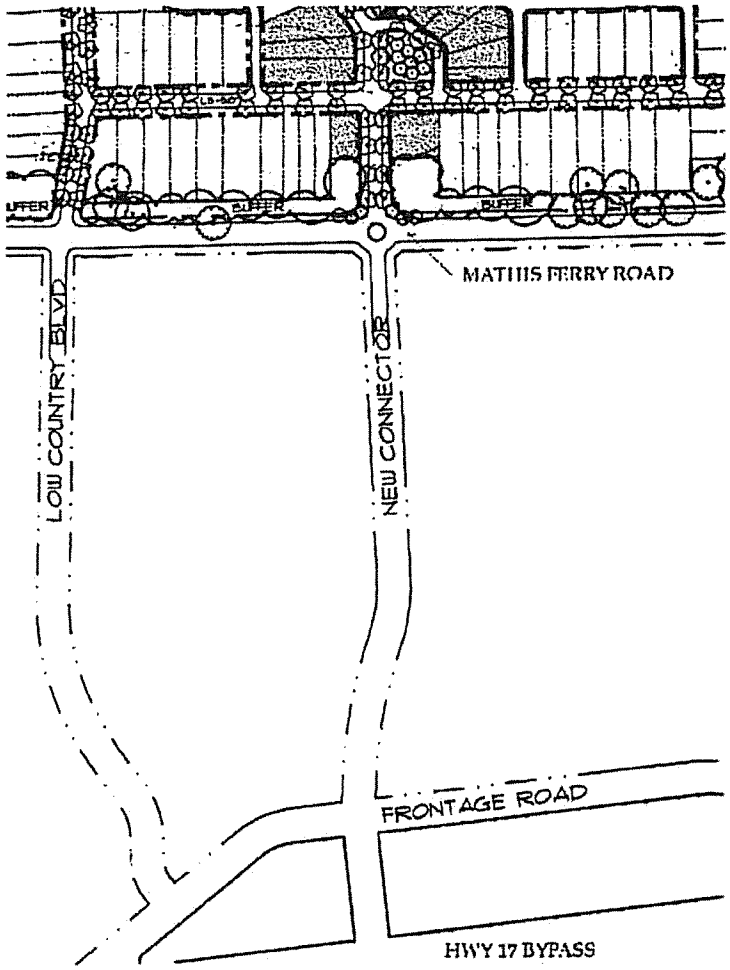
*The Old Village retains the architectural and landscape idioms of historic Mount Pleasant. Large old live oak trees, such as are found in Alhambra Park, accentuate the landscape, co-existing* ***on a street system that is practical despite deviating from almost every current engineering design standard****. The Old Village is a special community resource, much of which is protected under the provisions of the Town's historic district zoning.*

*Much of the new residential development beyond the "old corporate limits" can be characterized as post-1940's , suburban residential communities. Many are larger, planned communities that have been designed to be self contained, turning in on themselves. Catering to the automobile generation, street design in these communities has departed from the grid pattern of the older neighborhoods in favor of an internal, curvilinear, street system that is often unintelligible to those not intimately familiar with the development. Local access streets feed into a few collector streets that intersect major roads at one or two points. This form of street layout permits the current standard of "efficient travel speeds", as well as providing opportunities to create secluded building sites on a myriad of cul-de-sac streets and at the same time permits maximum private use*

*of the waterfront. It does not however present many opportunities for interconnection with the overall highway system. Each of these more recent developments creates its own identity or sense of fiefdom which may or may not impart a distinguishable link to the Town's overall identity.*

The plan for I'On reinforces what the Master Plan describes as ***"the most dominant and positive underlying qualities of Mount Pleasant's community character."***

I'On falls within Neighborhood Two as identified in the Master Plan. Regarding transportation issues in this section, the Master Plan makes the following recommendation: *"The addition of connecting links from Mathis Ferry over to US 17 . . . will help alleviate some of the traffic load in this corridor."*




Detail showing new connector that will link Mathis Ferry Road and US 17

The developers will build an extension linking Mathis Ferry Road and US 17 as part of the overall project. This is discussed in more detail in the Traffic Impact Report in Section II.

Chapter III of the Master Plan outlines in detail the Goals and Objectives for Growth Management, Land Use, Transportation, Environment, and Urban Design. The plan for

I'On is in complete accord with each of these goals. The following excerpts from the Objectives section are particularly noteworthy:

- from *Growth Management*
*Direct development to areas already served or proposed to be served with adequate public facilities such as sewer, water, roads, and schools.*

-from *Land Use*
*Encourage traditional neighborhood development forms, modeled on the "Old Village" in new developments.*

-from *Environment*
*Coordinate environmental quality protection efforts with future opportunities to establish public parks, natural recreation areas and open spaces.*

- from *Transportation*
*Increase opportunities for public access to tidal waters.*

-from *Urban Design*
*Encourage traditional development form in areas where street systems and/or adjacent development suggest is appropriate.*

Finally, in Chapter IV dealing with Implementation Recommendations the Master Plan calls for encouraging the type of development proposed for the property *specifically "through design that follows traditional neighborhood development form and adopts the urban conventions which were standard in the United States from colonial times until the 1940's. A genuine village core (neighborhood center), could be built based on these traditional neighborhood planning principals."* The recommendations continue to point out that a reasonably large site still exists on Mathis Ferry Road where a traditional neighborhood could be created.

Furthermore, the plan for I'On complies with each of the 12 points listed on page 72 of the Master Plan that call on the Town to review for proposed Traditional Neighborhood developments. These 12 points are as follows:

*"In reviewing proposed plans for Traditional Neighborhood development, the Town should insure that the proposed plan will result in:*

1. *pedestrian scale neighborhoods;*

2. *slow vehicular speeds;*

3. *style and tradition of American towns developed prior to 1940;*

4. *parking located to the side and rear of structures as opposed to dominating the streetscape or site frontage;*

5. *dwellings, shops and work places generally located in close proximity to each other;*

6. *modest sized buildings fronting on, and aligned with, streets in a disciplined manner, generally uninterrupted by parking lots;*

7. *generally regular geometric patterns of streets and blocks arranged to provide comprehensible and interesting routes of travel;*

8. *a hierarchy of streets - some narrow and convenient for a balanced mix of pedestrian and automobiles, while others wider to carry greater traffic and perhaps serve as the major ceremonial boulevard, or commercial main street;*

9. *well configured squares, greens, gardens and parks woven into the street and blocks patterns and dedicated to collective social activity, recreation and visual enjoyment.*

10. *civic buildings for assembly, or for other civic purposes, sighted to act as visual landmarks and symbols of identity within the community;*

Structures like the Mt. Pleasant Presbyterian Church will serve as inspiration for civic buildings in l'On

11. *a recognizable, functionally diverse, visually unified neighborhood or town center, often fronting on a major civic space such as a village green or square, and frequently linked to a traditionally important crossroads or waterfront; and*

12. *a built-up neighborhood with an overall size small enough to permit residents and workers, if they so choose, to walk or ride bicycles comfortably rather than being required to drive throughout much of the neighborhood."*

**Reprinted from "Strategic Planning for the Town of Mt. Pleasant - Findings, Recommendations and Action Plans", dated March 14, 1994.**

Page 4 - 5, URBAN LANDSCAPE ISSUE COMMITTEE, FINDINGS: SUBURBAN SPRAWL:

*At the heart of the issues concerning growth, appearance and the built environment is the issue of suburban sprawl. The land use pattern found today throughout suburban America is fundamentally dependent upon: 1) the linear extension of arterial highways; 2) the rigid separation of uses; 3) the continued availability of relatively inexpensive land and; 4) the unregulated expansion of infrastructure. Today's commercial centers are invariably beyond a reasonable walking distance from residential neighborhoods, and moreover, they are generally inaccessible to bike transportation due to safety concerns.*

*The committee further finds that today's residential development patterns also contribute equally to suburban sprawl. Today's typical, low-density, one access subdivisions, with curvilinear street systems, are purposefully isolated from non-residential land uses - - a decision that not only extends the limits of the area's development, but also makes the automobile a necessity for any activities outside the subdivision. This residential sprawl also contributes to the loss of natural space, and dramatically to an increased cost of providing municipal services. Ultimately, the greatest impact of residential sprawl may be the creation of communities within a community, wherein a common purpose, a community spirit, and a "sense of place" are almost non-existent. The negative effects of suburban sprawl will damage the very character of Mount Pleasant which has attracted so many people over the past twenty years. Moreover, ultimately, the economic stability of the community may be eroded, and conditions conducive to crime and the general degradation of quality of life may result if suburban sprawl is allowed to become the dominant trend in development over the next 15 years.*

Page 5, FINDINGS: SUBURBAN SPRAWL, RECOMMENDATIONS:

*Town Council should adopt policies wherein all new development (residential and commercial) would have to consider, recognize and address the negative aspects of urban sprawl. These policies should encourage and, where appropriate, require developers to use land efficiently and economically, as well as promote the establishment of mixed use development, and village/type commercial/residential development in appropriate areas of Town...*

Page 5, FINDINGS: SUBURBAN SPRAWL, ACTION PLAN RECOMMENDATION TWO:

Require new subdivisions to:

1) *Interconnect*
2) *Utilize a grid pattern for streets and*
3) *Install sidewalks and bikeways where deemed appropriate relative to existing land use patterns, transportation corridors, environmental considerations and long-range Master Plan considerations.*

Page 5, FINDINGS: SUBURBAN SPRAWL, ACTION PLAN RECOMMENDATION THREE:

Require the:

1) *Linking of residential areas, to commercial zones and neighborhood stores*
2) *Provide for Carefully planned integration of neighborhood stores into new residential subdivisions in a manner that is sensitive to residential settings where deemed appropriate relative to existing land use patterns, transportation corridors, environmental considerations and long-range Master Plan considerations*

Page 6, FINDINGS: SUBURBAN SPRAWL, ACTION PLAN RECOMMENDATION FOUR:

*Require sidewalks and/or bikeways to be constructed during construction of subdivision in coordination with Town-wide pedestrian walks and bikeway Master Planning.*

Page 7, FINDINGS: THE MUNICIPAL SERVICE AREA AND POPULATION GROWTH, RECOMMENDATIONS:

*Given local trends toward low-density residential development, the Town Council should establish a policy that recognizes that such development may contribute to suburban sprawl and is often wasteful in terms of infrastructure. Whenever feasible, the Town Council should require the new development with their associated populations, be concentrated around existing infrastructure.*

Page 8, FINDINGS: THE MUNICIPAL SERVICE AREA AND POPULATION GROWTH, ACTION PLAN RECOMMENDATION TWO:

*Actively oppose developments that do not comply with the Master Plan and /or which would encourage "leapfrog" development associated with suburban sprawl.*

Page 9, FINDINGS: OPEN LAND AND GREEN SPACE PRESERVATION, ACTION PLAN RECOMMENDATION ONE:

*The Town should develop a green space/belt acquisition plan and funding program and also consider the "transfer of development rights" and other incentive programs as means of acquiring or preserving open space.*

Page 15, ECONOMIC DEVELOPMENT ISSUE COMMITTEE, FINDINGS: STATE OF THE ECONOMY, OPPORTUNITIES:

*f)* *To further manage growth so that it continues to be of a quality that will constitute an asset as opposed to a liability for future development opportunities.*

Page 15, ECONOMIC DEVELOPMENT ISSUE COMMITTEE, FINDINGS: STATE OF THE ECONOMY, THREATS:

c) *Urban sprawl is an almost naturally occurring phenomenon for rapidly developing communities, and is costly, inefficient and generally unsightly and may drive away Class "A" types of development.*

Page 16, ECONOMIC DEVELOPMENT ISSUE COMMITTEE, FINDINGS: STATE OF THE ECONOMY, ACTION PLAN RECOMMENDATION TWO, MASTER PLANNING FOR GROWTH AND THE NATURAL ENVIRONMENT:

*4) Develop strategies and policies to restrain urban sprawl, which would be positive for the recruitment of appropriate businesses and industries.*

*5) Formulate economic development strategies that consider the natural environment and our natural resources as assets for attracting tourists, new residents and business opportunities.*

In summary, the proposed location is an excellent site for a neo-traditional development for the following reasons:

1. The site is identified in the Master Plan as a location where a traditional neighborhood could be built.
2. Developing on the outskirts of the Town consumes more of our precious natural and agricultural lands. Furthermore, such outward development drains the vitality of the core area of Mt. Pleasant by diverting investment from the existing developed areas. It may have the harmful long-term effect of weakening the local economy and straining the fragile bonds of the community.

MATHIS FERRY ROAD PLAN

The Plan for I'On meets or exceeds the recommendations of the Mathis Ferry Road Plan. These recommendations include the following:

- *"To keep the intensity of development under control, property owners should be strongly encouraged to develop their parcels in accordance with the 1992 Redman/Johnston Master Plan recommendations."*
- *"an undisturbed natural buffer should be required along a property's frontage on the Scenic Corridor to minimize the visibility of the development from Mathis Ferry Road."*

*"It is important to reiterate that these buffers should remain natural and undisturbed as thinning of underbrush and small caliper growth can quickly diminish the opaque screening effect produced by an undisturbed natural buffer. Therefore, by leaving these buffers undisturbed, the tree-lined character of Mathis Ferry Road right-of-way can be protected and reinforced."*

The planning techniques exhibited in the traditional walking neighborhood of North Cove in Peachtree City, Georgia, the Village of Port Royal, Broad Street and Newpoint in Beaufort, South Carolina, as well as the Plan and Code for I'On demonstrate that the developers' values are right in line with the goals and objectives listed in the Town's Plans.

We have committed ourselves to developing I'On in accordance with traditional neighborhood principles set forth in the Master Plan and Strategic Plan, and creating a new neighborhood that will be a model for future development in Mt. Pleasant, the State of South Carolina and throughout the Southeast. It will be a place the developers, planners, the Town and all participants can truly take pride in being involved.

# INDEX A

SCE&G
A SCANA Company

South Carolina Electric & Gas Company
P.O. Box 760
Charleston, SC 29402
(803) 745-8000

December 20, 1996

Mr. Vincent G. Graham
The Graham Company
935 Houston Northcutt Blvd.
Suite 101
Mt. Pleasant, SC 29464

Re: Ionsborough
Mt. Pleasant, SC

Dear Mr. Graham:

South Carolina Electric & Gas Company has the electric capacity to serve the referenced project. This development will consist of a 243 acre tract of land located between Hobcaw Creek at its northern boundary, Mr. Sonny Meavors property to the east, Ms. Dorothy Ayers property, Hobcaw Creek Subdivision. The proposed development will consist of 759 residential units representing an overall density of 3.12 units/acre. In addition, the property will have a maximum of 30,000 s.f. of commercial development.

Before service can be provided, I will need an approved site plan and construction schedule. If I can provide additional information, please feel free to call me at (803) 745-6442.

Sincerely,

M. Denise Ware

M. Denise Ware
Customer Service Engineering

# MT. PLEASANT RECREATION DEPARTMENT

381 EGYPT RD.
MT. PLEASANT, SOUTH CAROLINA 29464

TELEPHONE: (803) 884-2528

December 16, 1996

Mr. Vincent G. Graham
President
The Graham Company
935 Houston Northcutt Blvd.
Suite 101
Mt. Pleasant, SC 29464

RE: Proof of Coordination
Ionsborough, Mt. Pleasant, SC
Tax Map #514-0-0-052

Dear Mr. Graham:

Please accept this letter of "Proof of coordination" with the Town of Mt. Pleasant Recreation Department.

The Mt. Pleasant Recreation Department has no objection to this development.

Sincerely,

Thomas J. O'Rourke
Director

TJO:cg

POLICE DEPARTMENT
100 ANN EDWARDS LANE

MOUNT PLEASANT
SOUTH CAROLINA
29464

THOMAS J. SEXTON
CHIEF OF POLICE

December 19, 1996

Vincent G. Graham
The Graham Company
935 Houston Northcutt, Suite 101
Mount Pleasant, S.C. 29464

Re: Ionsborough, Mount Pleasant, South Carolina
243 Acre Tract
TMS#514-0-0-052

Dear Mr. Graham:

Thank you for notifying the Police Department of your proposed project. Some months ago the Police Department implemented a Safe Town, Safe Schools initiative for Mount Pleasant, A major component of the Safe Town Program is to encourage crime prevention through environmental design. I would like to take this opportunity to encourage you to consider how you might incorporate crime prevention into your design of the proposed project.

I am confident the Police Department will be able to provide services to your project.

Best wishes for success.

Sincerely,

Thomas J. Sexton
Chief of Police

BELLSOUTH TELECOMMUNICATIONS

December 12, 1996

Mr. Vincent G. Graham
The Graham Company
935 Houston Northcutt Blvd.
Suite 101
Mount Pleasant, South Carolina 29464

Dear Sir:

This letter will confirm that BellSouth Telecommunications, Inc. will provide buried telephone facilities to your proposed development known as Ionsborough which is located off Mathis Ferry Rd in Mount Pleasant, South Carolina, tax map number 514-0-0-052.

In order to insure that service is available when your units are ready for occupancy, we require approximately seven months to accomplish the planning, coordination, design, approval and installation of our telephone cable.

We would prefer to utilize buried telephone cable for this project based on your concurrence with the following items:

1. Advance availability of finalized plats to BellSouth Telecommunications, Inc.

2. Written easement for telephone facilities will be granted. (Easement information).

3. Main water lines, sewer, gas and electric lines to be placed prior to installation of telephone cable.

4. All easement areas along which our cable is to be placed will be cleared by developer in advance of our installation.

5. All easement areas and property lines along which our cable is proposed will be within six inches (6") of final grade prior to our installation.

Should any of the above conditions preclude placing buried cable, we would elect as an alternative, aerial cable on Telephone Company poles to insure that we meet our customer's service requests.

An engineering representative from this office will be in contact with you to coordinate plans for the development when we receive your concurrence in the items previously listed. A space is provided for your signature and title. Please return to the following address at your earliest convenience:

BellSouth Telecommunications, Inc.
Charleston District - Network
Post Office Box 118050
385 Meeting Street - Rm. 322
Charleston, South Carolina 29423-8050

If we can be of any assistance, please feel free to call my office at 722-5182.

Yours truly

D S McCandless

Specialist

Concurrence: Date _____

Name _____

Title _____

dsm

# Town of Mount Pleasant
# Fire Department

100 Ann Edwards Lane • Post Office Box 745 • Mount Pleasant, South Carolina 29465
(803) 884 - 0623 voice (803) 849 - 2060 fax


December 12, 1996

Vincent G. Graham
The Graham Company
935 Houston Northcutt Boulevard, Suite 101
Mount Pleasant, SC 29464

Dear Mr. Graham:

re: IONSBOROUGH, MT. PLEASANT, SOUTH CAROLINA
Letter of Coordination

The Mount Pleasant Fire Department reviewed the submitted documents on the 243 acre tract for development of the proposed subject project. We feel that we will be able to provide adequate fire protection for the project when the following general requirements are met.

1. Require compliance with all applicable sections of the Standard Building, Fire, Mechanical , and Electrical Codes and all Ordinances in effect in Mount Pleasant.

2. Fire Department requires proper access to facility and grounds for fire suppression needs during construction. Roadways shall be capable of supporting fire apparatus of up to 36 ton and shall be so maintained.

3. Require fire hydrant(s) be located within 300 foot of facility of Mueller three-way type on minimum eight inch main. Hydrant(s) required to be operational prior to construction and free of obstructions and decorative shrubbery. Adequate hydrants to be provided to comply with fire flow requirements of the Insurance Services Office for the facility.

All Work is subject to field inspection and final approval prior to receiving a Certificate of Occupancy.

