RICHLAND COUNTY COUNCIL
DEVELOPMENT & SERVICES COMMITTEE

Bernice G. Scott	Joyce Dickerson	Greg Pearce	Damon Jeter, Chair	Doris Corley
District 10	District 2	District 6	District 3	District 1

September 26, 2006
5:00 PM

Richland County Council Chambers
County Administration Building
2020 Hampton Street

Call to Order

Approval of Minutes – July 25, 2006: Regular Session Meeting [Pages 3 – 5]

Adoption of Agenda

I. Items for Action

A. Richland County/Homebuilders Association Task Force Recommendations
[Pages 6 – 38]

B. Solid Waste Contract Renewals
[Pages 39 – 40]

II. Items for Discussion / Information

A. Code Enforcement Committee

III. Items Pending Analysis

A. Town of Eastover Sewer Collection System

B. Approval of Construction Contract for the Paving of 2.15 Miles of Dirt Roads in the North Paving Contract (Deferred on June 27, 2006)

C. Endorsement of Richland County / City of Columbia City-County Steering Committee (Deferred on July 25, 2006)

Adjournment

Staffed by: Joe Cronin

RICHLAND COUNTY COUNCIL
DEVELOPMENT AND SERVICES COMMITTEE
July 25, 2006
5:00 PM

In accordance with the Freedom of Information Act, a copy of the agenda was sent to radio and TV stations, newspapers, persons requesting notification, and was posted on the bulletin board located in the lobby of the County Administration Building.

Members Present:

Chair: Damon Jeter
Member: Bernice G. Scott
Member: Joyce Dickerson
Member: L. Gregory Pearce, Jr.

Absent: Doris M. Corley

Others Present: Joseph McEachern, Valerie Hutchinson, Paul Livingston, Mike Montgomery, Kit Smith, Michielle Cannon-Finch, Milton Pope, Tony McDonald, Roxanne Matthews, Joe Cronin, Larry Smith, Amelia Linder, Stephany Snowden, Kendall Johnson, Jennifer Dowden, Dwight Hanna, Teresa Smith, Janet Claggett, Dale Welch, Audrey Shifflett, Jocelyn Jennings, Donny Phipps, Anna Almeida, Michael Criss, Susan Britt, Andy Metts, Chief Harrell, Monique Walters, Michelle Onley

CALL TO ORDER

The meeting was called to order at approximately 5:03 p.m.

APPROVAL OF MINUTES

June 27, 2006 (Regular Session) – Ms. Scott moved, seconded by Ms. Dickerson, to approve the minutes as submitted. The vote in favor was unanimous.

ADOPTION OF AGENDA

Mr. Pope stated that Item J—Farmer's Mark Easement needed to be taken up in Executive Session.

Ms. Scott moved, seconded by Ms. Dickerson, to approve the agenda with Item J being taken up during Executive Session. The vote in favor was unanimous.

I. ITEMS FOR ACTION

Acceptance of Roads in Ashley Ridge Subdivision (Deferred on June 27, 2006) — A discussion took place. Ms. Dickerson moved, seconded by Ms. Scott, to forward this item to Council without a recommendation for approval. The vote in favor was unanimous.

POINT OF PERSONAL PRIVILEGE – Mr. Jeter acknowledged that newly elected Council member Norman Jackson was in the audience.

Extension of Temporary Receivership Agreement for Operation of Franklin and Albene Park Water and Sewer Systems – Ms. Scott stated for the record that this is a temporary receivership and that the County has not purchased any land around the sewage area.

Ms. Scott moved, seconded by Ms. Dickerson, to forward this item to Council with a recommendation for approval. A discussion took place.

Richland County Greenways Project: Phase II Funding Request ($35,000) – Mr. Ken Driggers briefed Council regarding this item. A discussion took place.

Ms. Scott moved, seconded by Ms. Dickerson, to forward this item to Council with a recommendation for approval and to direct staff to identify a funding source. The vote in favor was unanimous.

Ordinance Authorizing a Quitclaim Deed for a 15' Right-of-Way on Bluff Oaks Road – Mr. Pearce moved, seconded by Ms. Scott, to forward to Council with a recommendation for approval. The vote in favor was unanimous.

Ordinance Authorizing a Quitclaim Deed for Purported Right-of-Way on Moon Rise Street – Ms. Scott moved, seconded by Ms. Dickerson, to forward to Council with a recommendation for approval. The vote in favor was unanimous.

Proposed Amendment to the Richland County Road Paving Program to Permit Reordering of the Road Priority List – Ms. Scott moved, seconded by Ms. Dickerson, to forward this item to Council without a recommendation for approval. The vote in favor was unanimous.

Endorsement of Richland County/City of Columbia City-County Steering Committee – Mr. Pope briefed Council regarding this item. A discussion took place.

Ms. Scott moved, seconded by Ms. Dickerson, to defer this item to the September committee meeting. The vote in favor was unanimous.

Petition to Close a Portion of Joe Ballentine Road – Mr. Pearce moved, seconded by Ms. Scott, to forward this item to Council with a recommendation for approval. The vote in favor was unanimous.

EXECUTIVE SESSION

Mr. Pearce moved, seconded by Ms. Scott, to go into Executive Session. The vote in favor was unanimous.

==========

The Committee went into Executive Session at approximately 5:29 p.m. and came out at approximately 5:48 p.m.

==========

Mr. Pearce moved, seconded by Ms. Dickerson, to come out of Executive Session. The vote in favor was unanimous.

Farmer's Market Easement – Ms. Scott moved, seconded by Ms. Dickerson, to forward to the July 25th Special Called meeting with a recommendation of approval and to direct the County Administrator to negotiate with the State Farmer's' Market to negotiate the appropriate location of the requested easement. The vote in favor was unanimous.

III. ITEMS PENDING ANALYSIS

Town of Eastover Sewer Collection System – This item is still pending.

Approval of Construction Contract for the Paving of 2.15 Miles of Dirt Roads in the North Paving Contract (Deferred on June 27, 2006) – This item is still pending.

ADJOURNMENT

The meeting adjourned at approximately 5:52 p.m.