If we can be of any further assistance, please feel free to contact us.

Sincerely,

H. Steven Mims, Sr. Battalion Chief
Mount Pleasant Fire Department

HSM:sbc-s
CC: Fire Committee Chairman Jewel Browder
Joel Ford, Director Planning
Lee Cave, Building Official
Building Department
Angelo Hassig, Mount Pleasant Waterworks & Sewer Commission

# Town of Mount Pleasant
# Fire Department

100 Ann Edwards Lane • Post Office Box 745 • Mount Pleasant, South Carolina 29465
(803) 884 - 0623 voice (803) 849 - 2060 fax

January 16, 1997

Mr. Vincent G. Graham, President
The Graham Company
935 Houston Northcutt Blvd., Suite 101
Mount Pleasant, S.C., 29464

Dear Mr. Graham :

It was a pleasure meeting with you, Mr. Stuart Whiteside and Mr. Joel Ford this date. As discussed, the Fire Department will be able to service your development located off Mathis Ferry Road. Regarding our meeting this date I am enclosing information discussed and requested.

***Water Flow :***

1. Developer shall install a new 10 inch water main from Highway 17 Bypass that will loop the sub-division with the smallest interior main of 8 inch.
2. Mt. Pleasant Waterworks shall model projected flows for the facility.
3. Mt. Pleasant Fire Department shall provide most recent fire flows for the area on request, or shall be able to assist Waterworks making new flows.
4. It is understood the sub-division must meet Subdivision Regulations Section 155.051 pertaining to fire hydrant provisions and fire flow requirements, with all hydrants having the capability to flow a minimum of 1,000 gpm of water at 20 psi residual pressure.
5. It is understood that all new construction shall meet requirements of the Town's Building Code Section 150.01.6, and all one and two family dwellings greater than 4,000 sq. ft. must have the required fire flow available for the issuance of a construction permit, or change the construction type or materials to meet the required fire flow, or install a sprinkler system in the dwelling using standards as described in NFPA 13d.
6. The formula utilized for fire flow for one and two family dwellings is : $C=18F(A)^{0.5}$ X .75. The formula is further explained as : 18 X construction factor X square root of

the area X .75 = Needed fire flow in gallons. The construction factor for wood frame (Type 6 construction) is 1.5, protected wood frame (Type 6) is 1.25, masonry is 1.0. An example of a 5,000 sq. foot single family dwelling, type 6, unprotected construction is : 18 X 1.5 X 70.71 X .75 = 1,431 gpm. If the same structure was constructed as protected with a factor of 1.25 the flow reduces to 1,181 gpm. Commercial properties are calculated in the same manner without the .75 final factor, and can include exposure coverage required as well. For particulars, please contact this office.

***Building Construction :***

1. Building construction shall follow requirements of the Standard Building Code and appropriate tables. It is understood that the smallest lots size is approximately 27 foot wide and that construction shall be at least 3 foot from lot line, allowing at least 6 foot between dwelling units. Dwellings shall have appropriate exterior ratings for smaller lot size in accordance with SBC tables.
2. Commercial property shall be located throughout the sub-division, and shall consist of approximately 20,000 to 30,000 sq. ft. total with buildings averaging 4,000 sq. ft. Commercial property shall meet all requirements of applicable fire and life safety codes.

***Streets and Roadways :***

1. The smallest streets designated on plat are SS-25, one way with 17 foot paved roadway. When lot is accessible by one SS-25 street only, no on the street parking shall be permitted in order to allow passage of fire apparatus. When a lot is paralleled by more than one SS-25 street, or one SS-25 and one greater in size, one shall be designed "no parking" while the other shall allow on street parking, one side only. This arrangement allows the Fire Department unrestricted access to all dwellings from at least one side, with at approximately 10-11 foot remaining on the secondary street.
2. Larger streets identified on the plat as R-30 are two way roads without curb and 18 foot of paved surface. No parking shall be allowed on R-30 two way roads; all allowable parking must be off the street on the grass. This allows a full 18 foot of accessible roadway for fire apparatus. Larger sized roadways shall allow on the street parking.
3. There shall be no "dead end streets". All streets must terminate in a turn around, have a cul-de-sac at the end or perpendicular court, with courts being at least 50 foot in length. The courts allows for fire apparatus to turn around by backing down one side of the court, exiting back onto main street.
4. All streets, courts and cul-de-sacs shall be designed to accommodate fire apparatus, and shall be driven by apparatus during construction with required changes made by the developer prior to acceptance. All radius of curves and turns shall be designed to accommodate fire apparatus. Fire apparatus size has been measured by the department as being :

- Engine # 1, 1991 KME pumper, representative of other pumpers in inventory is 9 foot 6 inches in width, turning radius to the left 60 foot 7 inches, to the right is 67 foot, 10 inches. Engine 1, 2 and 4 are KME pumpers which are 27 foot 5 inches in length, Engine 3 and 5 are E-One pumpers which have about the same turning radius, but are longer (30 foot 3 inches) due to the extended front bumpers.
- Ladder Truck # 1 : 1986 LTI is 10 foot wide, approximately 43 foot long and has a turning radius of 67 foot 5 inches to the left and right.
- Ladder Truck # 2 : 1992 E-One is 10 foot 5 inches wide, 37 foot 5 inches in width with a turning radius to the left 82 foot, to the right 92 foot.

5. Four main entrances to the sub-division off Mathis Ferry Road provide multiple response routes for fire apparatus.

***Impact on ISO Rating :***

There is no known direct affect of this sub-division that would be detrimental to the Town's ISO rating currently held as long as fire flow meets fire demands.

If there is any additional help that I may provide, please feel free to contact me.

Sincerely,

Frederick A. Tetor, Chief

cc : Town Administrator R. Mac Burdette
Mrs. Jewel Browder, Fire Committee Chair
Mr. Joel Ford
Mr. Stuart Whiteside

Chip Zullinger
*Superintendent*

Lynda F. Davis
*Area Superintendent*

CHARLESTON COUNTY
SCHOOL DISTRICT

Moultrie/St. James - Santee District
665 Coleman Boulevard
Mt. Pleasant, SC 29464
(803) 849-2878
FAX (803) 849-2860

December 16, 1996

Mr. Vincent Graham, President
The Graham Company
935 Houston Northcutt Blvd., Suite 101
Mt. Pleasant, SC 29464

**Re: Ionsborough Planned Development**

Dear Mr. Graham:

I am responding to your December 4, 1996, letter about the planned Ionsborough development consisting of 759 residential units off Mathis Ferry Road. This development adversely impacts the Charleston County School District, since currently mobile classrooms are widely used throughout Mt. Pleasant. A new middle school and a new elementary school will open August, 1998 and 1999, respectively, and this may relieve some of the overcrowded conditions.

The district is required by state law to provide educational services to all county residents without regard to potential impact from future development. Even though your client's planned development will impact the school district, educational services will be provided. This site will be served by James B. Edwards Elementary, Moultrie Middle and Wando High Schools, but this may change with rezoning by the District Two Constituent Board.

Sincerely,

Lynda F. Davis

Lynda F. Davis, Ed.D.
Area Superintendent

ka

c Dr. Chip Zullinger, Superintendent, CCSD
Dr. Norman Mullins, Associate Superintendent, CCSD
Mr. Mac Burdette, Administrator, Town of Mount Pleasant
Ms. Meg Howle, Public Relations Director, CCSD
Ms. Abby Bacon, Council of Governments

South Carolina
DHEC
Department of Health and Environmental Control
1362 McMillan Avenue, Suite 400
Charleston, SC 29405
(803)744-5838 Fax (803)744-5847



January 2, 1997 JAN 06 1997

Mr. Stuart Whiteside, P. E.
Seamon, Whiteside, Assoc, Inc.
753 Johnnie Dodds Blvd.
Mt. Pleasant, S. C. 29464

RE: I'ON (Formerly Jordan Tract)
Mount Pleasant
Charleston County

Dear Mr. Whiteside:

The above referenced project will need several permits and certifications from the Office of Ocean and Coastal Resource Management (OCRM). However, the submitted plan appears amenable to the existing OCRM regulatory constraints. The site does contain wetlands; thus a wetland delineation will be required. Also, the OCRM must issue a Stormwater Management and Sediment Control permit prior to any land disturbing activity on the site.

I will be available to review more detailed plans of the project as it progresses. Presently, it appears you are aware of the various requirements relating to OCRM approval of the project.

Sincerely,

Joseph Fersner, P.E.
Director of Engineering
and State Certifications

cc: Mr. Christopher Brooks
Mr. Stephen Snyder

# Mount Pleasant Waterworks



January 2, 1997

Mr. Stuart Whiteside, P.E.
Seamon, Whiteside & Associates
753 Johnnie Dodds Boulevard
Mount Pleasant, SC 29464

JAN 06 1997

RE: Ionsborough (Jordan Tract)

Dear Stuart:

The Commission is in receipt of your "Letter of Intent" to develop the above referenced project. Please allow this response to serve as the Commission's "Proof of Coordination."

As we discussed, the Commission will need a four foot wide area within the proposed right-of-ways to locate water meters and wastewater cleanouts. These items cannot be located on private property. If the meters and cleanouts are to be on the street side of the proposed sidewalks, sleeves and/or service extensions must be installed beneath the walks, so the sidewalk will not be disturbed when the service lines to the houses are installed. In addition, verbiage shall be included in the homeowners conveyance, which makes the homeowners responsible for maintenance of the service laterals to the meter or cleanout. Street tree locations shall be coordinated with the Commission for approval, to assure sufficient separation from water and wastewater laterals.

The Commission staff looks forward to working with you and the developer as the design of the water and wastewater systems progresses. Should you have any questions, please contact me at 849-2745.

Yours very truly,

MOUNT PLEASANT WATERWORKS

Angelo J. Hassig, P.E.
Capital Projects Engineer
Utilities Division

AJH:rlb

Post Office Box 330 • Mount Pleasant, SC 29465-0330
Telephone (803) 884-9626 • FAX (803) 884-4858
Internet Address: www.cleanh20.com

E-Mail Address for:
Administrative Services: wwadmin@cleanh20.com
Customer Service / Billing Department: wwfinance@cleanh20.com

# INDEX B

Kimley-Horn
and Associates, Inc.

P.O. Box 33068
Raleigh, North Carolina
27636-3068

TEL 919 677 2000
FAX 919 677 2050

*Fax Transmittal*

To: Joel Ford Fax No.: 803-547-2060

Firm/Location: Town of Mount Pleasant Job No.: _____

From: Larry Mersner Date: 1/17/97

Original coming by-mail: Yes: ✓ No: _____

If you have any problems, please call 919-677-2000 and ask for: _____

Total number of pages, including cover sheet: 3

Comments: Attached is memo w/ review comments on I'On traffic report. Glatting Jackson has provided information requested, and I am satisfied with their analysis and conclusions.

They're going to be sending new traffic assigned to individual project drives and HCS analysis of US 17 w/ current cycle lengths.

Call me if questions / comments

Kimley-Horn
and Associates, Inc.

*Engineering*
*Planning*
*and*
*Environmental*
*Consultants*

P.O. Box 33068
Raleigh, North Carolina
27636-3068

*Memorandum*

To: Joel Ford

From: Larry Meisner

Date: January 17, 1997

Response Date: January 17, 1995

Subject: Review of I'OnTraffic Analysis

As you requested, we have reviewed the traffic impact assessment prepared by Glatting Jackson Kercher Anglin Lopez Rinehart, Inc. (Glatting Jackson) for the I'On TND. Our findings are summarized below:

- The study complies with the Mount Pleasant Code requirement for a transportation impact assessment.

- The level of service reported on Mathis Ferry Road is based on the road being in an urban environment, where passing is not expected. We agree with this assessment of the road's nature, and believe it operates at level-of-service C during peak periods.

- The trip generation is consistent with ITE practice. We agree with the internal capture percentage for residential and retail. The office percentage appears high, but represents only a small percentage of the total. Overall, the internal capture is reasonable and within accepted practice.

- The overall trip distribution shown in Figure 3-1 appears reasonable. Working sketch figures showing detailed trip distribution and assigned traffic volumes showed a reasonable assignment of project traffic and were consistent with the intersection analyses performed. The analysis at the roundabout conservatively assumed that all development traffic would use the main entrance.

TEL 919 677 2000
FAX 919 677 2050

- The relative volumes assigned to Mathis Ferry Road and to Johnnie Dodds Boulevard at the Lowcountry Boulevard intersection appear to be reasonable, with about one-half of the traffic assigned to each of these roads.

- Projected year 2000 volumes include sufficient growth to account for projected I'On traffic, although the methodology used makes it difficult to assess the impact of the site traffic on these intersections.

- The location of the proposed roundabout, particularly relative to Muirhead Road, is satisfactory. Traffic using existing Low Country Boulevard is expected to be minimal.

- The proposed connector to US 17 (Lowcountry Boulevard) will improve access to US 17 from Mathis Ferry Road and from the proposed development. A benefit of the connector road is to reduce traffic volumes on Bowman Road and Anna Knapp Road. The effect of this diversion is not indicated in the report.

- Intersection capacity analyses on Johnnie Dodds Boulevard used traffic signal cycle lengths and phasing that were revised to optimize intersection performance. Analyses using current cycle lengths will be provided by Glatting Jackson.

- Diverting traffic from Mathis Ferry Road would help to preserve the scenic quality of the road and avoid neighborhood impacts. Project traffic will impact Johnnie Dodds Boulevard, which serves regional as well as local traffic. As indicated in the report, major improvements are required on Johnnie Dodds Boulevard to serve projected traffic volumes, with or without the proposed rezoning.

- The report does not specifically compare the impact of the proposed development on Mathis Ferry Road and on Johnnie Dodds Boulevard with the impact of a traditional development. A typical subdivision under existing zoning would contain approximately 800 single family units that would generate approximately 7,200 daily trip ends, with almost all of them traveling outside the development. All of these trips would use Mathis Ferry Road (assuming no connector to Johnnie Dodds Boulevard in place), with approximately 50% oriented in each direction (3,600 to the east and 3,600 trips to the west). The proposed development is projected to add approximately 4,200 daily trips to Mathis Ferry Road, 2,400 to the east and 1,800 to the west, representing a 42% decrease in traffic impacting Mathis Ferry Road.

# TRANSPORTATION IMPACT STUDY

I'On Traditional Neighborhood Development

Prepared For:

The Graham Company
Mt. Pleasant, South Carolina

Prepared By:

Glatting Jackson Kercher Anglin Lopez Rinehart, Inc

December 1996

# TABLE OF CONTENTS

## LIST OF FIGURES



## LIST OF TABLES

TRAFFIC IMPACT STUDY
I'ON DEVELOPMENT

# 1.0 INTRODUCTION

The proposed I'On development will be a traditional neighborhood development on 243 acres north of Mathis Ferry Road in Mt. Pleasant, South Carolina (***Figure 1***). The community will contain a full range of the traffic circulation features that support the livable and sustainable design of traditional neighborhood development. Particularly important features include a broad spectrum of street types, ranging from single-lane residential streets to multi-lane boulevards. The thoroughfare design emphasis is placed on a pedestrian environment, low-speed intersection geometrics, and detailed attention to cross-section features such as trees, sidewalks and the placement of structures fronting the thoroughfares.

The community street system design includes two significant traffic enhancement features which together serve to improve the traffic service on Mathis Ferry Road, both adjacent to and on either side of this proposed community. After the community is fully built out, traffic service will be improved compared with existing conditions. These traffic enhancement features includes (1) an additional connecting access road from the main community entrance on Mathis Ferry Road through to US17 at the Low country Boulevard traffic signal; and (2) a traffic roundabout at the main community entrance on Mathis Ferry Road. A traffic roundabout is not only an innovative control device, but also adds to the livability and aesthetic appeal of the community and of Mathis Ferry Road. These access improvements will provide the neighboring residents as well as residents of the new community with an easy direct access to US17.

This study evaluates the potential traffic impacts on the local roadway network immediately adjacent to the proposed I'On Traditional Neighborhood Development (TND). Primary emphasis was given to the projected operational characteristics of Mathis Ferry Road. Mathis Ferry Road, designated a scenic highway, is an urban two-lane facility primarily providing access to the residential communities north of Mathis Ferry Road. The Town of Mt. Pleasant is opposed to widening Mathis Ferry Road and has therefore, emphasized the importance of design considerations which will help preserve the esthetic quality of the road as well as the ability to continue at an acceptable level of service as a two-lane facility.

This study evaluates the operational characteristics of Mathis Ferry Road and US17 with full development of the I'On Traditional Neighborhood Development and the roadway system improvements incorporated into the development of this new community.

The key elements of this study include:

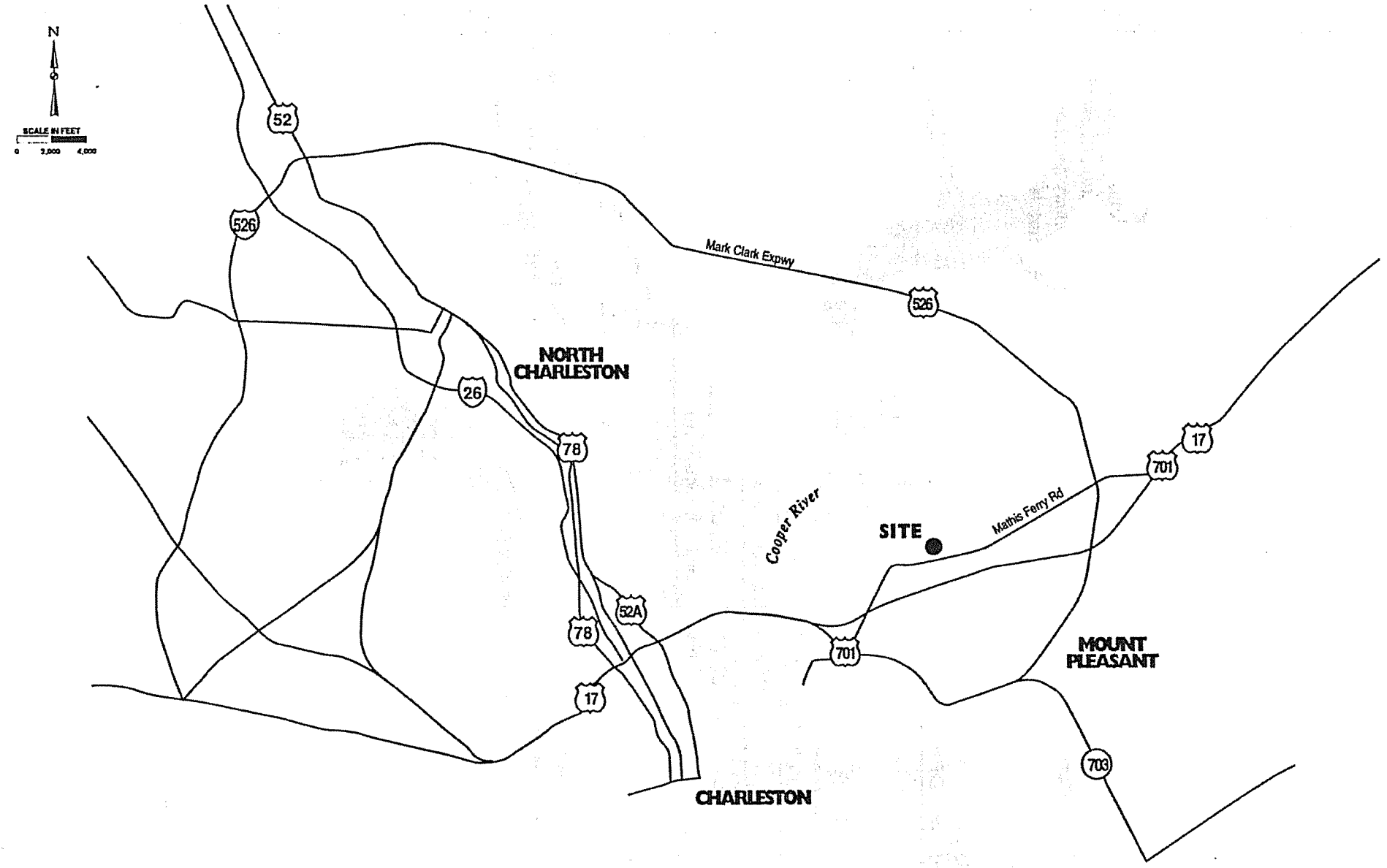
Section 2.0, Existing Conditions, summarizes the existing roadway network, levels of service and deficiencies.

Section 3.0, Development Program, summarizes the proposed development program, estimated trip generation, internal capture and project traffic distribution.

Section 4.0, Future Traffic Conditions, provides an analysis for total traffic, including project traffic.

Section 5.0, Improvement Needs, summarizes the needed transportation improvements, if any, to the local roadway network.

Section 6.0, Conclusions and Recommendations, summarizes the analysis and provides recommendations regarding access.




I'On Traditional Neighborhood Development

Figure I-1
**Site Location**

# 2.0 EXISTING CONDITIONS

## 2.1 Existing Traffic Conditions

Existing daily traffic volumes and levels of service for roadways within the vicinity of the I'On TND are shown on ***Figure 2-1***. These volumes were compiled from the South Carolina Department of Transportation (SCDOT) Traffic Count Program. The evaluation of existing traffic conditions is based on methodologies contained in the 1994 *Highway Capacity Manual* (HCM). The facility type, number of lanes, existing traffic volumes and the existing level of service are shown in ***Table 2-1***.

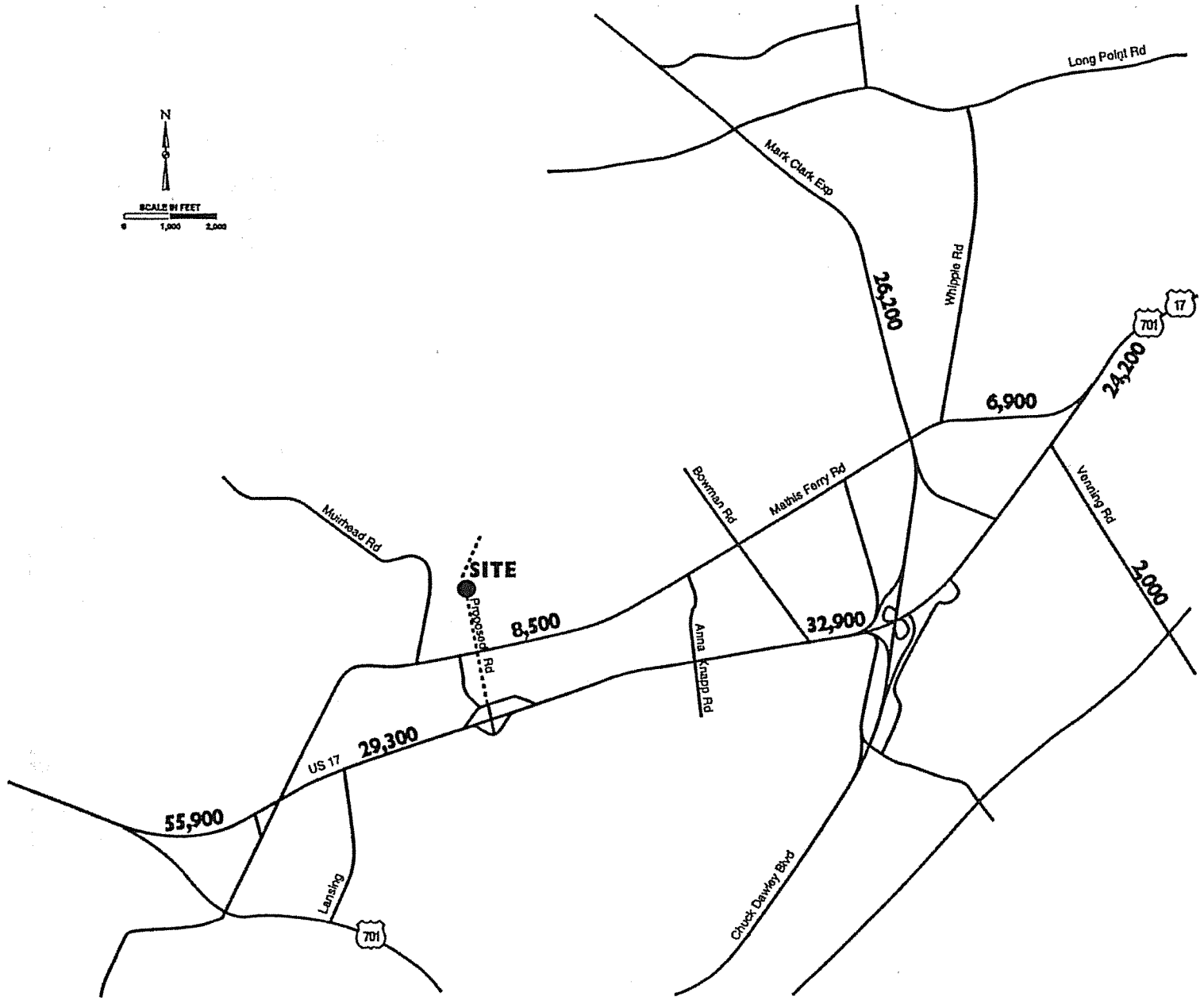
Table 2-1
SUMMARY OF ROADWAY LEVEL OF SERVICE, YEAR 1996

| Roadway | Segment From - To | No. Lanes | Existing Daily Traffic | LOS |
|---|---|---|---|---|
| Mathis Ferry Road | US17 (Western Int.) - Whipple Rd. | 2U | 8,500 | B |
| | Whipple Rd. - US17 (Eastern Int.) | 2U | 6,900 | A |
| US17 | Cooper River Bridge - Mathis Ferry Rd. | 4LD | 55,900 | C |
| | Mathis Ferry Rd. - Bowman Rd. | 4LD | 29,300 | B |
| | Bowman Rd. - SR 526 | 4LD | 32,900 | B |
| SR526 | US17 - Long Point Rd. | 4F | 26,200 | B |

Intersections were analyzed using the 1994 *Highway Capacity Manual* operational analysis procedures for the afternoon peak-hour. ***Table 2-2*** summarizes the existing level of service for those intersections analyzed in this study.

Table 2-2
SUMMARY OF INTERSECTION LEVEL OF SERVICE, YEAR 1996

| Intersection | Intersection Control | LOS |
|---|---|---|
| US17 - Mathis Ferry Road (Western Int.) | Signal | D |
| US17 - Lowcountry Boulevard | Signal | N/A |
| US17 - Anna Knapp Road | Signal | C |
| US17 - Bowman Road | Signal | C |
| Mathis Ferry Road - I'On Ent. Road | Roundabout | N/A |




l'On Traditional Neighborhood Development

Figure 2-1

**Existing Traffic Volumes**

## 2.2 Planned Roadway Improvements

Several intersection improvements, in the vicinity of I'On, are being recommended in the *Technical Memorandum No. 1 of the Transportation Plan and Study for the Town of Mt. Pleasant.* These improvement needs are being recommended as a result of analysis conducted for total projected traffic for Year 2000. The addition of the second left-turn lane at each approach shown below can be accommodated within the existing right-of-way by re-striping.

- US17/Mathis Ferry Road (Western Intersection)
  Dual left-turn lanes eastbound and westbound on US17 at Mathis Ferry Road
  Three eastbound and westbound through lanes on US17
  Exclusive right-turn lanes northbound and southbound on Mathis Ferry Road
  Exclusive right-turn lane eastbound on US17

- US17/Anna Knapp Road
  Three eastbound and westbound through lanes on US17
  Exclusive right-turn lane eastbound and westbound on US17

- US17/Bowman Road
  Dual left-turn lanes - eastbound and westbound on US17

Two roadway improvements are proposed as a part of the I'On Traditional Neighborhood Development. The specific improvements are planned to enhance the operation of Mathis Ferry Road and to provide safe easy access to the new community as well as the neighboring communities.

- A new connector roadway from the main community entrance on Mathis Ferry Road to US17 at the existing Lowcountry Boulevard traffic signal.

- A traffic roundabout at the main community entrance on Mathis Ferry Road.

# 3.0 DEVELOPMENT PROGRAM

## 3.1 Proposed Development Program

Table 3-1
Proposed Development Program

| Land Use Designation | ITE Code | Number of Units/Sq. Ft. |
|---|---|---|
| Single Family | 210 | 759 DU |
| Retail | 820 | 16,000 SF |
| Office | 710 | 14,000 SF |

The development program for the proposed project is typical of traditional neighborhood developments, and is significantly different from conventional suburban projects. The proposed I'On TND includes a wide variety of housing types, and it is proposed that these housing products be blended throughout the project, not isolated into separate enclaves of a single housing type. This is in strong contrast to conventional suburban development, which focuses all housing of a similar (often identical) type onto a single "pod" of cul-de-sac streets, connecting only to the fronting arterial street and not connecting to the rest of the development.

Another noteworthy traditional neighborhood feature of I'On is its inclusion of community shopping space and offices in a town center atmosphere. These activities (shopping and employment) are typically excluded from conventional suburban development. The transportation significance of including even small amounts of shopping and service is significant, since most household travel is made for the purpose of local shopping/services.

## 3.2 Project Traffic

Trip generation for the land uses proposed in the I'On Traditional Neighborhood Development was based on formulas contained in the *Trip Generation, Fifth Edition* (ITE, 1995), published by the Institute of Transportation Engineers. ***Table 3-2*** summarizes the daily and afternoon peak-hour trip generation for the proposed development program.

Table 3-2
Summary of Daily and Afternoon Peak-Hour Trip Generation

| Land Use Designation | ITE Code | Number of Units/Sq. Ft. | Daily Trip Ends | PM Peak-Hour Trip Ends | | |
|---|---|---|---|---|---|---|
| | | | | Total | In | Out |
| Single Family | 210 | 759 DU | 6,675 | 672 | 437 | 235 |
| Retail | 820 | 16,000 SF | 2,248 | 204 | 102 | 102 |
| Office | 710 | 14,000 SF | 317 | 43 | 7 | 36 |
| Sub total | | | 9,240 | 919 | 546 | 373 |
| Less: | | | | | | |
| Internal Capture | | | 803 | 80 | 40 | 40 |
| Net External | | | 8,437 | 839 | 506 | 333 |

## 3.3 Internal Capture

In contemporary suburban developments, recreation, civic, convenience shopping, work related and residential uses are usually segregated from each other. This development pattern makes virtually every trip automobile dependent.

Intermixing land uses within close proximity and convenient accessibility to one another in the same development, not only reduces the length of car trips from what would typically occur in a contemporary suburban development, but allows residents to make many of these trips on foot. In either event, the trips internal to the development in question do not produce automobile trips outside the development. Residents working within the community either walk or drive "to work" without leaving the community. Of course, work related trips outside the community would generate external trip ends.

The limited neighborhood commercial component within I'On will contain only small shops and office space. Some of the retail trip ends here will come from I'On residents. The neighborhood commercial component thus "captures" some of the retail trips I'On residents would otherwise have to make outside the development. Therefore, the retail component of I'On will slightly reduce the traffic on Mathis Ferry Road required were the retail component excluded and were residents of I'On thereby forced to travel farther for their convenience retail needs.

The most important component of internal capture is travel between home and retail shopping. Of the 6,675 daily trips that either begin or end at households (***Table 3-2***) 18 percent (or 1,202 daily trip beginnings/endings) are for shopping. The local shopping planned for the I'On development is projected to satisfy 20 percent of the shopping needs of residents, with the other 80 percent needing to go off-site. The I'On development shopping, therefore, "captures" 240 of the daily trip beginnings/endings at households (20 percent of 1,202). A counterpart of 240 more trip beginnings/endings at the retail sites are similarly "captured" as internal travel, since these trip beginnings/endings no longer come from outside the site, but

rather from within it. Retail shopping, then, accounts for a reduction of 480 trip beginnings/endings for the site. Similar computations involving trips between office/shopping and office/home account for 323 more daily trip beginnings/endings. Altogether, there are a total of 803 daily trip beginning/endings captured internally within the site. This internal capture of 803 trip beginnings/endings represents 8.7 percent of the project's total trip beginnings/endings.

*Table 3-3* converts the daily total of 803 internally captured trips to a peak-hour total of 80 trips, and shows their allocation to the various land uses within the site.

Table 3-3
SUMMARY OF PM PEAK-HOUR INTERNAL CAPTURE

| To / From | Residential | Retail | Office | Total |
|---|---|---|---|---|
| Residential | 0 | 24 | 8 | 32 |
| Retail | 24 | 0 | 8 | 48 |
| Office | 8 | 8 | 0 | 16 |
| Total | 32 | 32 | 16 | 80 |

Total internal capture represents 8.7% of the total estimated trip generation.

## 3.4 Project Traffic Distribution

The Town of Mt. Pleasant is a coastal community located in Charleston County. Mt. Pleasant and its neighboring towns and unincorporated areas to the east comprise the area known as the East Cooper Community. Mt. Pleasant is primarily a residential community which lacks a densely developed downtown area, but possesses sufficient commercial, office, institutional and service facilities to support the resident population. According to *Technical Memorandum No. 1 of the Transportation Plan and Study for the Town of Mt. Pleasant*, approximately 75% of the Town's labor force is employed outside of the East Cooper Community, primarily in Charleston and North Charleston. Because the majority of project trip ends during the afternoon peak-hour are home-based work trips, the distribution of project traffic during the afternoon peak-hour was based on the geographic distribution of employment opportunities within a 15-mile radius of the project site. ***Figure 3-1*** shows the distribution of project traffic during the afternoon peak-hour.

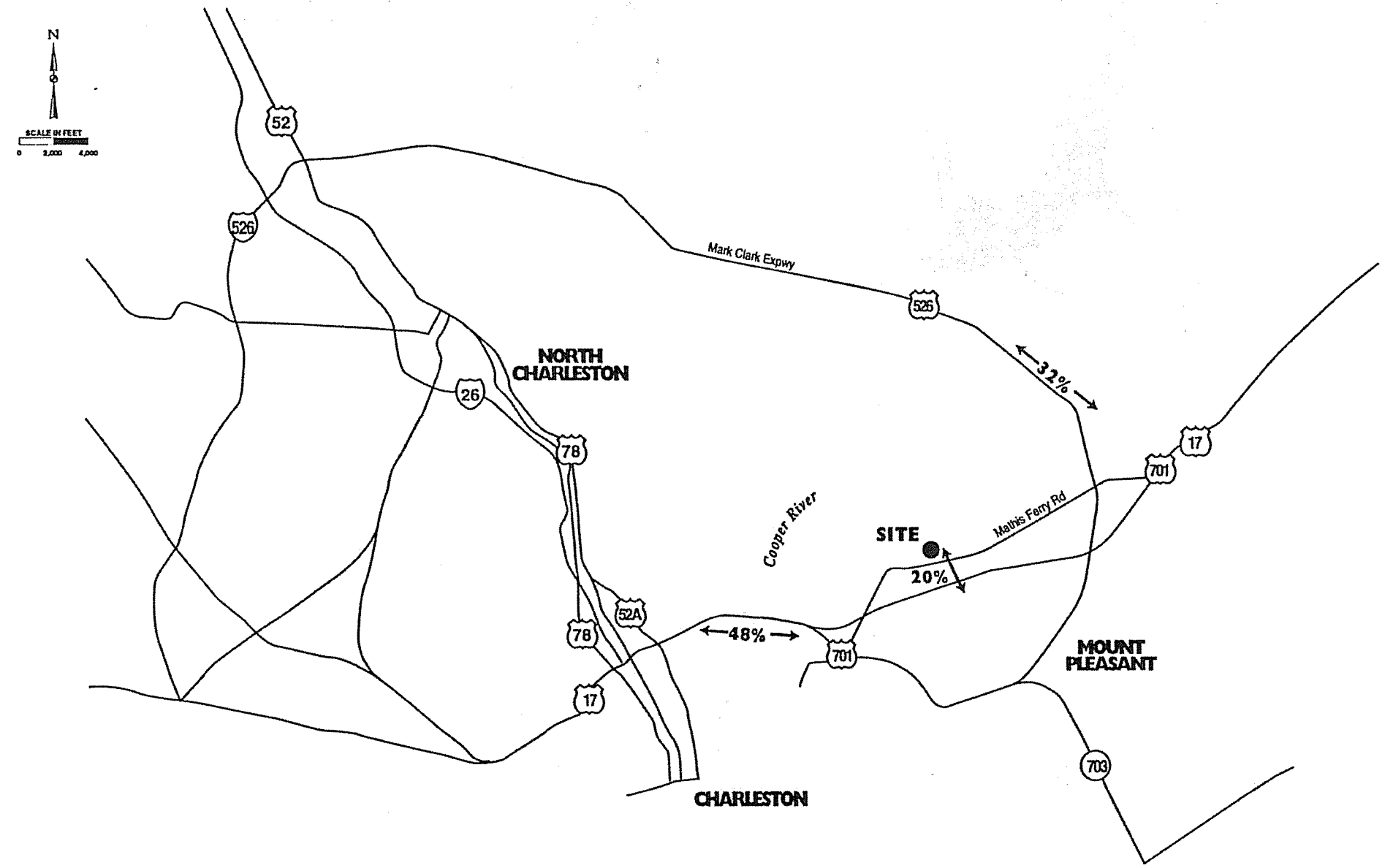
## 3.5 Site Access

The I'On site is well served by the existing and planned roadway network. Mathis Ferry Road connects to US17 at both its eastern and western terminus. Additionally, there are three existing and one planned roadway connections between Mathis Ferry Road and US17: (1) Low Country Boulevard,(2) Anna Knapp Road, (3) Bowman Road, and (4) the proposed connector roadway extending from the I'On TND entrance to US17. The intersection of this proposed roadway and Mathis Ferry Road is being planned as a single-lane roundabout. The access to the I'On Traditional Neighborhood Development is shown on ***Figure 3-2***.

The proposed roundabout will provide intersection access control on Mathis Ferry Road at the I'On entrance road that, compared to a stop-controlled four-leg intersection, will: (1) provide more capacity; (2) be less intrusive, and therefore, more aesthetically pleasing; and (3) based on empirical data have a lower accident rate than would a signalized intersection.

Because the roundabout will provide for easy movements between Mathis Ferry Road and the Proposed Connector Road (south of Mathis Ferry Road), some motorists from adjacent residential communities will use the Proposed Connector Road to access US17 rather than currently used routes. This proposed network addition will slow the growth in traffic on certain segments of Mathis Ferry Road, primarily between the Proposed Connector Road west to US17.

This connector road will enhance the network grid system of streets and provide additional access opportunities for the new community and it neighbors to the south. The Proposed Connector Road will provide direct access to US17 at an existing traffic signal.