Submitted by,

Damon Jeter
Chair

The minutes were transcribed by Michelle M. Onley

Richland County Council Request of Action

Subject: Richland County and Greater Columbia Home Builders Association Road Construction Task Force Recommendations

A. Purpose

Council is requested to approve implementation of the recommendations of the above task force. This Task Force has determined that some minor revisions to the County Regulations are required and are itemized below. In addition, the county is requested to hire two additional inspectors and hold educational meetings with the development community once every two years, minimum.

B. Background / Discussion

Council initially approved the requirement of a 3 year bond for all new subdivision roads and drainage that were to be taken over by the County. This created a great amount of concern from the local development community and was considered unacceptable and overbearing for the task at hand, which is better lasting roads for the County. In December 2005, council approved an alteration to the ordinance that included: ultimate review of the ordinance and inspection procedures in order to achieve better roads and any subsequent requirements still be acceptable to the development community. This task force was created as a part of the council vote, in order to determine the best methods of achieving these goals.

As the task force was required to do, they met on several occasions and have identified the above requests as the appropriate way to address the concerns of all parties. The recommendations as drafted and voted on by the Task force are as follows:

1) Specification Changes

- Changes can be found in the following sections (See attachment w/ revisions highlighted) -
  - 5.0.7 Guarantee
  - 5.0.9 Inspection:
  - 5.0.10 Instructions to Contractors: 1.General: Notification; 2.Subgrade and Utilities: Underdrains ;
  - 5. Final Approval: Documentation

2) Bi-annual Educational Meetings/Workshops

- In addition, the Task Force offers the following recommendations: It is requested, at the direction of the County engineer, to conduct work shop classes at a time and place to be posted with 30 days notice to conduct such meetings with the developers, project engineers, soils scientists, contractors and utility providers in order to review SECTION 5 for compliance. It is suggested that the developers, engineers, soil scientists and utility providers sponsor these meetings. In this

regard the Columbia Home Builders Association will work with Department of Public Works to coordinate these meetings to be held at not less than two year intervals.

3) Two new Engineering Inspectors

- STAFF SUPPORT. The Task Force respectfully requests that Richland County Council adopts and approves the Department of Public Works hiring two more inspectors (engineering technician- inspections).

C. Financial Impact

The first two items should not create any funding issues, since it is outlined in the recommendation that the Home Builders Association will sponsor the education effort.

However, the third item, hiring two additional inspectors, will potentially have a significant budgetary impact, negatively, as indicated in an estimate below. If this recommendation is to be implemented, the following cost must be covered by additional per project development fee to cover the below cost:

Automobile (price per vehicle/year) $18,000/ 5 years	$3,600
Salaries, benefits , etc. (per employee @ min. salary)	$34,000
Office Equipment (per employee)	$2,500
Incidental Equip. (Shoes, Vest, Probes, Etc.-per employee)	$1,000
Annual Total For 2 inspectors	**$82,200**

In order to identify a simple and equitable method of distributing these cost to the development community, the following is submitted. It should be noted we included commercial projects since approximately 75% of our approved plans & approximately 50% of inspections time are for commercial developments.

Avg. # of Development plans approved / year (includes both commercial & subdivisions, based on 05-06 year)	240
Cost of Two Additional inspectors (see above)	$82,200
Per project inspection fee	**$350**

The "private sector" participants of this committee are looking for immediate implementation, if this recommendation is accepted. However, if these fees are collected they

are emphatic that the money should be utilized exclusively toward DPW/Engineering inspectors and request assurances of the same.

D. Alternatives

1. Approve the request in full, and exactly as presented by the committee.

2. Do not approve the recommendations, and send it back to the committee.
   Consequences: If any approval does not include the addition of the two inspectors, the request for the committee to discern the most effective method to improve county roads, and therefore minimize county maintenance, will have been for naught.

E. Recommendation

It is recommended that Council approve the request to hire two new inspectors, implement changes to the County Road construction Standards, approve the inspection fee and approve the Bi-annual Education Meetings in accordance with the recommendations of this County approved Task Force.

Recommended by: Howard Boyd, County Engineer **Department:** Public Works
Date: 7/24/06

F. Reviews

Finance

Reviewed by: Daniel Driggers Date: 8/31/06
✓ Recommend Council approval ❑ Recommend Council denial
Comments regarding recommendation: Approval would require a budget amendment.

Public Works

Reviewed by: Date:
✓ Recommend Council approval ❑ Recommend Council denial
Comments regarding recommendation:

Legal

Reviewed by: Amelia R. Linder Date: 9/06/06
❑ Recommend Council approval ❑ Recommend Council denial
Comments regarding recommendation: On December 6, 2005, County Council enacted Ordinance No. 095-05HR, which amended the warranty period from 3 years (with a bond required) to 1 year (with no bond required) . In addition, an inspection fee was to be "established and collected as a prerequisite for a developer's receiving construction plan approval for any new subdivision streets." However, this ordinance has not yet gone into effect and will not go into effect until the Council adopts inspection procedures for road construction projects. This would be accomplished by the approval of this Request of Action, or alternate provisions thereof. Although all of

the alternatives presented here appear to be legally sufficient, this request is at Council's discretion.

Administration

Reviewed by: Tony McDonald Date: 9/21/06

✓ Recommend Council approval ❑ Recommend Council denial

Comments regarding recommendation: Recommend approval of the proposed changes in road construction standards, the proposed inspection fee, the hiring of two additional inspectors for the Public Works Department (to be funded by the new fee), and the bi-annual education meetings. All of these recommendations were developed by and are supported by the Road Construction Task Force established by the County Council.

March 29, 2006

TO: Richland County Road Building Task Force

FROM: Steve Corboy, Secretary

Re: Amendments to Section 5 – Road Building Standards

After three meetings of the Task Force and numerous emails between the meetings it is the conclusion of the Task Force that much of what was discussed and approved is already incorporated in SECTION 5 - ROAD DESIGN STANDARDS for Richland County, dated April 2003.