I'On Traditional Neighborhood Development

Figure 3-1

**PM Peak-Hour Project Traffic Distribution**

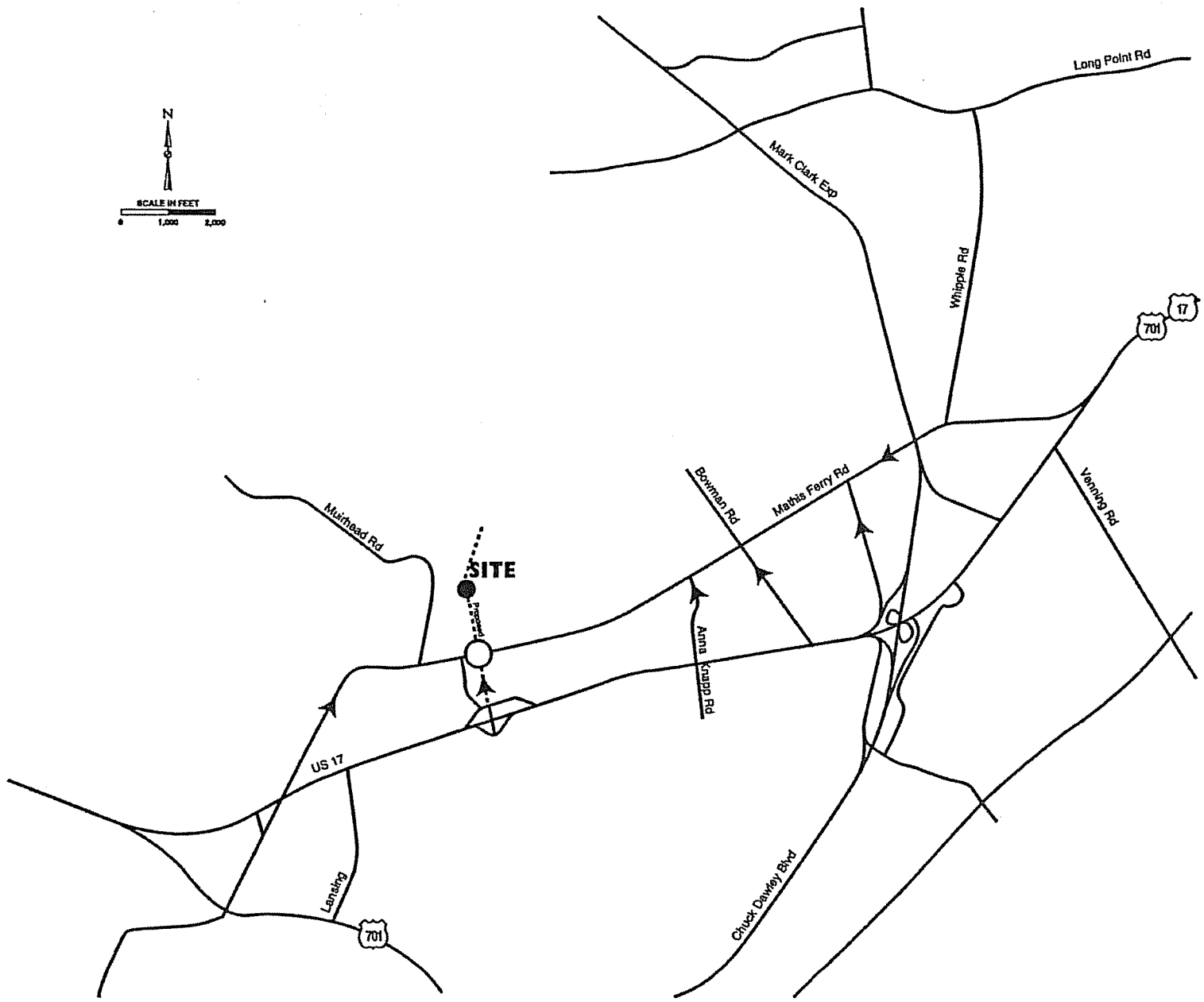





Figure 3-2
**Site Access**

# 4.0 FUTURE TRAFFIC CONDITIONS

## 4.1 Roadways

Background traffic on Mathis Ferry Road for the year 2000 is the same as for the current year. According to City of Mt. Pleasant staff the only growth in traffic on Mathis Ferry Road will occur as a result of growth in the residential communities accessing Mathis Ferry Road.

Background traffic volumes for US17, Cooper River Bridge, and Mark Clark Expressway for the year 2000 were estimated by applying an annual growth rate of six percent (6%) to existing volumes. This growth rate was reported in the *Technical Memorandum No. 1 of the Transportation Plan and Study for the Town of Mt. Pleasant.* The annual growth rate assumed for these roadways (6%) is assumed to include the estimated traffic from I'On.

***Table 4-1*** summarizes the estimated directional traffic volumes and levels of service for the afternoon peak-hour in Year 2000. As indicated in ***Table 4-1***, roadway segments analyzed are projected to operate at an acceptable level of service (LOS) in the year 2000: LOS "B" (free flow), LOS "C" (typical of smaller city peak-hour conditions), or LOS "D" (typical of peak-hour conditions in urban cities the size of Charleston). Year 2000 daily traffic volumes were converted to PM peak-hour volumes by using factors from the *Technical Memorandum No. 1 of the Transportation Plan and Study for the Town of Mt. Pleasant.*

Following standard practices for traffic impact analysis, roadway level of service (LOS) is computed from procedures from the 1984 *Highway Capacity Manual.*

The Year 2000 is adopted as the year of analysis, to reflect the year of completion of the I'On TND. Year 2000 traffic is obtained by projecting the "background" traffic (i.e., without I'On TND) for the Year 2000, and then adding to it the traffic generated by the I'On TND at full development.

Following standard practice for traffic impact analysis, both road sections (between intersections) and intersections are examined. All analysis is done for the afternoon peak-hour, reflecting the daily peak period of traffic.

Table 4-1
SUMMARY OF PM PEAK-HOUR LEVEL OF SERVICE, YEAR 2000

| Road | Road Segment From - To | Year 2000 PM Peak-Hour Traffic | | | | | | LOS |
|---|---|---|---|---|---|---|---|---|
| | | Background | | Project | | Total | | |
| | | NB/EB | SB/WB | NB/EB | SB/WB | NB/EB | SB/WB | |
| Mathis Ferry Road | North Frontage Road - Muirhead Rd. | 486 | 399 | 109 | 66 | 595 | 465 | B |
| | Muirhead Rd. - I'On Entrance Rd. | 486 | 399 | 109 | 66 | 595 | 465 | B |
| | I'On Entrance Rd. - Heron Point Blvd. | 486 | 399 | 83 | 136 | 569 | 535 | B |
| | Heron Point Blvd. - Anna Knapp Rd. | 486 | 399 | 83 | 136 | 569 | 535 | B |
| | Anna Knapp Rd. - Bowman Rd. | 486 | 399 | 49 | 82 | 535 | 481 | B |
| | Bowman Rd. - Whipple Rd. | 486 | 399 | 17 | 28 | 503 | 427 | B |
| | Whipple Rd. - US17 | 394 | 323 | 14 | 22 | 500 | 421 | B |
| US17 | Cooper River Bridge | 3,657 | 2,649 | 242 | 160 | 3,657 | 2,649 | D |
| | West of Mathis Ferry Rd. | 2,797 | 1,492 | 262 | 159 | 2,797 | 1,492 | C |
| | Mathis Ferry Rd. - Lowcountry Blvd. | 2,544 | 1,700 | 136 | 97 | 2,544 | 1,700 | C |
| | Lowcountry Blvd. - Anna Knapp Rd. | 2,134 | 1,770 | 73 | 110 | 2,134 | 1,770 | C |
| | Anna Knapp Rd. - Bowman Rd. | 2,428 | 1,914 | 106 | 162 | 2,428 | 1,914 | C |
| | Bowman Rd. - SR 526 | 2,572 | 1,932 | 106 | 174 | 2,572 | 1,932 | C |
| | SR526 - Mathis Ferry Rd. | 1,898 | 1,741 | 17 | 26 | 1,898 | 1,741 | B |
| SR526 | Mathis Ferry Rd. - Long Point Rd. | 1,946 | 1,297 | 106 | 156 | 1,928 | 1,946 | 1,297 |

## 4.2 Intersections

Intersection turning movement volumes and intersection configuration for the Year 2000 were obtained from the *Highway Capacity Manual* (HCM)and the *Technical Memorandum No. 1 of the Transportation Plan and Study for the Town of Mt. Pleasant.* Analysis of intersections for Year 2000 was based on HCM operational analysis.

**Table 4-2** summarizes the intersection level of service for Year 2000.

Table 4-2
SUMMARY OF INTERSECTION LEVEL OF SERVICE, YEAR 2000

| Intersection | Intersection Control | LOS |
|---|---|---|
| US17 - Mathis Ferry Road | Signal | C |
| US17 - Lowcountry Boulevard | Signal | C |
| US17 - Anna Knapp Road | Signal | C |
| US17 - Bowman Road | Signal | C |
| Mathis Ferry Road - I'On Entrance Road | Roundabout | A |

# 5.0 TRANSPORTATION IMPROVEMENT NEEDS

## 5.1 Roadways

All roadway links in the vicinity of the I'On TND will operate at acceptable Level of Service (LOS) in the year 2000 (***Table 4-1***). Therefore, no roadway improvement needs, above those recommended in the *Technical Memorandum No. 1 of the Transportation Plan and Study for the Town of Mt. Pleasant*, are required in Year 2000. Those roadway improvements recommended in the *Technical Memorandum No. 1 of the Transportation Plan and Study for the Town of Mt. Pleasant* will be required even if I'On is not built, therefore, the estimated traffic from I'On will not create the need for additional roadway improvements.

## 5.2 Intersections

All intersections in the vicinity of the I'On TND will operate at acceptable levels of service in the Year 2000 (***Table 4-2***). Therefore, no additional intersection improvement needs, above those recommended in the *Technical Memorandum No. 1 of the Transportation Plan and Study for the Town of Mt. Pleasant*, are required for Year 2000. Those intersection improvements recommended in the *Technical Memorandum No. 1 of the Transportation Plan and Study for the Town of Mt. Pleasant* will be required even if I'On is not built, therefore, the estimated traffic from I'On will not create the need for additional intersection improvements.

## 6.0 CONCLUSIONS

As planned with the new connector from Martin Ferry Road to US17, the new traffic control device on Mathis Ferry Road, 759 single family units, 16,000 square feet of retail, and 14,000 square feet of office, I'On will:

- not add any increment of road improvement needs to those currently identified by the Town of Mount Pleasant.

- improve traffic circulation on Mathis Ferry Road and other neighboring streets.

**No Further Road Improvements Needed For I'On TND**

The external (i.e., off-site) traffic from the I'On can be accommodated on the roadway network as recommended in the Transportation Plan and Study for the Town of Mount Pleasant.

The I'On TND will not add to the extent of traffic improvements already identified as needed for the Town of Mount Pleasant in the Transportation Plan and Study. Nor will the I'On cause any deterioration, to substandard levels, in the traffic service provided by these planned improvements.

**I'On TND's Road Improvements Will Improve Traffic Circulation**

The standard measure of road performance reported in traffic impact analysis—"Level of Service" as defined by the 1984 *Highway Capacity Manual*—reflects vehicle speed primarily. In terms of this measure, the traffic service on Mathis Ferry Road is Level of Service "B," a free-flow condition, both without and with the I'On TND in place. Therefore, in terms of the narrowly defined criteria (essentially vehicular speed), the existing Level of Service will be maintained, following the development of the I'On TND.

Other, more comprehensive measures of traffic performance will improve significantly with the development of the road improvements accompanying I'On TND:

- **Traffic Calming on Mathis Ferry Road** - The proposed roundabout on Mathis Ferry Road at the I'On TND entrance is not only a sophisticated traffic control device for the intersection, but also serves to "calm" traffic on Mathis Ferry Road. The roundabout accomplishes this by reducing vehicular speeds, eliminating speed differences between turning and through traffic, compelling a higher level of attention from passing motorists, and eliminating the prospect of speeding vehicles maneuvering to pass slower ones on a substantial section of Mathis Ferry Road.

- **Access to US17** – The proposed Mathis Ferry Road/US17 Connector is an important addition to the Town of Mount Pleasant street network. This connection provides additional access to US17 for motorists using Mathis Ferry Road and provides a superior alternative for motorists' use of the Lowcounty Boulevard intersection.

- **Turning Movements To/From Mathis Ferry Road** - The proposed roundabout at the I'On entrance on Mathis Ferry Road is a sophisticated intersection design that will provide safe and virtually delay-free entry/exit to Mathis Ferry Road, not only for I'On residents but for traffic on Mathis Ferry Road seeking a safe and convenient way to "cross over" to US17 on the new connecting link that will accompany the I'On TND.

These traffic service improvements are made possible by a combination of two major street improvements generated by the I'On TND: (1) roundabout at the intersection of Mathis Ferry Road and the I'On main entrance and (2) new connector road between Mathis Ferry Road and US17. The scope of these two improvements to the public street system is unusual for a private development project of even much greater size.

# APPENDICES

ROADWAY AND INTERSECTION ANALYSIS WORKSHEETS
YEAR 1996

Highway Mathis Ferry Rd. Analyst JJM Date 12-18-96
From/To US 17 - Whipple Rd. Analysis Year 1996

## INPUT DATA

Total AADT Volume 9500 (vpd)

Speed Limit _____ (mph)

Terrain (L, R, M) Level

Facility Environment *

| | Suburban ← | → Rural |
|---|---|---|
| K | 0.10 | 0.15 |
| D | 0.60 | 0.65 |

Truck Percentage 2.0

* Average values and do not necessarily reflect typical local conditions.

## ANALYSIS

DDHV** = AADT x K x D DDHV = 9500 x .10 x .60 = 510 vph

| | | LOS |
|---|---|---|
| Per lane volume for: | | |
| 2-Lane Highway = | 510 vph/1 = 510 | B |
| 4-Lane Highway = | _____ vph/2 = _____ | _____ |
| 6-Lane Highway = | _____ vph/3 = _____ | _____ |

** Be sure all values match the analysis period. (e.g. commute, weekend)

## LEVEL OF SERVICE

Free Flow Speed = 60 mph

| Terrain | LOS | Percent Trucks 0 | 5 | 10 | 15 | 20 |
|---|---|---|---|---|---|---|
| Level | A | 590 | 580 | 570 | 550 | 540 |
| | B | 990 | 970 | 940 | 920 | 900 |
| | C | 1360 | 1330 | 1290 | 1260 | 1240 |
| | D | 1620 | 1580 | 1540 | 1510 | 1470 |
| | E | 1890 | 1840 | 1800 | 1760 | 1720 |
| Rolling | A | 590 | 540 | 500 | 460 | 420 |
| | B | 990 | 900 | 830 | 760 | 710 |
| | C | 1360 | 1240 | 1130 | 1050 | 970 |
| | D | 1620 | 1470 | 1350 | 1250 | 1160 |
| | E | 1890 | 1720 | 1580 | 1450 | 1350 |
| Mountain | A | 590 | 480 | 400 | 340 | 300 |
| | B | 990 | 790 | 660 | 570 | 500 |
| | C | 1360 | 1090 | 910 | 780 | 680 |
| | D | 1620 | 1300 | 1080 | 930 | 810 |
| | E | 1890 | 1510 | 1260 | 1080 | 950 |

Free-Flow Speed = 50 mph

| Percent Trucks 0 | 5 | 10 | 15 | 20 |
|---|---|---|---|---|
| 490 | 470 | 460 | 450 | 440 |
| 810 | 790 | 770 | 750 | 740 |
| 1130 | 1110 | 1080 | 1050 | 1030 |
| 1350 | 1320 | 1290 | 1260 | 1230 |
| 1710 | 1670 | 1630 | 1590 | 1550 |
| 490 | 440 | 410 | 370 | 350 |
| 810 | 740 | 680 | 620 | 580 |
| 1130 | 1030 | 950 | 870 | 810 |
| 1350 | 1230 | 1130 | 1040 | 960 |
| 1710 | 1550 | 1430 | 1320 | 1220 |
| 490 | 390 | 320 | 280 | 240 |
| 810 | 650 | 540 | 460 | 410 |
| 1130 | 910 | 760 | 650 | 570 |
| 1350 | 1080 | 900 | 770 | 680 |
| 1710 | 1370 | 1140 | 980 | 860 |

Base Assumptions: All heavy vehicles are trucks.
Lane widths = 12 ft.
Shoulder width ≥ 6 ft.
PHF = 0.90
Access points = 20 per mile, each side.
Divided highway

*Figure 7-6. Worksheet for planning analysis.*

Source: 1994 Highway Capacity Manual

Highway Mathis Ferry Rd  Analyst JJ M  Date 12-18-96
From/To Whipple Rd - I7 (east)  Analysis Year 1996

## INPUT DATA

Total AADT Volume 6900 (vpd)

Speed Limit _____ (mph)

Terrain (L, R, M) Level

| Facility Environment * | Suburban ⟷ Rural |
|---|---|
| K | 0.10 — 0.15 |
| D | 0.60 — 0.85 |

Truck Percentage 2.0

* Average values and do not necessarily reflect typical local conditions.

## ANALYSIS

DDHV** = AADT x K x D  DDHV = 6900 x.10 x .60 = 414 vph

Per lane volume for:

| | | LOS |
|---|---|---|
| 2-Lane Highway = | 414 vph/1 = 414 | A |
| 4-Lane Highway = | _____ vph/2 = _____ | _____ |
| 6-Lane Highway = | _____ vph/3 = _____ | _____ |

** Be sure all values match the analysis period. (e.g. commute, weekend)

## LEVEL OF SERVICE

| | | Free Flow Speed = 60 mph | | | | | Free-Flow Speed = 50 mph | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percent Trucks | | | | | Percent Trucks | | | | |
| Terrain | LOS | 0 | 5 | 10 | 15 | 20 | 0 | 5 | 10 | 15 | 20 |
| Level | A | 590 | 580 | 570 | 550 | 540 | 490 | 470 | 460 | 450 | 440 |
| | B | 990 | 970 | 940 | 920 | 900 | 810 | 790 | 770 | 750 | 740 |
| | C | 1360 | 1330 | 1290 | 1260 | 1240 | 1130 | 1110 | 1080 | 1050 | 1030 |
| | D | 1620 | 1580 | 1540 | 1510 | 1470 | 1350 | 1320 | 1290 | 1260 | 1230 |
| | E | 1890 | 1840 | 1800 | 1760 | 1720 | 1710 | 1670 | 1630 | 1590 | 1550 |
| Rolling | A | 590 | 540 | 500 | 460 | 420 | 490 | 440 | 410 | 370 | 350 |
| | B | 990 | 900 | 830 | 760 | 710 | 810 | 740 | 680 | 620 | 580 |
| | C | 1360 | 1240 | 1130 | 1050 | 970 | 1130 | 1030 | 950 | 870 | 810 |
| | D | 1620 | 1470 | 1350 | 1250 | 1160 | 1350 | 1230 | 1130 | 1040 | 960 |
| | E | 1890 | 1720 | 1580 | 1450 | 1350 | 1710 | 1550 | 1430 | 1320 | 1220 |
| Mountain | A | 590 | 480 | 400 | 340 | 300 | 490 | 390 | 320 | 280 | 240 |
| | B | 990 | 790 | 660 | 570 | 500 | 810 | 650 | 540 | 460 | 410 |
| | C | 1360 | 1090 | 910 | 780 | 680 | 1130 | 910 | 760 | 650 | 570 |
| | D | 1620 | 1300 | 1080 | 930 | 810 | 1350 | 1080 | 900 | 770 | 680 |
| | E | 1890 | 1510 | 1260 | 1080 | 950 | 1710 | 1370 | 1140 | 980 | 860 |

Base Assumptions: All heavy vehicles are trucks.
Lane widths = 12 ft.
Shoulder width ≥ 6 ft.
PHF = 0.90
Access points = 20 per mile, each side.
Divided highway

*Figure 7-6. Worksheet for planning analysis.*

Source: 1994 Highway Capacity Manual

HCS: Multilane Highways Release 2.1
**********

File Name .....
CRB96.HC7
Facility Section.....
Cooper River Bridge
From/To.....

Analyst.....
JJM
Time of Analysis.....
PM Peak-Hour
Date of Analysis.....
12/18/96
Other Information.... Year 1996

| A. Adjustment Data | Direction 1 | Direction 2 |
|---|---|---|
| Volume | 2950 | 2137 |
| Percentage of Trucks and Buses | 2.0 | 2.0 |
| Percentage of Recreational Vehicles | 1.0 | 1.0 |
| Ideal Free-Flow Speed | 60.0 | 60.0 |
| Peak-Hour Factor or Peak 15 Minutes | 0.95 | 0.95 |
| Lane Width | 12.0 | 12.0 |
| Access Points per Mile | 0.0 | 0.0 |
| Distance from Roadway Edge | 3.0 | 3.0 |
| Type of Median | D | D |

B. Adjustment Factors

| Terrain Type | E T | E R | F HV | F M | F LW | F LC | F A |
|---|---|---|---|---|---|---|---|
| LEVEL | 1.50 | 1.20 | 0.99 | 0.00 | 0.00 | 2.70 | 0.00 |
| | 1.50 | 1.20 | 0.99 | 0.00 | 0.00 | 2.70 | 0.00 |

| C. Level of Service Results | Direction 1 | Direction 2 |
|---|---|---|
| Service Flow Rate (Vp) | 1571 | 1138 |
| Average Passenger Car Speed (mph) | 57 | 57 |
| Free Flow Speed (mph) | 56 | 57 |
| Density (pcpmpl) | 27 | 20 |
| Level of Service (LOS) | C | B |

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

File Name ..... 1796.HC1
Arterial..... US17
From/To..... Mathis Ferry - 526
Direction ..... E
Analyst..... JJM
Time of Analysis..... PM
Date of Analysis..... 12/18/96
Other Information.... Year 1996

## A. Description of Arterial

| Seg. | Intersection File Name | Street Name | Length (mi) | Art. Class | Free Flow Speed (mph) | Sect. |
|---|---|---|---|---|---|---|
| | 17MF96.HC9 | Mathis Ferry Road | | | | |
| 1 | 17AK96.HC9 | Anna Knapp | 1.70 | 1 | 40 | 1 |
| 2 | 17B96.HC9 | Bowman | 0.47 | 1 | 40 | 2 |

## B. Intersection Delay Estimates

| Seg. | C | g/C | PHF | v/c | c | Arrival Type | Act. | d1 | DF | d2 | d | D | Inter. LOS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 114 | 0.46 | 0.95 | 0.762 | 1699 | 3 | Y | 19.6 | 0.850 | 1.5 | 18.2 | 23.6 | C |
| 2 | 100 | 0.46 | 0.95 | 0.906 | 1714 | 3 | Y | 19.0 | 0.850 | 5.3 | 21.5 | 27.9 | C |

File Name ..... 1796.HC1

C. Arterial Level of Service

| Seg. | Sect. | Running Time (sec) | Int. Total Delay (sec) | Other Delay (sec) | Section Sum of Time (sec) | Sum of Length (mi) | Art. Speed (mph) | Art. LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 153.0 | 23.6 | 0.0 | 176.6 | 1.70 | 34.7 | B |
| 2 | 2 | 44.1 | 27.9 | 0.0 | 72.1 | 0.47 | 23.5 | C |

Grand sum of time: 248.7 sec
Grand sum of length: 2.17 mi
Arterial Speed: 31.4 mph
Arterial LOS: B

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University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

File Name ..... 52696.HC3
Location..... SR526
From/To..... US17 - Long Point Rd
Analyst..... JJM
Time of Analysis..... PM Peak-Hour
Date of Analysis..... 12/18/96
Other Information.... Year 1996

| A. Geometrics and Traffic Input Data | Dir 1 | Dir 2 |
|---|---|---|
| Traffic Volume (vph) | 1392 | 928 |
| Peak-Hour Factor or Peak 15-min Volume | 0.95 | 0.95 |
| Percentage of Trucks | 2.0 | 2.0 |
| Percentage of Recreational Vehicles | 1.0 | 1.0 |
| Number of Lanes | 2 | 2 |
| Free-Flow Speed (mph) | 55.0 | 55.0 |
| Lane Width (ft) | 12.0 | 12.0 |
| Obstructions-No (0), One (1) or Both (2) | 2 | 2 |
| Distance from Pavement Edge (ft) | 6.0 | 6.0 |
| Driver Population Factor | 1.00 | 1.00 |

B. Adjustment Factors

| | Terrain Type | E T | E R | F HV | F W | F P |
|---|---|---|---|---|---|---|
| Dir 1 | LEVEL | 1.50 | 1.20 | 0.988 | 1.00 | 1.00 |
| Dir 2 | | 1.50 | 1.20 | 0.988 | 1.00 | 1.00 |

| C. Level of Service Results | Dir 1 | Dir 2 |
|---|---|---|
| Maximum Service Flow (MSF) (pcphpl) | 741 | 494 |
| Level of Service (LOS) | B | A |
| Projected Speed at Flow Rate (mph) | 55.0 | 55.0 |
| Density (pc/mi/ln) | 13.47 | 8.98 |
| Density (veh/mi/ln) | 13.31 | 8.88 |
| Speed of prevailing traffic (mph) | 55.0 | 55.0 |

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 12-19-1996
Center For Microcomputers In Transportation

Streets: (E-W) US17 (N-S) Mathis Ferry Road
Analyst: JJM File Name: 17MF96.HC9
Area Type: Other 12-17-96 PM
Comment: 1996

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 1 | 2 | 1 | 1 | 2 | < | 1 | 2 | < | 1 | 2 | 1 |
| Volumes | 455 | 1480 | 266 | 324 | 968 | 54 | 99 | 306 | 395 | 63 | 269 | 126 |
| Lane Width | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | | 12.0 | 12.0 | | 12.0 | 12.0 | 12.0 |
| RTOR Vols | | | 0 | | | 0 | | | 0 | | | 0 |
| Lost Time | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |

Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| EB Left | * | * | | | NB Left | * | | | |
| Thru | | * | | | Thru | * | | | |
| Right | | * | | | Right | * | | | |
| Peds | | | | | Peds | | | | |
| WB Left | * | * | | | SB Left | * | | | |
| Thru | | * | | | Thru | * | | | |
| Right | | * | | | Right | * | | | |
| Peds | | | | | Peds | | | | |
| NB Right | | | | | EB Right | * | | | |
| SB Right | * | * | | | WB Right | | | | |
| Green | 22.0A | 39.0A | | | Green | 20.0A | | | |
| Yellow/AR | 3.0 | 3.0 | | | Yellow/AR | 3.0 | | | |

Cycle Length: 90 secs Phase combination order: #1 #2 #5

Intersection Performance Summary

| | Lane Mvmts | Group: Cap | Adj Sat Flow | v/c Ratio | g/C Ratio | Delay | LOS | Approach: Delay | LOS |
|---|---|---|---|---|---|---|---|---|---|
| EB | L | 515 | 1770 | 0.930 | 0.522 | 33.4 | D | 32.2 | D |
| | T | 1614 | 3725 | 1.014 | 0.433 | 36.9 | D | | |
| | R | 1091 | 1583 | 0.257 | 0.689 | 3.4 | A | | |
| WB | L | 515 | 1770 | 0.662 | 0.522 | 16.3 | C | 14.9 | B |
| | TR | 1602 | 3696 | 0.706 | 0.433 | 14.5 | B | | |
| NB | L | 170 | 763 | 0.613 | 0.222 | 24.8 | C | 50.2 | E |
| | TR | 758 | 3410 | 1.023 | 0.222 | 53.6 | E | | |
| SB | L | 83 | 373 | 0.796 | 0.222 | 47.5 | E | 17.8 | C |
| | T | 828 | 3725 | 0.359 | 0.222 | 19.2 | C | | |
| | R | 1530 | 1583 | 0.087 | 0.967 | 0.0 | A | | |

Intersection Delay = 29.0 sec/veh Intersection LOS = D

Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 1.012

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 12-19-1996

Center For Microcomputers In Transportation

Streets: (E-W) US17 (N-S) Anna Knapp
Analyst: JJM File Name: 17AK96.HC9
Area Type: Other 12-17-96 PM
Comment: 1996

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Volumes | 260 | 1170 | 135 | 190 | 1030 | 230 | 130 | 160 | 124 | 156 | 215 | 133 |
| Lane Width | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| RTOR Vols | | | 0 | | | 0 | | | 0 | | | 0 |
| Lost Time | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |

Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| EB | Left | | * | | | NB Left | * | | |
| | Thru | | * | | | Thru | * | | |
| | Right | | * | | | Right | * | | |
| | Peds | | | | | Peds | | | |
| WB | Left | * | * | | | SB Left | * | | |
| | Thru | | * | | | Thru | * | | |
| | Right | | * | | | Right | * | | |
| | Peds | | | | | Peds | | | |
| NB | Right | | | | | EB Right | * | | |
| SB | Right | * | * | | | WB Right | | | |
| Green | | 20.0A | 52.0A | | | Green | 33.0A | | |
| Yellow/AR | | 3.0 | 3.0 | | | Yellow/AR | 3.0 | | |

Cycle Length: 114 secs Phase combination order: #1 #2 #5

Intersection Performance Summary

| | Lane Mvmts | Group: Cap | Adj Sat Flow | v/c Ratio | g/C Ratio | Delay | LOS | Approach: Delay | LOS |
|---|---|---|---|---|---|---|---|---|---|
| EB | L | 376 | 1770 | 0.729 | 0.377 | 24.1 | C | 17.8 | C |
| | T | 1699 | 3725 | 0.762 | 0.456 | 18.2 | C | | |
| | R | 1222 | 1583 | 0.116 | 0.772 | 2.1 | A | | |
| WB | L | 376 | 1770 | 0.532 | 0.377 | 17.0 | C | 16.0 | C |
| | T | 1699 | 3725 | 0.670 | 0.456 | 16.4 | C | | |
| | R | 722 | 1583 | 0.335 | 0.456 | 13.0 | B | | |
| NB | L | 200 | 690 | 0.686 | 0.289 | 29.5 | D | 23.3 | C |
| | T | 539 | 1863 | 0.312 | 0.289 | 20.5 | C | | |
| | R | 458 | 1583 | 0.286 | 0.289 | 20.4 | C | | |
| SB | L | 269 | 929 | 0.610 | 0.289 | 25.4 | D | 17.0 | C |
| | T | 539 | 1863 | 0.419 | 0.289 | 21.5 | C | | |
| | R | 1541 | 1583 | 0.091 | 0.974 | 0.0 | A | | |

Intersection Delay = 17.6 sec/veh Intersection LOS = C

Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.761

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 12-19-1996
Center For Microcomputers In Transportation

Streets: (E-W) US17 (N-S) Bowman
Analyst: JJM File Name: 17B96.HC9
Area Type: Other 12-17-96 PM
Comment: 1996

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Volumes | 157 | 1405 | 233 | 232 | 1023 | 222 | 203 | 153 | 193 | 100 | 313 | 280 |
| Lane Width | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| RTOR Vols | | | 0 | | | 0 | | | 0 | | | 0 |
| Lost Time | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |

Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| EB | Left | * | * | | | NB Left | * | * | | |
| | Thru | | * | | | Thru | | * | | |
| | Right | | * | | | Right | | * | | |
| | Peds | | | | | Peds | | | | |
| WB | Left | * | * | | | SB Left | * | * | | |
| | Thru | | * | | | Thru | | * | | |
| | Right | | * | | | Right | | * | | |
| | Peds | | | | | Peds | | | | |
| NB | Right | | | | | EB Right | * | * | | |
| SB | Right | * | * | | | WB Right | | * | | |
| Green | | 12.0A | 46.0A | | | Green | 10.0A | 20.0P | | |
| Yellow/AR | | 3.0 | 3.0 | | | Yellow/AR | 3.0 | 3.0 | | |

Cycle Length: 100 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

| | Lane Mvmts | Group: Cap | Adj Sat Flow | v/c Ratio | g/C Ratio | Delay | LOS | Approach: Delay | LOS |
|---|---|---|---|---|---|---|---|---|---|
| EB | L | 287 | 1770 | 0.575 | 0.270 | 12.8 | B | 18.2 | C |
| | T | 1714 | 3725 | 0.906 | 0.460 | 21.5 | C | | |
| | R | 1298 | 1583 | 0.189 | 0.820 | 1.2 | A | | |
| WB | L | 287 | 1770 | 0.850 | 0.270 | 32.5 | D | 15.6 | C |
| | T | 1714 | 3725 | 0.660 | 0.460 | 14.2 | B | | |
| | R | 1045 | 1583 | 0.224 | 0.660 | 4.4 | A | | |
| NB | L | 252 | 1770 | 0.849 | 0.230 | 33.4 | D | 28.2 | D |
| | T | 373 | 1863 | 0.432 | 0.200 | 23.1 | C | | |
| | R | 317 | 1583 | 0.641 | 0.200 | 26.7 | D | | |
| SB | L | 348 | 1770 | 0.302 | 0.230 | 15.8 | C | 20.9 | C |
| | T | 373 | 1863 | 0.883 | 0.200 | 40.0 | D | | |
| | R | 1282 | 1583 | 0.230 | 0.810 | 1.5 | A | | |

Intersection Delay = 18.9 sec/veh Intersection LOS = C

Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.924

# ROADWAY AND INTERSECTION ANALYSIS WORKSHEETS
# YEAR 2000

Highway Mathis Ferry Rd. Analyst JM Date 12-18-96
From/To US17 - Whipple Rd. Analysis Year 2000

## INPUT DATA

Total AADT Volume 10,110 (vpd)

Speed Limit _____ (mph)

Terrain (L, R, M) Level

| Facility Environment * | Suburban ⟵ | ⟶ Rural |
|---|---|---|
| K | 0.10 | 0.15 |
| D | 0.60 | 0.85 |

Truck Percentage 2.0

* Average values and do not necessarily reflect typical local conditions.

## ANALYSIS

DDHV** = AADT x K x D DDHV = 10,110 x .10 x .60 = 607 vph

| Per lane volume for: | | LOS |
|---|---|---|
| 2-Lane Highway = | 607 vph/1 = 607 | B |
| 4-Lane Highway = | _____ vph/2 = _____ | _____ |
| 6-Lane Highway = | _____ vph/3 = _____ | _____ |

** Be sure all values match the analysis period. (e.g. commute, weekend)

## LEVEL OF SERVICE

Free Flow Speed = 60 mph

| Terrain | LOS | Percent Trucks 0 | 5 | 10 | 15 | 20 |
|---|---|---|---|---|---|---|
| Level | A | 590 | 580 | 570 | 550 | 540 |
| | B | 990 | 970 | 940 | 920 | 900 |
| | C | 1360 | 1330 | 1290 | 1260 | 1240 |
| | D | 1620 | 1580 | 1540 | 1510 | 1470 |
| | E | 1890 | 1840 | 1800 | 1760 | 1720 |
| Rolling | A | 590 | 540 | 500 | 460 | 420 |
| | B | 990 | 900 | 830 | 760 | 710 |
| | C | 1360 | 1240 | 1130 | 1050 | 970 |
| | D | 1620 | 1470 | 1350 | 1250 | 1160 |
| | E | 1890 | 1720 | 1580 | 1450 | 1350 |
| Mountain | A | 590 | 480 | 400 | 340 | 300 |
| | B | 990 | 790 | 660 | 570 | 500 |
| | C | 1360 | 1090 | 910 | 780 | 680 |
| | D | 1620 | 1300 | 1080 | 930 | 810 |
| | E | 1890 | 1510 | 1260 | 1080 | 950 |

Free-Flow Speed = 50 mph

| Percent Trucks 0 | 5 | 10 | 15 | 20 |
|---|---|---|---|---|
| 490 | 470 | 460 | 450 | 440 |
| 810 | 790 | 770 | 750 | 740 |
| 1130 | 1110 | 1080 | 1050 | 1030 |
| 1350 | 1320 | 1290 | 1260 | 1230 |
| 1710 | 1670 | 1630 | 1590 | 1550 |
| 490 | 440 | 410 | 370 | 350 |
| 810 | 740 | 680 | 620 | 580 |
| 1130 | 1030 | 950 | 870 | 810 |
| 1350 | 1230 | 1130 | 1040 | 960 |
| 1710 | 1550 | 1430 | 1320 | 1220 |
| 490 | 390 | 320 | 280 | 240 |
| 810 | 650 | 540 | 460 | 410 |
| 1130 | 910 | 760 | 650 | 570 |
| 1350 | 1080 | 900 | 770 | 680 |
| 1710 | 1370 | 1140 | 980 | 860 |

Base Assumptions: All heavy vehicles are trucks.
Lane widths = 12 ft.
Shoulder width ≥ 6 ft.
PHF = 0.90
Access points = 20 per mile, each side.
Divided highway

*Figure 7-6. Worksheet for planning analysis.*

Source: 1994 Highway Capacity Manual

Highway Mathis Ferry Rd. Analyst JJM Date 12-18-96
From/To Whipple Rd - US 17 (east) Analysis Year 2000

## INPUT DATA

Total AADT Volume 8844 (vpd)

Speed Limit _____ (mph)

Terrain (L, R, M) Level

| Facility Environment * | Suburban ⟵ | ⟶ Rural |
|---|---|---|
| K | 0.10 | 0.15 |
| D | 0.60 | 0.85 |

Truck Percentage 2.6

* Average values and do not necessarily reflect typical local conditions.

## ANALYSIS

DDHV** = AADT x K x D DDHV = 8844 x.10 x .60 = 531 vph

Per lane volume for:

| | | | LOS |
|---|---|---|---|
| 2-Lane Highway = | 531 vph/1 = | 531 | B |
| 4-Lane Highway = | _____ vph/2 = | _____ | _____ |
| 6-Lane Highway = | _____ vph/3 = | _____ | _____ |

** Be sure all values match the analysis period. (e.g. commute, weekend)

## LEVEL OF SERVICE

| | | Free Flow Speed = 60 mph | | | | | Free-Flow Speed = 50 mph | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percent Trucks | | | | | Percent Trucks | | | | |
| Terrain | LOS | 0 | 5 | 10 | 15 | 20 | 0 | 5 | 10 | 15 | 20 |
| Level | A | 590 | 580 | 570 | 550 | 540 | 490 | 470 | 460 | 450 | 440 |
| | B | 990 | 970 | 940 | 920 | 900 | 810 | 790 | 770 | 750 | 740 |
| | C | 1360 | 1330 | 1290 | 1260 | 1240 | 1130 | 1110 | 1080 | 1050 | 1030 |
| | D | 1620 | 1580 | 1540 | 1510 | 1470 | 1350 | 1320 | 1290 | 1260 | 1230 |
| | E | 1890 | 1840 | 1800 | 1760 | 1720 | 1710 | 1670 | 1630 | 1590 | 1550 |
| Rolling | A | 590 | 540 | 500 | 460 | 420 | 490 | 440 | 410 | 370 | 350 |
| | B | 990 | 900 | 830 | 760 | 710 | 810 | 740 | 680 | 620 | 580 |
| | C | 1360 | 1240 | 1130 | 1050 | 970 | 1130 | 1030 | 950 | 870 | 810 |
| | D | 1620 | 1470 | 1350 | 1250 | 1160 | 1350 | 1230 | 1130 | 1040 | 960 |
| | E | 1890 | 1720 | 1580 | 1450 | 1350 | 1710 | 1550 | 1430 | 1320 | 1220 |
| Mountain | A | 590 | 480 | 400 | 340 | 300 | 490 | 390 | 320 | 280 | 240 |
| | B | 990 | 790 | 660 | 570 | 500 | 810 | 650 | 540 | 460 | 410 |
| | C | 1360 | 1090 | 910 | 780 | 680 | 1130 | 910 | 760 | 650 | 570 |
| | D | 1620 | 1300 | 1080 | 930 | 810 | 1350 | 1080 | 900 | 770 | 680 |
| | E | 1890 | 1510 | 1260 | 1080 | 950 | 1710 | 1370 | 1140 | 980 | 860 |

Base Assumptions: All heavy vehicles are trucks.
Lane widths = 12 ft.
Shoulder width ≥ 6 ft.
PHF = 0.90
Access points = 20 per mile, each side.
Divided highway

*Figure 7-6. Worksheet for planning analysis.*

Source: 1994 Highway Capacity Manual

HCS: Multilane Highways Release 2.1
**********

File Name .....
CRB00.HC7
Facility Section.....
Cooper River Bridge
From/To.....