The following changes to Section 5 are herewith included;

1. **5.0.7 Guarantee:** Shall be changed to read as follows. **As a condition for acceptance of a road into the County Road System, Richland County requires a one year warranty. The warranty will pertain to the design and construction of the streets and accompanying drainage system in accordance with these standards and their satisfactory performance during the warranty period.**

2. **5.0.9 Inspection:** A typo exists in the second paragraph that refers to Section 5.0.11 shall be changed to read. **5.0.10.1.**

3. **5.0.10.1 Notification.** Shall be changed to read. **After receiving approval of street, storm drainage and sediment and erosion control plans, the contractor or engineer must contact the County Engineer's Office with a start date for construction at least 48 hours in advance. The County Engineer reserves the right to conduct a preconstruction meeting on the site after clearing and grubbing, on a case by case basis, as determined by the County Engineer. Such meetings will be timely planned and notified within 48 hours. The project engineer, contractor and developer will attend the meeting.**

4. **5.0.10 Underdrains.** Add. The need for and location of underdrains will be identified **by the project engineer** ...

5. **Final Approval: Documentation.** Delete **Three year warranty bond for road and drainage systems.**

EDUCATION. It is requested, at the direction of the County engineer, to conduct work shop classes at a time and place to be posted with 30 days notice to conduct such meetings with the developers, project engineers, soils scientists, contractors and utility providers in order to review SECTION 5 for compliance. It is suggested that the developers, engineers, soil scientists and utility providers sponsor these meeting to include a BBQ lunch. In this regard the Columbia Home Builders Association will work

with Department of Public Works to coordinate these meetings to be held at not less than two year intervals.

STAFF SUPPORT. The Task Force respectfully requests that Richland County Council adopts these amendments and approves the Department of Public Works hiring of two more inspectors.

Respectfully Submitted,

Stephen B. Corboy
Secretary
Richland County Road Building Task Force

SECTION 5
ROAD DESIGN STANDARDS

5.0 General: The County Engineer will approve all plans for construction or upgrading of streets or roads in the County Road System to include:

1. New construction
2. Staged development of roadways (overlays)
3. Roadway widening
4. Appurtenant roadway improvements such as storm drains and curb and gutter
5. Encroachments

To be eligible for acceptance into the County Road System, a street or road must be designed and constructed in accordance with these standards and approved by the County Engineer. In general, roadways should be designed for the anticipated traffic density 20 years from the proposed date of construction. Special conditions such as long range planning studies, proposed zoning, industrial parks, proposed interstate facilities, etc. should be considered in the design.

5.0.1 Road Designation: Roadways in the County Road System are classified as one of the following:

1. Rural
2. Residential (Minor/Local)
3. Collector
4. Local Commercial
5. Industrial Service
6. Arterial

The determination of the appropriate classification should be made in consultation with the Planning Department.

5.0.2 Drainage: Storm sewer systems constructed to drain streets accepted into the County Road System are eligible for acceptance by the County if designed and constructed in accordance with the Richland County Stormwater Management Ordinance.

5.0.3 Plans: Complete construction plans and specifications together with all appropriate design calculations are to be submitted and approved prior to the commencement of construction. Plans are to be provided in digital format on computer disc as well as on 24" x 36" sheets. Plans are to be on state plane coordinates in accordance with the County's digital submission standard and to contain the following information:

1. Plan
2. Profile
3. Horizontal curve data
4. Vertical curve data
5. Grades
6. Stations of all PI's, PC's, PT's and intersections
7. Existing and proposed grades at half station
8. Typical cross section
9. Pavement design
10. Drainage Structures
11. Utilities

12. Signing Plan
13. Pavement Marking Plan
14. Length of Proposed Roadways rounded to 0.01 Mile

5.0.4 As-Builts: As-built plans on computer disc are to be provided before final approval will be issued. As-built plans will also comply with the County's digital submission standard.

5.0.5 Standard Sections: Standard cross sections for the various road classifications and subgrade soil support values are available from the County Engineer's office.

5.0.6 Dedication: Roadways designed and constructed in accordance with these standards and approved by the County Engineer's office may be dedicated to Richland County for maintenance. This is accomplished through the submittal and acceptance of a deed for the right-of-way. Standard deed forms for this purpose are available from the County Engineer's office. The deed form, entitled Title to Real Estate, is reproduced at page 21. Executed deeds must be provided as a prerequisite for final approval.

5.0.7 Guarantee: As a condition for acceptance of a road into the County Road System, Richland County requires a ~~three~~ one year warrantee ~~accompanied by a bond in the amount of the construction cost~~. The warranty ~~and bond~~ will pertain to the design and construction of the streets and accompanying drainage system in accordance with these standards and their satisfactory performance during the warranty period.

All pavement failures and other structural defects that are detected during the warranty period are to be corrected by the grantor upon official notification by the County Engineer's office. A guarantee clause is contained in the easement and right-of-way deed itself. The guarantee period begins with the County's execution of the deed.

5.0.8 Utility Crossing: All excavations for utility installations beneath either proposed or existing pavement on County maintained streets are to be backfilled with "flowable fill" meeting the following minimum specifications unless specific exemption on a case by case basis has been granted by the County Engineer's office.

As a minimum, flowable fill material will be mixed at the following proportions per cubic yard and yield a mix with a minimum compressive strength 100 psi:

Cement 50 lbs
Fly Ash 500 lbs
Fine Aggregate 2430 lbs
Water 300-350 lbs

All utility crossings on existing County roads require the submittal and approval of a Richland County encroachment permit application.

5.0.9 Inspection: All elements of roadway construction must be inspected and approved by the County Engineer's office as a prerequisite for acceptance by Richland County. This will include:

1. Drainage Structures
2. Subgrade
3. Embankments

4. Utility Crossings
5. Base Course
6. Asphalt Paving

It is the contractor's responsibility to insure the County Engineer's office is notified upon completion of each phase of construction and has the opportunity to make the inspections before proceeding to the next phase. Instructions for coordination of the inspections with the contractor's activities are provided in Section ~~5.0.11.~~ 5.0.10.1

It should be understood that the inspections conducted by the County Engineer's office are for the protection of Richland County only. They are not intended to certify the contractor's satisfactory discharge of his contractual obligation to the owner, nor do they relieve the project engineer from any of his responsibilities with regard to inspection and contract administration.

5.0.10 Instructions to Contractors: The following procedures for implementation of the County's inspections and final approval shall be followed. It is recommended that these instructions be included in the contract documents for the construction contract.

1. General:

Applicability As a prerequisite to County approval and acceptance of new streets, all phases of construction must be inspected and approved by the County Engineer's office. This applies to all subdivision streets constructed under the jurisdiction of the Richland County Land Development Regulation whether they are to be dedicated to Richland County or not.