Analyst.....
JJM
Time of Analysis.....
PM Peak-Hour
Date of Analysis.....
12/18/96
Other Information.... Year 2000

| A. Adjustment Data | Direction 1 | Direction 2 |
|---|---|---|
| Volume | 3657 | 2649 |
| Percentage of Trucks and Buses | 2.0 | 2.0 |
| Percentage of Recreational Vehicles | 1.0 | 1.0 |
| Ideal Free-Flow Speed | 60.0 | 60.0 |
| Peak-Hour Factor or Peak 15 Minutes | 0.95 | 0.95 |
| Lane Width | 12.0 | 12.0 |
| Access Points per Mile | 0.0 | 0.0 |
| Distance from Roadway Edge | 3.0 | 3.0 |
| Type of Median | D | D |

B. Adjustment Factors

| Terrain Type | E T | E R | F HV | F M | F LW | F LC | F A |
|---|---|---|---|---|---|---|---|
| LEVEL | 1.50 | 1.20 | 0.99 | 0.00 | 0.00 | 2.70 | 0.00 |
| | 1.50 | 1.20 | 0.99 | 0.00 | 0.00 | 2.70 | 0.00 |

| C. Level of Service Results | Direction 1 | Direction 2 |
|---|---|---|
| Service Flow Rate (Vp) | 1948 | 1411 |
| Average Passenger Car Speed (mph) | 57 | 57 |
| Free Flow Speed (mph) | 54 | 57 |
| Density (pcpmpl) | 34 | 25 |
| Level of Service (LOS) | D | C |

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

File Name ..... 1700.HC1
Arterial..... US17
From/To..... Mathis Ferry - 526
Direction ..... E
Analyst..... JJM
Time of Analysis..... PM
Date of Analysis..... 12/18/96
Other Information.... Year 2000

## A. Description of Arterial

| Seg. | Intersection File Name | Street Name | Length (mi) | Art. Class | Free Flow Speed (mph) | Sect. |
|---|---|---|---|---|---|---|
| | 17MF00R.HC9 | Mathis Ferry Road | | | | |
| 1 | 17LC00.HC9 | Lowcountry Blvd. | 0.76 | 1 | 40 | 1 |
| 2 | 17AK00R.HC9 | Anna Knapp | 0.95 | 1 | 40 | 2 |
| 3 | 17B00R.HC9 | Bowman | 0.47 | 1 | 40 | 3 |

## B. Intersection Delay Estimates

| Seg. | C | g/C | PHF | v/c | c | Arrival Type | Act. | d1 | DF | d2 | d | D | Inte r. LO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 90 | 0.72 | 0.95 | 0.975 | 2690 | 3 | Y | 8.9 | 0.850 | 9.1 | 16.7 | 21.7 | C |
| 2 | 108 | 0.37 | 0.95 | 0.929 | 2070 | 3 | Y | 24.8 | 0.850 | 5.9 | 27.0 | 35.1 | D |
| 3 | 90 | 0.42 | 0.95 | 0.978 | 2359 | 3 | Y | 19.5 | 0.850 | 10.4 | 26.9 | 35.0 | D |

File Name ..... 1700.HC1
C. Arterial Level of Service

| Seg. | Sect. | Running Time (sec) | Int. Total Delay (sec) | Other Delay (sec) | Section Sum of Time (sec) | Sum of Length (mi) | Art. Speed (mph) | Art. LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 69.5 | 21.7 | 0.0 | 91.2 | 0.76 | 30.0 | B |
| 2 | 2 | 85.8 | 35.1 | 0.0 | 120.9 | 0.95 | 28.3 | B |
| 3 | 3 | 44.1 | 35.0 | 0.0 | 79.1 | 0.47 | 21.4 | D |

Grand sum of time: 291.2 sec
Grand sum of length: 2.18 mi
Arterial Speed: 27.0 mph
Arterial LOS: C

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 12-19-1996

Center For Microcomputers In Transportation

Streets: (E-W) US17 (N-S) Mathis Ferry Road
Analyst: JJM File Name: 17MF00R.HC9
Area Type: Other 12-17-96 PM
Comment: Year 2000 - improved geometrics

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Volumes | 633 | 2063 | 371 | 434 | 1297 | 71 | 138 | 410 | 523 | 168 | 317 | 73 |
| Lane Width | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| RTOR Vols | | | 0 | | | 0 | | | 0 | | | 0 |
| Lost Time | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |

Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| EB | Left | * | * | | | NB Left * | | | |
| | Thru | | * | | | Thru * | | | |
| | Right | | * | | | Right * | | | |
| | Peds | | | | | Peds | | | |
| WB | Left | * | * | | | SB Left * | | | |
| | Thru | | * | | | Thru * | | | |
| | Right | | * | | | Right * | | | |
| | Peds | | | | | Peds | | | |
| NB | Right | * | * | | | EB Right * | | | |
| SB | Right | * | * | | | WB Right | | | |
| Green | | 14.0A | 38.0A | | | Green 29.0A | | | |
| Yellow/AR | | 3.0 | 3.0 | | | Yellow/AR 3.0 | | | |

Cycle Length: 90 secs Phase combination order: #1 #2 #5

Intersection Performance Summary

| | Lane Mvmts | Group: Cap | Adj Sat Flow | v/c Ratio | g/C Ratio | Delay | LOS | Approach: Delay | LOS |
|---|---|---|---|---|---|---|---|---|---|
| EB | L | 716 | 3539 | 0.958 | 0.344 | 33.3 | D | 30.2 | D |
| | T | 2359 | 5588 | 1.013 | 0.422 | 33.9 | D | | |
| | R | 1231 | 1583 | 0.318 | 0.778 | 2.0 | A | | |
| WB | L | 716 | 3539 | 0.658 | 0.344 | 14.6 | B | 13.8 | B |
| | T | 2359 | 5588 | 0.637 | 0.422 | 13.7 | B | | |
| | R | 668 | 1583 | 0.112 | 0.422 | 10.2 | B | | |
| NB | L | 236 | 732 | 0.615 | 0.322 | 20.0 | C | 8.6 | B |
| | T | 1200 | 3725 | 0.378 | 0.322 | 15.3 | C | | |
| | R | 1530 | 1583 | 0.360 | 0.967 | 0.1 | A | | |
| SB | L | 176 | 547 | 1.004 | 0.322 | 73.1 | F | 30.0 | D |
| | T | 1200 | 3725 | 0.292 | 0.322 | 14.8 | B | | |
| | R | 1530 | 1583 | 0.050 | 0.967 | 0.0 | A | | |

Intersection Delay = 22.1 sec/veh Intersection LOS = C

Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 1.008

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 12-19-1996

Center For Microcomputers In Transportation

Streets: (E-W) US17 (N-S) Lowcountry Blvd.
Analyst: JJM File Name: 17LC00.HC9
Area Type: Other 12-17-96 PM
Comment: Year 2000

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 1 | 2 | | | 2 | 1 | | | | 1 | | 1 |
| Volumes | 295 | 2374 | | | 1550 | 231 | | | | 210 | | 253 |
| Lane Width | 12.0 | 12.0 | | | 12.0 | 12.0 | | | | 12.0 | | 12.0 |
| RTOR Vols | | | 0 | | | 0 | | | | | | 0 |
| Lost Time | 3.00 | 3.00 | | | 3.00 | 3.00 | | | | 3.00 | | 3.00 |

Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| EB | Left | * | | | | NB Left | | | |
| | Thru | * | * | | | Thru | | | |
| | Right | | | | | Right | | | |
| | Peds | | | | | Peds | | | |
| WB | Left | | | | | SB Left | * | | |
| | Thru | | * | | | Thru | | | |
| | Right | | * | | | Right | * | | |
| | Peds | | | | | Peds | | | |
| NB | Right | | * | | | EB Right | | | |
| SB | Right | * | * | | | WB Right | * | | |
| Green | | 20.0A | 42.0A | | | Green | 19.0A | | |
| Yellow/AR | | 3.0 | 3.0 | | | Yellow/AR | 3.0 | | |

Cycle Length: 90 secs Phase combination order: #1 #2 #5

Intersection Performance Summary

| | Lane Mvmts | Group: Cap | Adj Sat Flow | v/c Ratio | g/C Ratio | Delay | LOS | Approach: Delay | LOS |
|---|---|---|---|---|---|---|---|---|---|
| EB | L | 393 | 1770 | 0.791 | 0.222 | 28.5 | D | 18.0 | C |
| | T | 2690 | 3725 | 0.975 | 0.722 | 16.7 | C | | |
| WB | T | 1738 | 3725 | 0.986 | 0.467 | 29.2 | D | 25.9 | D |
| | R | 1126 | 1583 | 0.216 | 0.711 | 2.9 | A | | |
| SB | L | 374 | 1770 | 0.591 | 0.211 | 22.5 | C | 10.2 | B |
| | R | 1530 | 1583 | 0.174 | 0.967 | 0.0 | A | | |

Intersection Delay = 20.1 sec/veh Intersection LOS = C

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.889

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

File Name ..... 5260.HC3
Location..... SR526
From/To..... US17 - Long Point Rd
Analyst..... JJM
Time of Analysis..... PM Peak-Hour
Date of Analysis..... 12/18/96
Other Information.... Year 2000

| A. Geometrics and Traffic Input Data | Dir 1 | Dir 2 |
|---|---|---|
| Traffic Volume (vph) | 1946 | 1297 |
| Peak-Hour Factor or Peak 15-min Volume | 0.95 | 0.95 |
| Percentage of Trucks | 2.0 | 2.0 |
| Percentage of Recreational Vehicles | 1.0 | 1.0 |
| Number of Lanes | 2 | 2 |
| Free-Flow Speed (mph) | 55.0 | 55.0 |
| Lane Width (ft) | 12.0 | 12.0 |
| Obstructions-No (0), One (1) or Both (2) | 2 | 2 |
| Distance from Pavement Edge (ft) | 6.0 | 6.0 |
| Driver Population Factor | 1.00 | 1.00 |

B. Adjustment Factors

| Terrain Type | E T | E R | F HV | F W | F P |
|---|---|---|---|---|---|
| Dir 1 LEVEL | 1.50 | 1.20 | 0.988 | 1.00 | 1.00 |
| Dir 2 | 1.50 | 1.20 | 0.988 | 1.00 | 1.00 |

| C. Level of Service Results | Dir 1 | Dir 2 |
|---|---|---|
| Maximum Service Flow (MSF) (pcphpl) | 1037 | 691 |
| Level of Service (LOS) | C | B |
| Projected Speed at Flow Rate (mph) | 55.0 | 55.0 |
| Density (pc/mi/ln) | 18.85 | 12.56 |
| Density (veh/mi/ln) | 18.63 | 12.41 |
| Speed of prevailing traffic (mph) | 55.0 | 55.0 |

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 12-19-1996

Center For Microcomputers In Transportation

Streets: (E-W) US17 (N-S) Mathis Ferry Road
Analyst: JJM File Name: 17MF00.HC9
Area Type: Other 12-17-96 PM
Comment: Year 2000

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 2 | 2 | 1 | 2 | 2 | < | 1 | 2 | 1 | 1 | 2 | 1 |
| Volumes | 633 | 2063 | 371 | 434 | 1297 | 71 | 138 | 410 | 523 | 168 | 317 | 73 |
| Lane Width | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| RTOR Vols | | | 0 | | | 0 | | | 0 | | | 0 |
| Lost Time | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |

Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | | * | | | NB | Left | * | | | |
| | Thru | | * | | | | Thru | * | | | |
| | Right | | * | | | | Right | * | | | |
| | Peds | | | | | | Peds | | | | |
| WB | Left | * | * | | | SB | Left | * | | | |
| | Thru | | * | | | | Thru | * | | | |
| | Right | | * | | | | Right | * | | | |
| | Peds | | | | | | Peds | | | | |
| NB | Right | * | * | | | EB | Right | * | | | |
| SB | Right | * | * | | | WB | Right | | | | |
| Green | | 12.0A | 46.0A | | | Green | | 23.0A | | | |
| Yellow/AR | | 3.0 | 3.0 | | | Yellow/AR | | 3.0 | | | |

Cycle Length: 90 secs Phase combination order: #1 #2 #5

Intersection Performance Summary

| | Lane Mvmts | Group: Cap | Adj Sat Flow | v/c Ratio | g/C Ratio | Delay | LOS | Approach: Delay | LOS |
|---|---|---|---|---|---|---|---|---|---|
| EB | L | 637 | 3539 | 1.077 | 0.300 | * | * | * | * |
| | T | 1904 | 3725 | 1.198 | 0.511 | * | * | | |
| | R | 1266 | 1583 | 0.309 | 0.800 | 1.6 | A | | |
| WB | L | 637 | 3539 | 0.739 | 0.300 | 18.8 | C | 14.8 | B |
| | TR | 1889 | 3696 | 0.800 | 0.511 | 13.6 | B | | |
| NB | L | 174 | 682 | 0.832 | 0.256 | 39.1 | D | 12.3 | B |
| | T | 952 | 3725 | 0.477 | 0.256 | 18.6 | C | | |
| | R | 1530 | 1583 | 0.360 | 0.967 | 0.1 | A | | |
| SB | L | 124 | 486 | 1.425 | 0.256 | * | * | * | * |
| | T | 952 | 3725 | 0.369 | 0.256 | 17.9 | C | | |
| | R | 1530 | 1583 | 0.050 | 0.967 | 0.0 | A | | |

Intersection Delay = * (sec/veh) Intersection LOS = *

(g/C)*(V/c) is greater than one. Calculation of D1 is infeasable.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 12-19-1996
Center For Microcomputers In Transportation

Streets: (E-W) US17 (N-S) Anna Knapp
Analyst: JJM File Name: 17AK00.HC9
Area Type: Other 12-17-96 PM
Comment: Year 2000

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Volumes | 369 | 1661 | 192 | 268 | 1461 | 326 | 186 | 218 | 176 | 188 | 301 | 221 |
| Lane Width | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| RTOR Vols | | | 0 | | | 0 | | | 0 | | | 0 |
| Lost Time | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |

Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| EB | Left | * | * | | | NB Left * | | | |
| | Thru | | * | | | Thru * | | | |
| | Right | | * | | | Right * | | | |
| | Peds | | | | | Peds | | | |
| WB | Left | * | * | | | SB Left * | | | |
| | Thru | | * | | | Thru * | | | |
| | Right | | * | | | Right * | | | |
| | Peds | | | | | Peds | | | |
| NB | Right | * | * | | | EB Right * | | | |
| SB | Right | * | * | | | WB Right * | | | |
| Green | | 20.0A | 52.0A | | | Green 29.0A | | | |
| Yellow/AR | | 3.0 | 3.0 | | | Yellow/AR 3.0 | | | |

Cycle Length: 110 secs Phase combination order: #1 #2 #5

Intersection Performance Summary

| | Lane Mvmts | Group: Cap | Adj Sat Flow | v/c Ratio | g/C Ratio | Delay | LOS | Approach: Delay | LOS |
|---|---|---|---|---|---|---|---|---|---|
| EB | L | 389 | 1770 | 0.997 | 0.391 | 58.0 | E | 44.7 | E |
| | T | 1761 | 3725 | 1.042 | 0.473 | 46.6 | E | | |
| | R | 1209 | 1583 | 0.167 | 0.764 | 2.3 | A | | |
| WB | L | 389 | 1770 | 0.725 | 0.391 | 24.8 | C | 20.3 | C |
| | T | 1761 | 3725 | 0.917 | 0.473 | 23.3 | C | | |
| | R | 1209 | 1583 | 0.284 | 0.764 | 2.6 | A | | |
| NB | L | 93 | 352 | 2.112 | 0.264 | * | * | * | * |
| | T | 491 | 1863 | 0.466 | 0.264 | 22.5 | C | | |
| | R | 1540 | 1583 | 0.120 | 0.973 | 0.0 | A | | |
| SB | L | 170 | 643 | 1.168 | 0.264 | * | * | * | * |
| | T | 491 | 1863 | 0.645 | 0.264 | 25.3 | D | | |
| | R | 1540 | 1583 | 0.151 | 0.973 | 0.0 | A | | |

Intersection Delay = * (sec/veh) Intersection LOS = *

(g/C)*(V/c) is greater than one. Calculation of D1 is infeasable.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 12-19-1996

Center For Microcomputers In Transportation

Streets: (E-W) US17 (N-S) Anna Knapp
Analyst: JJM File Name: 17AK00R.HC9
Area Type: Other 12-17-96 PM
Comment: Year 2000 - improved geometrics

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 1 | 3 | 1 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Volumes | 369 | 1661 | 192 | 268 | 1461 | 326 | 186 | 218 | 176 | 188 | 301 | 221 |
| Lane Width | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| RTOR Vols | | | 0 | | | 0 | | | 0 | | | 0 |
| Lost Time | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |

Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| EB | Left | * | * | | | NB Left | * | * | |
| | Thru | | * | | | Thru | | * | |
| | Right | | * | | | Right | | * | |
| | Peds | | | | | Peds | | | |
| WB | Left | * | * | | | SB Left | * | * | |
| | Thru | | * | | | Thru | | * | |
| | Right | | * | | | Right | | * | |
| | Peds | | | | | Peds | | | |
| NB | Right | * | * | | | EB Right | * | * | |
| SB | Right | * | * | | | WB Right | * | * | |
| Green | | 24.0A | 40.0A | | | Green | 12.0A | 20.0P | |
| Yellow/AR | | 3.0 | 3.0 | | | Yellow/AR | 3.0 | 3.0 | |

Cycle Length: 108 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

| | Lane Mvmts | Group: Cap | Adj Sat Flow | v/c Ratio | g/C Ratio | Delay | LOS | Approach: Delay | LOS |
|---|---|---|---|---|---|---|---|---|---|
| EB | L | 462 | 1770 | 0.840 | 0.472 | 28.2 | D | 25.3 | D |
| | T | 2070 | 5588 | 0.929 | 0.370 | 27.0 | D | | |
| | R | 1143 | 1583 | 0.177 | 0.722 | 3.1 | A | | |
| WB | L | 462 | 1770 | 0.610 | 0.472 | 17.8 | C | 18.6 | C |
| | T | 2070 | 5588 | 0.818 | 0.370 | 21.8 | C | | |
| | R | 1143 | 1583 | 0.300 | 0.722 | 3.5 | A | | |
| NB | L | 266 | 1770 | 0.737 | 0.250 | 26.0 | D | 20.0 | C |
| | T | 345 | 1863 | 0.664 | 0.185 | 29.7 | D | | |
| | R | 1275 | 1583 | 0.145 | 0.806 | 1.5 | A | | |
| SB | L | 284 | 1770 | 0.697 | 0.250 | 23.5 | C | 27.2 | D |
| | T | 345 | 1863 | 0.919 | 0.185 | 48.5 | E | | |
| | R | 1275 | 1583 | 0.183 | 0.806 | 1.6 | A | | |