Specifications All construction and materials shall comply with the latest edition of the SCDOT Standard Specifications for Highway Construction unless specifically noted otherwise herein. These requirements and the SCDOT specifications shall supersede the engineer's specifications in the event of a discrepancy.

Testing The contractor is responsible for providing all geotechnical and materials testing and the accompanying documentation at no cost to the County. The County will be responsible for providing it's own quality assurance testing.

Unless otherwise stated herein, the proctor densities required under these procedures are standard proctor densities.

Notification After receiving approval of street, storm drainage and sediment and erosion control plans, the contractor or engineer must contact the County Engineer's Office with a start date for construction at least 48 hours in advance. The County Engineer reserves the right to conduct a preconstruction meeting on the site after clearing and grubbing, on a case by case basis, as determined by the County Engineer. Such meetings will be timely planned and notified within 48 hours. The project engineer, contractor and developer will attend the meeting.

Erosion Control Before starting any grading work, install sediment and erosion control measures per the approved plans to protect adjacent property and downstream water bodies. The contractor is responsible for implementation of the sediment and erosion control plan and for insuring that silt and sediment do not leave the site.

Inspections Requests for any inspection must be arranged with the County Engineer's office 24 hours in advance.

Other Regulations The developer and contractor are also responsible for compliance with all applicable regulations administered by other agencies such as:

- SCDHEC
- Corps of Engineers
- SCDOT
- Richland County Planning and Zoning

The County Engineer's office may withhold approval at any stage of construction, including final approval, for failure to comply with these regulations.

2. Subgrade and Utilities:

Subgrade inspection After clearing and rough grading of streets but prior to placement of fill for roadway embankments, a subgrade inspection is required. A rubber tired backhoe and motorgrader are needed for this inspection in order to confirm that all stumps, roots and unacceptable soils have been removed. A proof-roll may be conducted during this inspection at the discretion of the County Engineer's office or geotechnical engineer. Underdrain requirements may also be identified at this point. All deficiencies identified during this inspection must be corrected by the contractor before the next inspection is requested. The consulting engineer or geotechnical engineer as well as the County Engineer's office and contractor should be represented. This inspection shall be set up by the contractor or the consulting engineer.

Erosion Control Install sediment and erosion control measures around storm drain inlets as they are constructed. Sediment basins and detention ponds must be in place at this time.

Backfill The contractor shall notify the County Engineer's office when backfilling of storm drainage or utility excavations within the roadway is to take place. Backfill in these excavations shall be compacted at the proper moisture content in lifts not exceeding 6". The contractor shall provide geotechnical testing and documentation, at no cost to the County, confirming that all backfill has been compacted to at least 95% of maximum proctor density. If not properly notified, or if the test results are unsatisfactory, the County Engineer's office may require excavation and re-compaction of the backfill. No proof-roll of the subgrade will be scheduled until the backfill compaction has been documented. Flowable fill may be used in lieu of compaction in 6" lifts and geotechnical testing. Notification, however, is still required so that an inspection of the excavations can be accomplished prior to placement of flowable fill.

Embankments All stumps and large roots must be removed from the roadbed prior to placement of fill for embankments regardless of fill height. Roadway embankments will be placed and compacted in lifts not exceeding 8". The contractor is responsible for providing geotechnical testing and documentation that the embankment material has been compacted to 95% of maximum proctor density. No proof-roll of the subgrade will be scheduled until the compaction has been documented.

Proof-roll After fine grading of subgrade, but prior to placing base material or curbing, the subgrade must be proof-rolled with a loaded tandem axle dump truck or pan. The contractor shall schedule this inspection. The geotechnical engineer, County Engineer's office and contractor shall be represented. It is the responsibility of the contractor to provide independent density verification prior to proof-rolling and at no cost to Richland County. The County Engineer's office reserves the right to conduct or require additional testing at any time. The minimum acceptable subgrade density is 95% of maximum proctor density.

No base course material or curbs should be placed prior to written approval of the subgrade from the County Engineer's office.

Any completed and approved subgrade left exposed for over two weeks or damaged by inclement weather must be re-inspected and approved by the County Engineer's office. This may include another proof-roll if necessary in the judgment of the County Engineer's office.

Underdrains The need for and location of underdrains will be identified by the project engineer in conjunction with the proof-roll of the subgrade. Required underdrains will be clearly marked

on the contractor's and County Engineer's plans and must be installed prior to requesting the next inspection. The location of underdrains must also be shown on the as-built plans.

Curb and Gutter Curb and gutter must be placed on compacted and approved subgrade or base material.

Catch Basins The location and orientation of the catch basins relative to the curb and gutter, as well as the roadway width, should be confirmed at this time. Catch basins improperly placed must be relocated and/or reconstructed.

All catch basins must have a temporary drain by which standing water can be drained from the surface of the subgrade and base during construction. These drains must be properly plugged before the final inspection is requested.

3. Base Course:

Proof-roll Upon completion of the curbing and base course, the contractor shall schedule an inspection to proof-roll the base with a loaded tandem axle dump truck or pan. The geotechnical engineer, County Engineer and contractor shall be represented. The contractor will provide proctor and gradation information on the base material from an independent testing firm as well as verification that all applicable compaction and depth requirements have been satisfied.

Minimum Requirements Base course thickness will be measured at test holes through the base at staggered intervals not to exceed 250 feet in each lane with a minimum of two on any individual street. When the average thickness is found to be deficient by more than 1/2 ", or any individual measurement by more than 1", the deficiency will be corrected by scarifying, adding base material and re-compacting.

The following compaction requirements must be met:

- Sand Clay Base Course 100% of maximum proctor density
- Graded Aggregate Base Course 98% of modified proctor density
- Cement Stabilized Earth Base Course 95% of maximum proctor density

Prime Unless paving begins within 48 hours of approval of the base, the base must be primed. The prime will be applied at the rate specified and allowed to set long enough to be absorbed into the base. Prime is not required for placement of hot mix asphalt directly on the subgrade.

4. Paving:

Coordination After approval of the base or subgrade, there must be coordination between the paving contractor and the County Engineer's office with regard to the schedule for paving. If possible, a County inspector will be present during paving operations but it is not mandatory unless so designate by the County Engineer. Asphalt concrete surface courses may not be placed during the months of December, January and February except with the written permission of the County Engineer. Placement of hot mix asphalt will not be authorized when surface temperatures are less than 45 degrees F.