Intersection Delay = 22.5 sec/veh Intersection LOS = C

Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.950

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 12-19-1996
Center For Microcomputers In Transportation

Streets: (E-W) US17 (N-S) Bowman
Analyst: JJM File Name: 17B00.HC9
Area Type: Other 12-17-96 PM
Comment: Year 2000

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Volumes | 223 | 1993 | 331 | 329 | 1451 | 314 | 289 | 218 | 274 | 140 | 444 | 140 |
| Lane Width | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| RTOR Vols | | | 0 | | | 0 | | | 0 | | | 0 |
| Lost Time | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |

Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | * | * | | | NB | Left | * | * | | |
| | Thru | | * | | | | Thru | | * | | |
| | Right | | * | | | | Right | | * | | |
| | Peds | | | | | | Peds | | | | |
| WB | Left | * | * | | | SB | Left | * | * | | |
| | Thru | | * | | | | Thru | | * | | |
| | Right | | * | | | | Right | | * | | |
| | Peds | | | | | | Peds | | | | |
| NB | Right | * | * | | | EB | Right | * | * | | |
| SB | Right | * | * | | | WB | Right | | * | | |
| Green | | 12.0A | 30.0A | | | Green | | 12.0A | 24.0P | | |
| Yellow/AR | | 3.0 | 3.0 | | | Yellow/AR | | 3.0 | 3.0 | | |

Cycle Length: 90 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

| | Lane Mvmts | Group: Cap | Adj Sat Flow | v/c Ratio | g/C Ratio | Delay | LOS | Approach: Delay | LOS |
|---|---|---|---|---|---|---|---|---|---|
| EB | L | 319 | 1770 | 0.737 | 0.300 | 18.2 | C | * | * |
| | T | 1242 | 3725 | 1.774 | 0.333 | * | * | | |
| | R | 1266 | 1583 | 0.275 | 0.800 | 1.5 | A | | |
| WB | L | 319 | 1770 | 1.085 | 0.300 | * | * | * | * |
| | T | 1242 | 3725 | 1.291 | 0.333 | * | * | | |
| | R | 950 | 1583 | 0.348 | 0.600 | 6.0 | B | | |
| NB | L | 319 | 1770 | 0.953 | 0.300 | 42.4 | E | 21.5 | C |
| | T | 497 | 1863 | 0.461 | 0.267 | 18.3 | C | | |
| | R | 1214 | 1583 | 0.237 | 0.767 | 2.0 | A | | |
| SB | L | 414 | 1770 | 0.355 | 0.300 | 10.8 | B | 26.9 | D |
| | T | 497 | 1863 | 0.940 | 0.267 | 39.8 | D | | |
| | R | 1214 | 1583 | 0.121 | 0.767 | 1.7 | A | | |

Intersection Delay = * (sec/veh) Intersection LOS = *

(g/C)*(V/c) is greater than one. Calculation of D1 is infeasable.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 12-19-1996

Center For Microcomputers In Transportation

Streets: (E-W) US17 (N-S) Bowman
Analyst: JJM File Name: 17B00R.HC9
Area Type: Other 12-17-96 PM
Comment: Year 2000 - improved geometrics

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Volumes | 223 | 1993 | 331 | 329 | 1451 | 314 | 289 | 218 | 274 | 140 | 444 | 140 |
| Lane Width | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| RTOR Vols | | | 0 | | | 0 | | | 0 | | | 0 |
| Lost Time | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |

Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| EB | Left | * | * | | | NB Left * | * | | |
| | Thru | | * | | | Thru | * | | |
| | Right | | * | | | Right | * | | |
| | Peds | | | | | Peds | | | |
| WB | Left | * | * | | | SB Left * | * | | |
| | Thru | | * | | | Thru | * | | |
| | Right | | * | | | Right | * | | |
| | Peds | | | | | Peds | | | |
| NB | Right | * | * | | | EB Right * | * | | |
| SB | Right | * | * | | | WB Right | * | | |
| Green | | 8.0A | 38.0A | | | Green 14.0A | 18.0P | | |
| Yellow/AR | | 3.0 | 3.0 | | | Yellow/AR 3.0 | 3.0 | | |

Cycle Length: 90 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

| | Lane Mvmts | Group: Cap | Adj Sat Flow | v/c Ratio | g/C Ratio | Delay | LOS | Approach: Delay | LOS |
|---|---|---|---|---|---|---|---|---|---|
| EB | L | 480 | 3539 | 0.504 | 0.211 | 9.9 | B | 22.4 | C |
| | T | 2359 | 5588 | 0.978 | 0.422 | 26.9 | D | | |
| | R | 1337 | 1583 | 0.260 | 0.844 | 0.9 | A | | |
| WB | L | 480 | 3539 | 0.742 | 0.211 | 16.3 | C | 13.6 | B |
| | T | 2359 | 5588 | 0.712 | 0.422 | 14.6 | B | | |
| | R | 985 | 1583 | 0.336 | 0.622 | 5.3 | B | | |
| NB | L | 358 | 1770 | 0.849 | 0.344 | 25.8 | D | 16.0 | C |
| | T | 745 | 3725 | 0.322 | 0.200 | 20.0 | C | | |
| | R | 1178 | 1583 | 0.244 | 0.744 | 2.3 | A | | |
| SB | L | 454 | 1770 | 0.324 | 0.344 | 12.1 | B | 17.0 | C |
| | T | 745 | 3725 | 0.658 | 0.200 | 22.9 | C | | |
| | R | 1178 | 1583 | 0.125 | 0.744 | 2.1 | A | | |

Intersection Delay = 17.9 sec/veh Intersection LOS = C

Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.910

# ROUNDABOUT ANALYSIS

## Jordan Tract

| Approach | Circulating Flow | Capacity Per Entry Lane | Entry Lane Flow | Degree of Saturation | Average Queueing Delay | LOS |
|---|---|---|---|---|---|---|
| From North | 575 | 1040 | 317 | 0.31 | 3.5 | A |
| From West | 319 | 1340 | 561 | 0.42 | 2.2 | A |
| From South | 598 | 1010 | 485 | 0.48 | 4.8 | A |
| From East | 457 | 1200 | 616 | 0.51 | 4.3 | A |
| **All Approaches** | | | **1979** | | **3.7** | **A** |

Note: Capacity Per Lane from Roundabout Capacity, Figure 3.2, contained in ROUNDABOUTS, a Design Guide published by the National Association of Australian State Road Authorities.
Degree of Saturation is Entry Lane Flow/Capacity Per Entry Lane
Average Queueing Delay from Average Queueing Delay To Vehicles Entering Single Lane Circulating Flow Roundabouts, Figure 3.3a contained in ROUNDABOUTS, a Design Guide published by the National Association of Australian State Road Authorities.

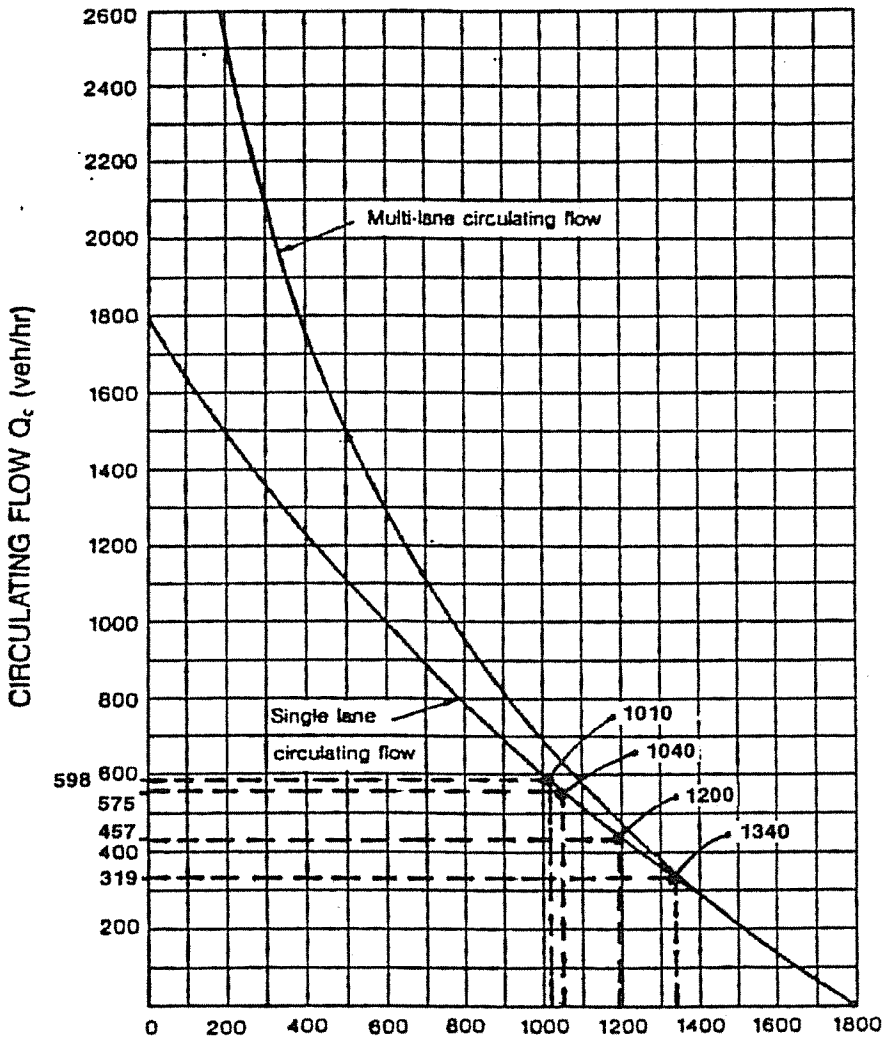
*Source: Glatting Jackson Kercher Anglin Lopez Rinehart, Inc.*

CAPACITY FOR MULTI-LANE CIRCULATING FLOW ROUNDABOUTS

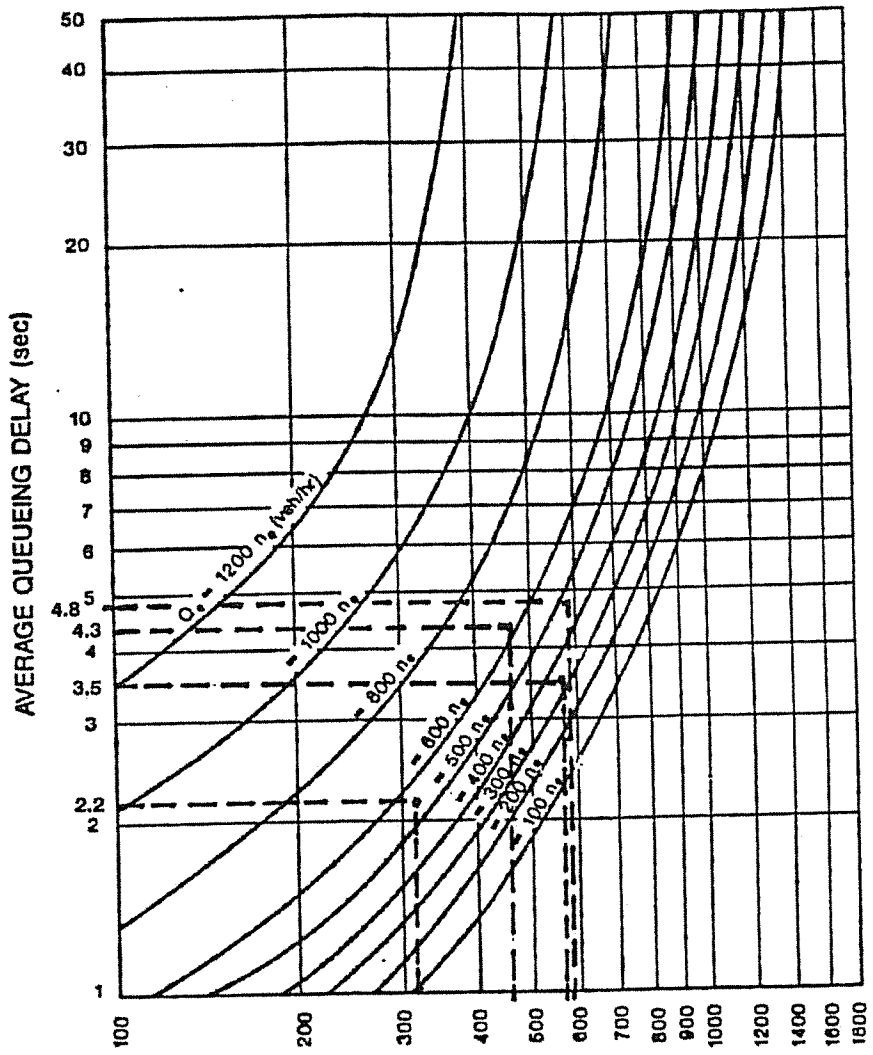
$$Q_{e\,max} = \frac{n_e Q_c \exp(-q_c T)}{1 - \exp(-q_c T_o)}$$

CAPACITY FOR SINGLE LANE CIRCULATING FLOW ROUNDABOUTS

$$Q_{e\,max} = \frac{n_e Q_c (1 - q_c t_c) \exp[-q_c (T - t_c)]}{1 - \exp(-q_c T_o)}$$




**ROUNDABOUT CAPACITY**
**FIGURE 3.2**




| | Circ. | Entering |
|---|---|---|
| North | 575 | 317 |
| West | 319 | 561 |
| South | 598 | 485 |
| East | 457 | 616 |

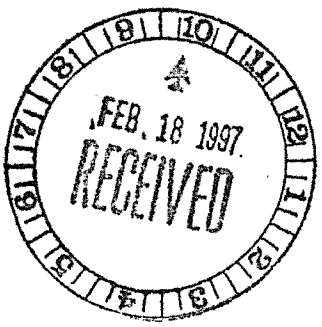
$Q_c$ = Circulating flow (veh/h)
$Q_e$ = Entry volume per lane (veh/h)
$T$ = Critical acceptance gap = 4 secs
$T_o$ = Follow-up headway = 2 secs
$t_c$ = Minimum headway for circulating traffic = 2 secs

**AVERAGE QUEUEING DELAY TO VEHICLES ENTERING SINGLE LANE CIRCULATING FLOW ROUNDABOUTS**
**FIGURE 3.3a**

# INDEX C

# The I'On Code

Mt. Pleasant, South Carolina



# SUMMARY OF THE I'ON CODE

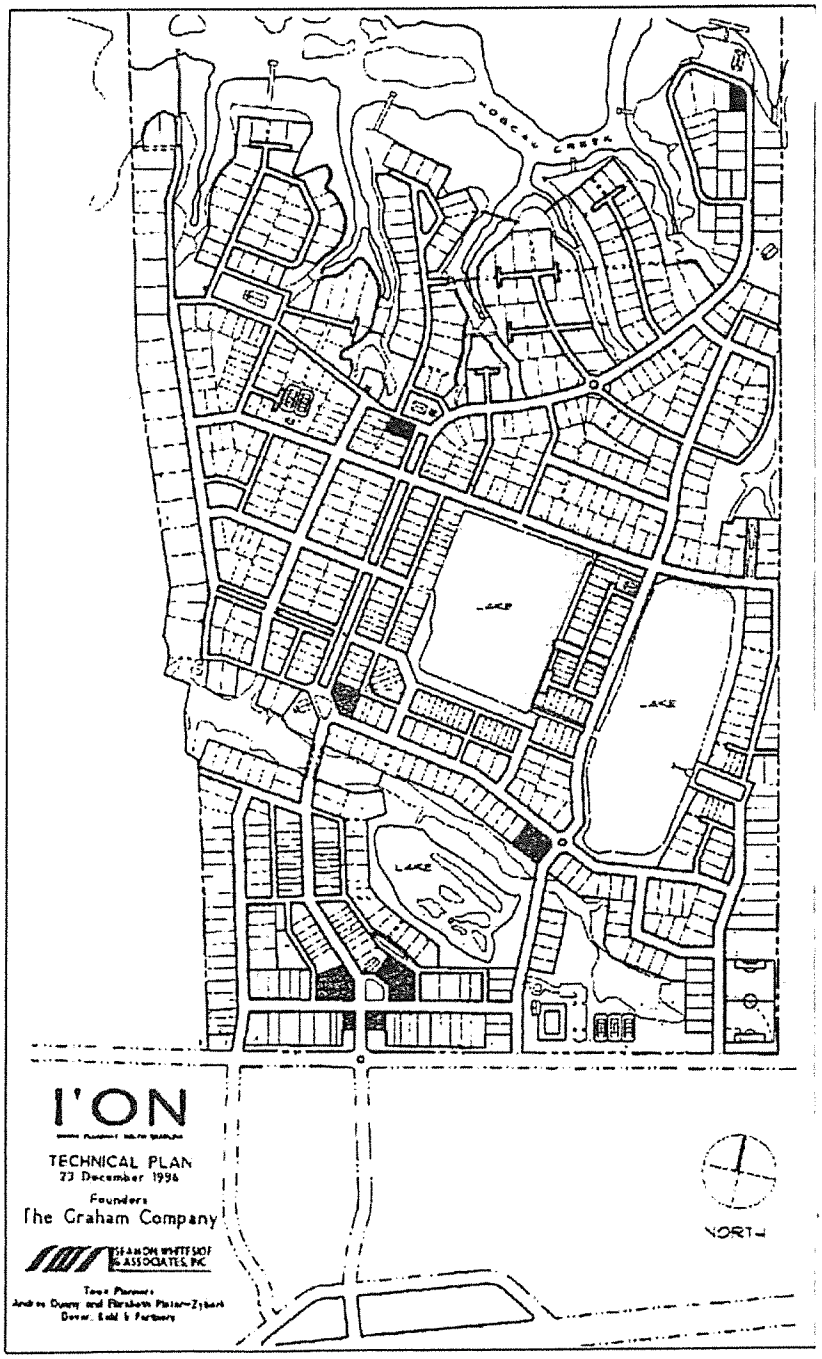
I'On is designed with several objectives in mind. The first is to create a friendly pedestrian atmosphere with memorable streets and civic spaces. The second is to provide a range of distinctive house types so that each owner has the opportunity to create personalized interior spaces and private gardens. Finally, the Code is intended to help assure home marketability throughout development, to protect the market value of existing homes, and to assure the neighborhood vision is fulfilled.

The Code consists of the I'On Plan, the Neighborhood Standards, Building Types, Thoroughfare Types, Architectural Standards and Landscape Standards. Each of these elements are outlined in the pages to follow.

## Table of Contents

## The I'On Plan

This plan shows the lot boundaries and thoroughfares, as well as those sites reserved for squares, parks and civic buildings. The Plan also specifies those areas where small shops and office space accommodating small businesses are allowed.



**Neighborhood Standards** pertain to the placement of buildings, their height, parking, locations and extensions. These standards coordinate aspects of buildings which shape and define the civic spaces of I'On including the parks, greens, squares and thoroughfares.

## Specifications

1. All building plans shall be submitted to the I'On Design Committee for conformity to the Code.

## Yard

1. Buildings shall be set on the lot relative to the build-to-zones and setbacks specified for each building type.
2. Stoops, chimneys, balconies and bay windows may encroach within the setback or build-to zone.
3. Street walls shall be built on frontage lines as shown.