Final Surface Course An existing asphalt concrete binder or base course must be inspected and approved prior to placement of the asphalt surface course. Verification of in-place density and thickness of the binder or base course must be provided as a prerequisite to this approval. Failure to obtain this approval will make the street ineligible for final approval and acceptance by the County.

Asphalt Requirements Unless another type has been approved, in advance, by the County Engineer's office for a specific project, hot mix asphalt pavements will be:
Binder Type 1 or 2 (Intermediate Type B or C) for binder (Intermediate) courses
Surface Type 1 (Surface Type C) for surfaces courses
All hot mix asphalt will contain hydrated lime as an anti-stripping agent. A roadway will not be approved and accepted by the County without this additive in the asphalt.
Verification Asphalt verification testing will be conducted in accordance with Section 401.30 of the SCDOT Standard Specifications for Highway Construction, Edition of 2000. The contractor shall be responsible for providing verification of the asphalt type, asphalt binder content, gradation and the average laboratory bulk specific gravity (BSG) for all asphalt mixes used on Richland County projects as well as the in-place asphalt density and thickness. The asphalt contractor must have an asphalt laboratory certified by the SCDOT for state highway projects.
For each day's production, the contractor's asphalt lab must provide:
- Average laboratory BSG
- Asphalt binder content
- Gradation
- Mix type

The in-place density and thickness determination of asphalt surface and binder courses will be based on the average of five 6" cores for each day's production. Cores will be randomly obtained from the compacted roadway immediately after completion and the holes patched with hot asphalt from the same day's production. The cores will be taken and evaluated by either the asphalt contractor or an independent materials testing firm certified by the SCDOT for state highway projects.
The pavement will be rejected, removed and replaced if the average in-place core density is less than 96% of the average laboratory BSG with all cores exceeding 95%.
The average pavement thickness must be equal to or greater than the plan thickness with no individual core thin by more than 0.25". Pavements that are deficient with regard to thickness will either be removed and replaced or overlaid at the discretion of the County Engineer.
Each core will be tested for the presence of hydrated lime in the mix.
Documentation of the asphalt verification testing must be provided prior to requesting a final inspection. The Richland County Engineer's office reserves the right to conduct or require additional verification testing at any time.

5. Final Approval:

Final Inspection After the paving is completed and all utility, storm drainage and associated work is complete, a final inspection can be scheduled. The following items should all be completed before a final inspection is requested:
- Permanent grass on road shoulders, cut and fill slopes and easements
- Fence around detention ponds
- Street name signs (County Standard or an approved alternate)
- Traffic control signs (per SC MUTCD)
- Pavement marking (Thermoplastic)

Documentation As a prerequisite to conducting the final inspection, the following must be provided:
- Digital submission of as-built plans
- 12"x18" hard copy of as-built plans

• Right-of-way deeds for roads and drainage system
• ~~Three year warranty bond for road and drainage systems~~
• Documentation of asphalt verification testing

Bond Estimate If approval of a bond in lieu of completion is sought, the engineer must provide an estimate of the quantities of the uncompleted items of work together with their contract values and total cost. When the uncompleted work includes the final surface course, the estimate
must include remedial work on a minimum of 25% of the total pavement area.

Punch List A written punch list of deficiencies found during the final inspection will be provided. All items should be completed before requesting a re-inspection.

Final Approval Upon satisfactory completion of all punch list items, a final approval letter recommending County acceptance of the streets and drainage system will be issued by the County Engineer.

Failure to comply with any of the above listed requirements could render the streets and storm drainage systems ineligible for acceptance by Richland County.

5.0.11 Signs: Traffic control signs and name signs on new streets are to be installed by the developer in accordance with an approved signing plan as a prerequisite for acceptance by Richland County.

A standard detail for the name signs may be found on Page 23. For the sake of uniformity and ease of maintenance, this is the only acceptable name sign for County maintained streets unless an alternate design is submitted to and approved by the County Engineer's office.

Traffic control signs are to be fabricated and erected strictly in accordance with the S.C. Manual on Uniform Traffic Control Devices.

5.0.12 Encroachment Permits: An encroachment permit, approved by the County Engineer's office, is required for all construction, undertaken by parties other than the Richland County Public Works Department or it's authorized contractor, within or affecting the right-of-way of any County maintained road. This requirement applies, but is not be limited, to:

• Driveway connections involving a curb cut or pipe installation
• Curb cuts
• Utility taps
• Utility crossings
• Storm drainage installation
• Storm drainage discharge
• Subdivision entrance signs or gateways

The permittee is required to indemnify the County for any liability incurred or damages sustained as a result of the encroachment.

The permittee is responsible for:

• Notifying the County Engineer's office when construction begins on an encroachment
• Ensuring that a copy of the encroachment permit is on the construction site
• Ensuring that the construction and the restoration of the roadway have been approved by the County Engineer's office
• All construction

The encroachment permit application form may be obtained from the County Engineer's office.

Anyone who encroaches on the right-of-way of a County maintained road without securing an encroachment permit or who fails to adequately restore the road and right-of-way after an encroachment is subject to fines of up to $500.00 per day in accordance with County ordinance.

5.1 Pavement Design Standards:

5.1.1 General: In determining the required pavement strengths, the following factors shall be considered:

1. Road designation
2. Traffic Data. DHV, ADT, Percent Trucks (T)
3. Soil characteristics and strength
4. Traffic growth rates
5. Pavement strengths
6. Structural number
7. Stage development
8. Parking
9. Drainage
10. Geometries

5.1.2 Road Designation: A road's designation as Rural, Residential, Collector, Local Commercial, Industrial Service or Arterial, should be determined in consultation with the Planning Department.

5.1.3 Reserved

5.1.4 Traffic Data: The following information shall be provided for each proposed road improvement:

A. ADT, Average Daily Traffic, the daily traffic flow in both directions of travel, for a 24- hour period.

B. DHV, Design Hour Volume, the 30th highest hourly volume of the year is designated the DHV. If this information is not readily available DHV may be calculated as 12% of the ADT.

C. T, Percentage of Trucks, the quantity of trucks during the ADT or DHV, expressed as a percent of that total traffic. For the purpose here, light delivery trucks, such as panels and pick ups, are considered as passenger cars. In lieu of the actual field data, T can be considered 10% on Arterials, 5% on Collector and minor Residential. Special conditions must be discussed with the County Engineer for the Industrial Road Designations.

C.1 Trucks shall be further identified as follows, during the traffic counting.

2DT - Unit truck, two axles
3SU - Unit truck, three axles
2S1 - Semi truck, two axles on cab, one axle on tailor
2S2 - Semi truck, two axles on cab, two axles on tailor
2AX - Truck with five axles or more

C.2 In lieu of the actual traffic count to determine T, and utilizing the percentages provided in Section 5.1.4C the following road designations shall contain the respective road groups as follows:

A. Residential (or Local) - Road Group B

B. Collector - Road Group D
C. Commercial - Road Group D
D. Industrial - Road Group J
Road group loads and their effect on pavement design as related to these road groups is as shown on Data Sheet 1 of the design sheets.
D. Lane Factor: In two lane roads the total one-way traffic is obvious. In four lane roads the most heavily traveled lane will be the right most lane and a factor of 0.8 will be applied to the total one-way traffic. In six lane roads, the most heavily traveled lane will be the right lane also, and a factor of 0.7 will be applied to the total one-way traffic.
E. Average one-way ADT, or when the 20-year ADT is calculated based upon section shall be taken as the following: In or near City Suburbs - 55% - Rural Areas - 65%.

5.1.5 Subgrade Soil Support Value: In the case of proposed new construction, the soil support value of the Subgrade will be provided by the tri-axial shear test; modulus of deformation may be developed by laboratory testing and correlated with the accompanying soil support scale to provide these data. This value is requested also for staged road work (overlays) and road widening
work. In lieu of an actual soils evaluation, a value of 1.50, 2.5 or 3.5 (as determined by the County Engineer) may be used for the value of S. Data Sheet 4 gives the estimated Soil Support Value and other related data for those soils occurring in Richland County as identified by the Soil Conservation Service.
The designer should be aware that the maximum soil support value that will be accepted without a laboratory analysis of the subgrade soil is 3.5.

5.1.6 Traffic Growth Rate: A figure of 4% per year has been identified as the growth rate characterizing traffic within the United States. This figure should be used for forecasting anticipated ADT with the pavement design life. Other figures from local expertise are acceptable, when qualified as acceptable by the County Engineer.

5.1.7 Coefficients of Relative Strength of Pavement Component Layers: The required thickness of a given layer or layers varies with their respective tensile strength. This strength is expressed in terms of relative coefficient. The estimated values of coefficients of the pavement components used in AASHO Interim Guide for the Design of Flexible Pavement Structures and ASHTO Road Test Equations applied to the Design of Bituminous Pavements in Illinois are utilized in this standard. It is to be understood that these coefficients may change if and when future studies are made to more accurately evaluate their respective tensile strength. At that time the County Engineer will provide updated coefficients for incorporation with these standards.

5.1.8 Structural Number: An index number derived from an analysis of traffic and design features which may be converted to pavement thickness through the use of suitable factors related to the type of material being used in the pavement structure.
This dimensionless number reflects the product of the necessary thickness of the various road building components of pavement, i.e., sub-base, base-course, binder and/or leveling course, surface course and existing surface course, and their respective Coefficient of Relative Strength which when totaled together for the final pavement design must equal or exceed the Structural Number (SN). The designer should be aware that the minimum structural number for the particular road designations are as follows:
Residential and Rural 1.56

Collector 2.00
Local Commercial 2.44
Industrial Service 2.44
These minimum structural numbers are applicable to roads constructed on subgrade soils with soil support values equal to or greater than 5.5. When constructed on poorer soils, the pavement must have a structural number appropriate to the road designation and soil support value for the subgrade soil on the particular site.

5.1.9 Stage Construction: Various items of road construction such as pavement courses, lane requirements for future traffic density, or other sequential work must have the approval of the County Engineer prior to consideration for acceptance by the County of Richland.
Pavements on which the total asphalt thickness equals 2.5" or greater will be placed in two stages.
The base and asphalt concrete binder course will be placed as the first stage. At this stage, a surety bond may be posted and a bonded plat recorded for the subdivision in accordance with the provisions of the Land Development Regulations. After a minimum period of nine (9) months, all pavement failures and distresses will be repaired to the satisfaction of the County Engineer, or his representative, and a minimum of 1" of asphalt concrete surface course placed. At this stage, the road may be dedicated to the County through the execution and acceptance of a deed for the right-ofway.

The surety bond placed at the completion of the first stage will be in an amount equal to 125% of the estimated value of the remaining improvements. The estimated value will include, as a minimum, the cost of the surface course and repair of pavement failures on at least 25% of the pavement surface.

5.1.10 Flexible Pavement Design Method: The following explains the use of Data Sheets
1, 2 and 3 accompanying the Road Design Standards:
Data Sheet 1 is a summary of the traffic data, Data Sheet 2 is a nomograph relating the Soil Support Value and the Equivalent Daily 18 KIP Single Axle Load Application to the Structural Number, and Data Sheet 3 provides the Coefficients of Relative Strength for Flexible Pavement Components.
Most of the first two lines of Data Sheet 1 are obvious. The truck %, (T), Designation, and number of lanes are derived from the traffic count (ADT) and the design standards. In the event that this is to be a new road, this information will be obtained from the County Engineer. Section 5.1.4.C may be consulted for traffic information in lieu of an actual traffic count.
With the results of the traffic count (ADT) Columns 1 and 2 and the percent trucks, T can be inserted. The 20-year figure is obtained from the design criteria, or by the utilization of their growth rates acceptable to the County Engineer.
The average one-way ADT is derived from the design criteria, Section 5.1.4.E and is inserted in Column 3. Average one-way ADT factor is shown in Table IV. Average one-way trucks, are computed to be T multiplied by Column 3 with the result divided by 100 and then inserted in Column 4. The Truck weight, Column 5 represents either the design criteria road group equivalent 18 KIP applications per 100 trucks, or a computed equivalent 18 KIP applications per 100 trucks.