## Porches

1. Shopfront buildings shall have an arcade that extends along 100% of the street facade.
2. Side-yard and All-yard buildings shall have a covered porch a minimum of 8 feet in depth.
3. The porch shall extend a minimum of 50% of the length of the home in the case of Side-yard buildings and a minimum of 40% of the street facade in the case of All-yard buildings.
4. The street facade of All-yard buildings shall extend along the front yard a minimum of 40% of the lot width.

## Outbuildings

1. Outbuildings shall have a maximum footprint of 625 square feet and building height of 18 feet.
2. The walls of the outbuildings at interior property lines shall be left windowless and shall be two-hour fire rated.

## Height

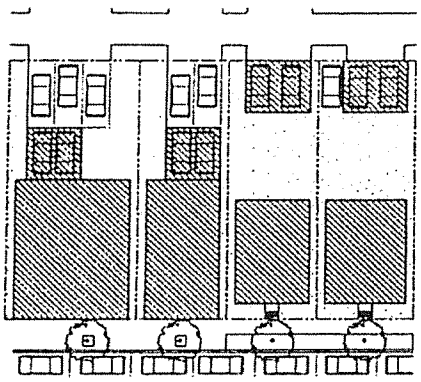
1. Entry floors for homes shall have a minimum elevation of 30 inches above grade or sidewalk level, whichever is higher.
2. Entry floors for homes shall have a minimum interior ceiling height of 9 feet.
3. Maximum building height shall be 30 feet.

## Parking

1. The parking required shall be 2 per principal dwelling and 1 per 400 square feet of small shop and office use.
2. The required parking shall include on-street parking along the frontage. Trucks, boats, campers and trailers shall be parked in rear yards only.

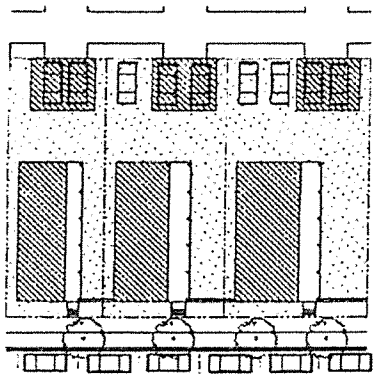
# Building Types

## Rear-Yard Building

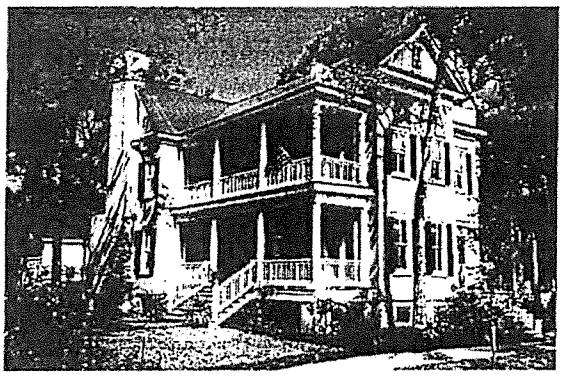


| | |
|---|---|
| Lot Width | 27 Ft. Min., 70 Ft. Max. |
| Build-to-Zone | 0 ft. to 12 Ft. |
| Side Setback | 3 Ft. |
| Rear Setback | 0 Ft. |
| Corner Setback | 0 Ft. |
| Building Coverage | 60% |

## Side-Yard Building

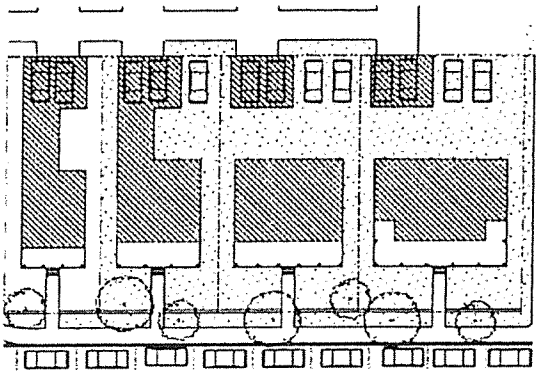


| | |
|---|---|
| Lot Width | 36 ft. min, 63 ft. max. |
| Build-to-Zone | 0 ft. - 9 ft. |
| Side Setback | 3 ft. - 8 ft. |
| Rear Setback | 0 ft. |
| Corner Setback | 0 ft. |
| Building Coverage | 50% |



# Building Types

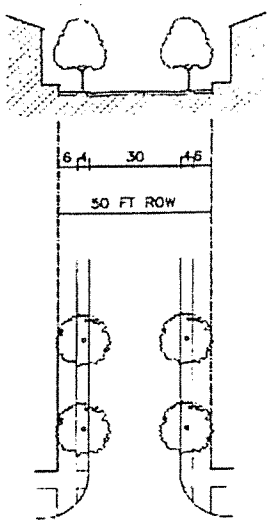
## All-Yard Building



| | |
|---|---|
| Lot Width | 36 ft. min. |
| Build-to-Zone | 0 ft. - 25 ft. |
| Side Setback | 5 ft. |
| Rear Setback | 0 ft. |
| Corner Setback | 0 ft. |
| Building Coverage | 40% |

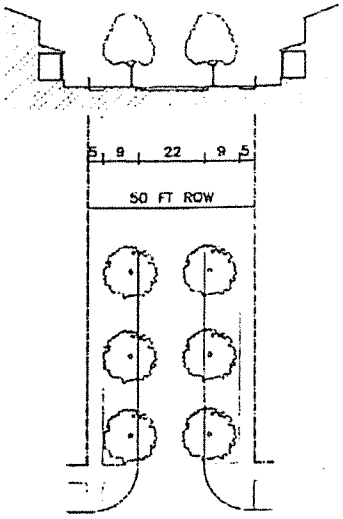
# Thoroughfare Types

Streets, roads and lanes comprise the largest portion of the civic realm. The thoroughfares depicted in these drawings help the pedestrian feel comfortable, while adequately accommodating automobile movement. In addition to providing an efficient and pleasant path of travel, thoroughfares foster the bonds of community by providing a setting conducive to neighborly interaction.



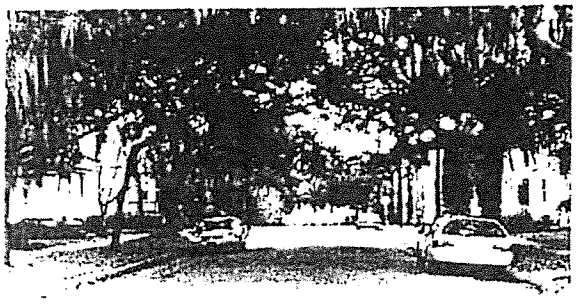

LARGE STREET
(LS - 50)
Two Way

| | |
|---|---|
| Design Speed | 20 MPH |
| Pavement Width | 30 Ft. |
| ROW Width | 50 Ft. |
| Max. Curb Radius | 15 Ft. |
| Pedestrian Crossing Time | 10 Sec. |
| Drainage | Curb |

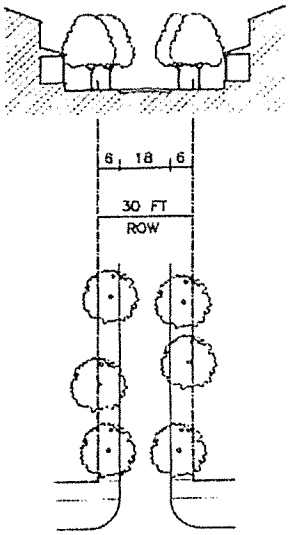



STREET
(S - 50)
Two Way

| | |
|---|---|
| Design Speed | 20 MPH |
| Pavement Width | 22 Ft. |
| ROW Width | 50 Ft. |
| Max. Curb Radius | 15 Ft. |
| Pedestrian Crossing Time | 8 Sec. |
| Drainage | Curb |

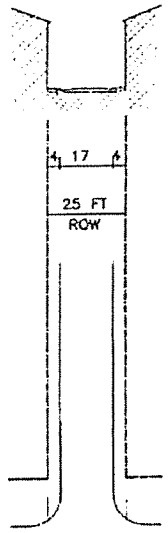


# Thoroughfare Types



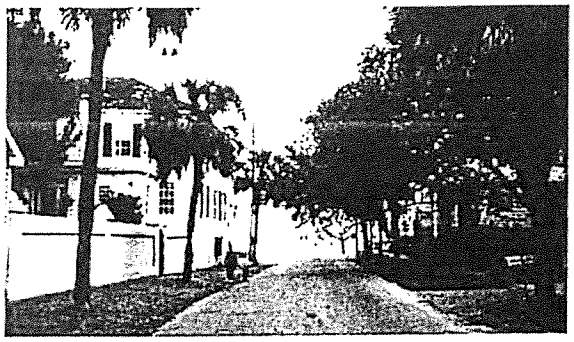

ROAD
(R - 30)
Two Way

| | |
|---|---|
| Design Speed | 15 MPH |
| Pavement Width | 18 Ft. |
| ROW Width | 30 Ft. |
| Max. Curb Radius | 10 Ft. |
| Pedestrian Crossing Time | 5 Sec. |
| Drainage | Open Section |




SMALL STREET
(SS - 25)
One Way

| | |
|---|---|
| Design Speed | 15 MPH |
| Pavement Width | 17 Ft. |
| ROW Width | 25 Ft. |
| Max. Curb Radius | 10 Ft. |
| Pedestrian Crossing Time | 4 Sec. |
| Drainage | Curb |



**Architectural Standards** specify materials and construction techniques which contribute to the character of each building as well as the civic realm of the neighborhood. The building materials recommended for I'On work well in the climate of the Lowcountry and age gracefully over time.

| | Materials | Configuration | General |
|---|---|---|---|
| **Building Walls** | -Wood clapboard or shingles, 3.5 - 8" to the weather<br>-Board and batten<br>-Brick selected from master list<br>-Stucco with sand or trowelled finish | -Wood walls to be flush trimmed at corners<br>- 3.5 - 8" trim at corners and openings<br>-Stucco and brick homes shall have a minimum 10" frieze<br>-Chimneys extend to ground | -Undercroft of decks & porches enclosed by lattice or wood louvers<br>-Foundation walls, piers and chimneys to be brick or finished with stucco |
| **Garden Walls & Fences** | -Wood pickets of custom design<br>-Brick or stucco to match the principle building<br>-Wrought iron or wood pickets in combination with brick or stucco<br>-Gates shall be wood or iron | -Brick walls shall be capped<br>-Frontage walls for All-yard buildings not to exceed 1st story finish floor height. For Side-yard buildings - 6' max. height<br>-Garden walls 6' max. height | -A living wall may serve as a garden wall.<br>-Hedge from planting list may be used in combination with wood, brick or stucco as a frontage or garden wall |
| **Arches, Columns & Porches** | -Brick, stone or stucco piers<br>-Wood columns, porches, posts and balustrades<br>-Iron railings and balconies with wood treads<br>-Canvas awnings | -Arches no less than 8" in depth<br>-Piers no less than 12"x12".<br>-Posts no less than 6"x6"<br>-Porch openings of vertical proportion<br>-Top/bottom rails of custom design | -Cantilevered balconies supported by brackets<br>-Wood elements must be painted or stained<br>-Columns of the Doric, Tuscan or Ionic orders |
| **Roofs** | -Standing seam or 5-V crimp heavy gauge metal<br>-Wood shakes<br>-Slate and artificial slate<br>-Dimensional asphalt fiber-glass<br>-Gutters & downspouts of galvanized steel or copper | -Principle roof: a symmetrical gable or hip with slope 4:12-10:12<br>-Ancillary roof(s): shed, hip or gable with minimum slope 2:12<br>-Flat roofs permitted as a habitable deck, enclosed by a balustrade or parapet | -Roof penetrations & skylights shall be placed on the rear of the roof<br>-Square or half round gutters<br>-Dormers to be min. 2' from side walls |
| **Windows, Doors & Shutters** | -Windows of painted wood, solid vinyl or anodized aluminum with clear glass<br>-Doors of painted or stained wood<br>-Wood shutters | -Rectangular single, double or triple hung, awning, or casement windows with vertical orientation<br>-Multiple windows in the same opening separated by a 4" post<br>-True divided light window muntins creating panes of square or vertical orientation | -Operable wood shutters sized to match openings<br>-Garage doors 9' max. width<br>-Bay windows shall projet perpendicularly from main structure a min. 8" |
| **Miscellaneous** | -Exterior hardware & lighting to be solid brass, bronze or wrought iron.<br>-Signs for shops or offices of enameled steel | -Signs attached to buildings no taller than 18" & externally lit<br>-Spotlights attached to building walls or roof eaves are permitted in rear yards | -Electrical meters, A/C compressors, garbage cans, clothes lines or 18" satellite dishes shall not be visible from sidewalk |

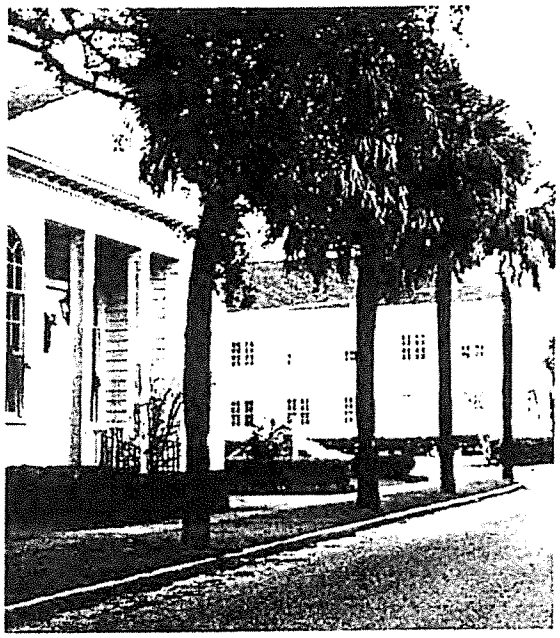
**Landscape Standards** address planting along thoroughfares to enhance and further define the neighborhood's civic realm. The Recommended Planting List includes both indigenous species, as well as those plants introduced from Europe or Asia that through continued cultivation have come to be associated with the character of the Lowcountry.

## Techniques

1. Trees to be drawn from regional nurseries or transplanted from on site stock.
2. Trees over 6 inches in caliper may not be removed with out approval from the developer. Trees over 24 inches in diameter to be pruned of dead wood, fertilized and provisions made to protect the tree prior to the onset of construction.
3. Each thoroughfare shall have a designated street tree planted within 5 feet of each edge of pavement as follows:

- For wide canopy trees - one 3 inch minimum caliper, no further than every 50 feet on center.
- For medium trees - one 2 inch minimum caliper no further than every 40 feet on center.
- For small trees - one 1 1/2 inch minimum caliper no further than every 30 feet on center.

4. A delineation of the frontage line is encouraged for All-yard buildings and mandatory along the side yard of Side-yard buildings. This delineation may take the form of a hedge by itself or in combination with masonry columns or wood pickets.



## Recommended Planting List

- Wide Canopy Trees

| | |
|---|---|
| Live Oak* | Quercus virginiana |
| Mockernut Hickory* | Carya tomentosa |
| Laurel Oak* | Quercus |
| Southern Red Oak* | Quercus falcata |
| Red Maple* | Acer rubrum |
| Tulip Poplar* | Liriodendron tulipfera |
| Ginkgo (male variety only)* | Ginkgo biloba |
| Willow Oak* | Quercus phellos |

- Medium Tree

| | |
|---|---|
| Blackgum* | Nyssa sylvatica |
| London Planetree* | Platanus var. 'Bloodgood' |
| Southern Magnolia | Magnolia virginiana |
| Persimmon | Dyospiros virginiana |
| Scarlet Oak* | Quercus coccinea |
| Winged Elm* | Ulmus alata |

- Small Trees

| | |
|---|---|
| Crepe Myrtle* | Lagerstromia indica "Natchez" |
| Cabbage Palm* | Sabal palmetto |
| Dogwood* | Cornus florida |
| Fringe Tree | Chionanthus virginicus |
| Redbud* | Cercis canadensis |
| Saucer Magnolia | Magnolia spp. |
| Silver Bell | Halesia diplera |

*Appropriate for the use as a street tree.

- Hedges

| | |
|---|---|
| Abelia | Abelia 'Edward Goucher' |
| American Holly | Illex americana |
| American Beautyberry | Callicarpa americana |
| Anise | Illicium paroiflorum |
| Azalea Cultivaus | Rhodondendrum sp. |
| Boxwood | Buxus microphylla vat. |
| Butterfly Bush | Buddleia davidi var. |
| Camellia | Camellia japonica & C. sanqua |
| Chaste Tree | Vitex agnus-castus |
| Cherry Laurel* | Prunus caroliniana 'compacta' |
| Cleyera | Cleyera japonica |
| Holly cultivaus | Illes spp. |
| Indian Hawthorne | Raphiolepis indica |
| Inkberry | Ilex glabra |
| Oleander* | Nerium oleander 'Calypso' |
| Pittosporum | Pittosporum tobira |
| Privet species | Ligustrum spp. |
| Spiraea | Spiraea sp. |
| Tea Olive* | Osmanthus gragans |
| Wax Mrytle* | Myrica cerifera |

*Appropriate for use as a tall hedge.

# Glossary

**All-Yard Building:** A building that stands near the center of the lot, with substantial front and rear yards and smaller side yards.

**Arcade:** A covered passageway in front of shopfront buildings characterized by a continuous row of columns or piers that encroach into the right-of-way. Arcades may be substituted by awnings, marquees or second story overhanging balconies.

**Build -to-Zone:** Range of allowable distance from the frontage line where a building's front face may be placed.

**Building Height:** The vertical distance from the mean elevation of the crown of the frontage street to the eave line.

**Civic Realm:** Those spaces of the neighborhood shared by all residents. They include thoroughfares, greens, parks and squares.

**Esplanade:** A pedestrian promenade or walkway, along a natural feature such as a marsh or lake.

**Facade:** The elevation of a building parallel to a frontage line.

**Frontage Line:** The portion of the lot boundary line which coincides with a thoroughfare or a civic space such as a square.

**Frontage Wall:** A wall, fence or hedge built along the frontage line or in the build-to-zone where designated in the Neighborhood Standards.

**Garden Wall:** A wall, fence or hedge along rear and side property lines.

**Green:** A naturalistic, open space that is small and civic in nature, and is surrounded by buildings. Greens feature informal planting, often around a sunny central lawn.

**Lane:** A private access route.

**Living Wall:** A type of fence that may serve as a garden wall composed of (4 inch X 4 inch) wood posts with (2 inch X 4 inch) welded wire fabric for vines or similar plant material.

**Outbuilding:** A separate building from the principle building that has a maximum of 625 square feet of lot coverage.

**Park:** Naturalistic open space, usually located at the edge of a town or the neighborhood.

**Porch:** An open, roofed structure supported by posts or columns attached to a residence, and no less than 8 feet in depth.

**Rear-yard Buildings:** A building that occupies the front of its lot, leaving the rear portion as a private space for courtyards or parking. This type may accommodate both shops and office spaces as well as residential use.

**Road:** Thoroughfare, rural in nature, with open curbs and optional parking.

**Setback:** Minimum distance between the building face and the lot boundary line. At corner lots, buildings may be built up to the front and side lot boundary lines.

**Side-yard Building:** A building that occupies one side of its lot with the primary open space on the other side.

**Square:** An inherently civic and formal green space offering a potential setting for civic buildings and monuments. Squares are spatially defined by facades of buildings and formal tree plantings.

**Stoop:** A small platform and/or entrance stairway at a house door.

**Story:** A habitable level within a building.

**Street:** A thoroughfare with raised curbs, closed drainage and wide sidewalks.