The design criterion's road group is a shown in Table I. The computed value is calculated by utilizing the traffic count, and the percent trucks T, with the actual quantity of each respective truck designation as described in the design criteria. The number of trucks of each respective designation when multiplied by its equivalent 18 KIP per 100 vehicles of a type (Table II), and then divided by 100 will be the equivalent truck weight figure based on the traffic count (ADT). Column 6 is obtained by multiplying Column 5 by Column 4. Column 7 is obtained by going to Table III and selecting the appropriate lane factor, based upon the number of lanes in the project. Column 8 is obtained by multiplying Column 7 by Column 6. Column 8 becomes one point on the nomograph on Data Sheet 2, and is plotted on the Equivalent Daily 18 KIP single axle load applications.

The Soil Support Value, or the modulus of deformation is obtained through a soil test and is a measure of the bearing strength of the supporting subgrade under the pavement components. In lieu of a field test the values in the design criteria section 5.1.5 may be employed for S.

The tri-axial shear test is utilized for the field determination of the value of S. or the modulus of deformation, and becomes the second point on the nomograph shown on Data Sheet 2, under its appropriate scale shown. It is also to be shown on Data Sheet 1 to provide all information to the designer in a concise package.

The two points described in the preceding paragraphs describe a straight line, which is extended to intersect with the line segment designated as a total pavement strength measure, which is to be equaled or exceeded by the total of the respective pavement section strengths. This formula employed is $SN = T_1a_1 + T_2a_2 + T_3a_3$ where:

T_1 = thickness of bituminous surface courses, in inches

T_2 = thickness of base course, in inches

T_3 = thickness of subbase course, in inches

a_1, a_2, a_3 = Coefficients of Relative Strengths which are obtained from Data Sheet 3 accompanying this example.

When the aforementioned equation computes out to equal or exceed the SN obtained from nomograph, the design pavement is valid and may be proposed. The designer should verify that the minimum asphalt thickness, 1½", has been used in the surface courses and that the minimum pavement thickness for each component or its equivalent is in accord with that established for its respective road designation.

5.1.11 Standard Design: In lieu of a pavement design as prescribed above, the engineer may elect to use a pavement as shown on Richland County's Standard Street Cross Section, Alternate 1, 2, 3 or 4. The appropriate alternate is to be selected according to the estimated soils support value for the subgrade soil prevalent at the site as follows:

Soil Support Value Alternate

1.5 1

2.5 2

3.5 3

5.5 4

Estimated soil support values for the various soil types identified on the Soil Survey of Richland County are provided in Data Sheet 4.

It should be noted that the standard pavement design may not be used in lieu of an individual pavement design based on subgrade or traffic conditions known or anticipated to be different from those on which the standard design is based.

5.1.12 Rigid Pavement Design: Rigid pavements are currently not approved for use on the County Road System.

DATA SHEET NO. 1

Richland County Road Design Standards
Revised April 2003 Page 14 of 49

DATA SHEET NO. 2

Richland County Road Design Standards
Revised April 2003 Page 15 of 49

DATA SHEET NO. 3
S.C. DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION COEFFICIENTS OF RELATIVE STRENGTH FOR FLEXIBLE PAVEMENT COMPONENTS

July 1, 1979

Pavement Components Coefficients a_1 a_2 a_3 Surface Course
Hot Laid Asphalt Concrete Surface 0.44
Hot Laid Asphalt Concrete Binder 0.44
Bituminous Surfacing 0.35
Old Surface
Old Asphalt Concrete Surface Course 0.26
Old Asphalt Concrete Binder Course 0.26
Old Sand Asphalt 0.16
Bituminous Surfacing 0.21
Base
Earth Type Base Course (Sand Clay) 0.12-0.20*
Coquina Shell Base Course 0.12
Mcadam Base Course 0.15
Cement Stabilized Earth Base Course 0.25
Hot Laid Sand Asphalt Base Course 0.20-0.25*
Stabilized Aggregate Base Course 0.22
(Fossil/Limestone)
Stabilized Aggregate Base Course 0.15
(Non-Fossil/Limestone)
Hot Laid Asphalt Concrete Binder Course 0.34
Hot Laid Asphalt Aggregate Base Course 0.34
Cement Stabilized Aggregate Base Course 0.34
Old PCC Pavement 0.40
Sub-base
Soil Aggregate Subbase Course 0.10
Cement-Modified Subgrade 0.15
(*) Coefficient dependent on quality of material available.

Note: In general, it is recommended that, in computing SN for resurfaced flexible pavements, the coefficient for the former base be no greater than 0.7 of its original value, and that for the former subbase be no greater than 0.8 of its original value.

Data Sheet No. 4

Soil Name & Map

Symbol
% Passing 200 Sieve
(F)
Liquid Limit
(LL)
Plasticity Index
(PI)
Group Index
(GI)
Soil Support Value
(S)
Ailey - AeC
40
40
16
2.5
3.5
Altavista - AtA
75
45
26
18.6
2.5
Blanton - BaB
12
--
--
0
3.5
Cantey - Ca
95
60
25
30.0
1.5
Chastain - Cd
98
75
40
48.5
1.5
Chewacla - Ce, CH
98
61
30
35.8
1.5
Clarendon - Cn
55
40
15
6.0
3.5
Congaree - Co
90
50

22
28.2
1.5
Coxville - Cx
80
55
35
28.6
1.5
Dorovan - Dn
NA
NA
NA
NA
NA
Dothan - DoA, DoB,
DuB
45
40
25
3.5
3.5
Faceville - FaA, FaB
72
43
23
15.4
2.5
Fuguay - FuA, FuB
35
--
--
0
3.5
Georgeville - GeB, GeC
98
75
35
44.4
1.5
Goldsboro - GoA
55
35
16
5.9
3.5
Herndon - HeB, HeC,
HnB
98
70
30
38.6
1.5
Johnston - Jo
75
35

10
7.0
3.5
Kershaw - KeC
--
--
--
0
3.5
Kirksey - Krb
95
40
15
16.0
2.5
Lakeland - LaB, LaD,
LkB
--
--
--
0
3.5
Lucy - LuB
30
30
15
0
3.5
Marlboro - MaA, MaB
70
48
20
13.9
3.5
Nason - NaB, NaC, NaE
95
66
36
40.6
1.5
Soil Name & Map Symbol
% Passing 200 Sieve (F)
Liquid Limit (LL)
Plasticity Index (PI)
Group Index (GI)
Soil Support Value (S)
Norfolk - NoA, NoB
55
40
20

8.0
3.5
Orange - OaB
90
99
70
72.2
1.5
Orangeburg, Oba, ObB,
ObC, OgB, OgD
35
30
4
0
3.5
Pelion - PeB, PeD, PnC
55
40
18
7.2
3.5
Persanti - Ps
95
60
30
34.0
1.5
Rains - Ra
70
40
18
11.8
3.5
Smithboro - Sm
95
60
30
34.0
1.5
State - StA
70
41
15
9.9
3.5
Tawcaw - Tc
98
65
33
39.6
1.5
Toccoa - To
55
30
4
0.6

3.5
Trooup - TrB
35
--
--
0
3.5
Vaucluse - VaC, VaD
50
40
18
5.8
3.5
Wedowee - WeB
70
58
25
18.4
2.5

5.2 Geometric Design Criteria: Unless specifically addressed in these regulations, all geometric elements of roadway design for streets and roads in the County Road System will be in accordance with the AASHTO Policy on Geometric Design of Highways and Streets.

5.2.1 Right-of-Way: The minimum right-of-way width acceptable under these standards is 50 feet. Required right-of-way widths for the several road classifications are shown in Table I. In all instances, the centerline of the road and the right-of-way are to be coincident.

5.2.2 Pavement Width: Minimum pavement widths are to be as shown in Table I. The pavement widths shown are as measured from face to face of curbs except for the rural road and industrial service road on which the width is measured edge to edge of pavement.

5.2.3 Design Speed: Stopping distances, sight distances, minimum curve radii, vertical curve lengths and other design criteria are based on the design speeds for the different road classifications shown in Table I.

5.2.4 Stopping Sight Distance: The distance that a vehicle travels during the time in which the driver perceives a hazard in the road, reacts and brings the vehicle to a halt is the stopping distance.

Stopping distance can be calculated using the equation:

$d = 1.47Vt + 1.075$

a

V_2

where:

d = Stopping distance, Ft.
t = brake reaction time, Sec.
V = Design Speed, mph
a = driver deceleration, Ft./Sec.2

When t = 2.5 Sec. and a =11.2 Ft./Sec2 , the above equation yields the following values for d at the design speeds shown:

V(mph) d (Ft.)
10 46.3
20 111.9

25 151.9
30 196.6
35 246.2
40 300.6
45 359.7
50 423.7
55 492.5

The sight distance, measured along the road centerline from the eye at 3.75 feet above the road surface to an object, 0.5 feet high, is the stopping sight distance and at no point should it be less than the stopping distance. Minimum requirements for stopping sight distances are shown in Table II.

5.2.5 Horizontal Curves: Horizontal curves are to be introduced at all changes of direction on collector, local commercial and industrial service streets and at changes of direction on residential streets where the deflection angle exceeds 10o. The minimum radii of curvature are to be in accordance with Table II. Speed limits on each street will be determined according to the shortest curve radius on the street. For streets with 2% cross slopes (1/4 " per Ft. crown) the maximum
acceptable speed limits are

Radius (Ft.) Speed Limit (MPH)
150 to 179 20
180 to 299 25
300 to 459 30
460 to 674 35
675 to 939 40

5.2.6 Vertical Curves: Crest vertical curves are to be of sufficient length to provide the minimum stopping sight distance at the design speed. The lengths required are as shown in Table III. The lengths are calculated using the formulas:

$$L = \frac{AS^2}{1400} \text{ where } S<L$$

and

$$L = 2S - \frac{1400}{A} \text{ where } S>L$$

in which:
S = Stopping sight distance in ft.
L = Length of vertical curve in ft.
A = Algebraic difference in grades.

5.2.7 Grades: A minimum grade of 0.5% is to be maintained on all streets to insure proper drainage.

The maximum permissible grade on local and minor residential streets is 15%. Grades less than 12% are preferred.

The maximum permissible grade on collector, rural, local commercial and industrial service streets is 12%. Grades less than 8% are preferred.

5.2.8 Crown: All streets are to have a minimum cross slope of 1/4" per foot. Inverted crowns or center gutters are not acceptable.

5.2.9 Curb and Gutter: With the exception of rural and industrial service streets, all streets are to either have concrete curbs and gutters or asphalt valley gutters. Either rolled curb and gutter or barrier type curbs are acceptable except that the barrier type is required on some local commercial streets. Other types of curb and gutter may be approved by the County Engineer.

5.2.10 Medians: Natural or planted medians separating opposing traffic lanes are acceptable.

The minimum width of pavement on either side of the median is to be in accordance with the minimum lane widths contained in Table I. Barrier type curbs or adequate lateral clearance, however, must be provided on the median. Painted medians are required on collectors, local commercial and industrial service streets.

5.2.10.1 Median Openings: The minimum number of median openings required to serve abutting property are to be provided. Care should be taken to locate openings only where there is adequate site distance.

5.2.10.2 Left Turn Lanes: On collector, local commercial and industrial service streets, left turn lanes are to be provided at all median openings and intersections. The length of the turn lane is to be such that adequate storage under the expected traffic loading is provided. The minimum length, however, is 100 feet.

5.2.11 Cul-de-Sacs: All permanent dead-end streets are to terminate in a paved turnaround with a minimum radius of 40 feet. The right-of-way shall have a minimum radius of 50 feet.

5.2.12 Islands: A natural or planted island may be used in the center of cul-de-sacs on residential and rural streets provided that a minimum pavement width of 18 feet is maintained around the island.

5.2.13 Corner Sight Distance: All roadways are to be designed so that adequate corner sight distance is provided at all intersections. Corner sight distance at an intersection is measured from a point on the intersecting street 15 feet from the edge of pavement on the through street and 3.75 feet above the street surface to an object 4.5 feet high on the through street. The minimum corner sight distance is equal to the stopping distance shown in section 5.2.4 at the design speed, or posted speed limit, on the through street.

5.2.14 Intersections: The centerlines of no more than two streets shall intersect at any one point. Whenever possible, the centerlines of intersecting streets are to be perpendicular but in no case is the angle of intersection to be less than 60 degrees. All angles and distances are measured relative to the intersection of a street centerline.

5.2.14.1 Intersections in Curves: Intersections within a horizontal curve are permitted provided that the intersecting street has a 100-foot minimum tangent at the intersection and the required corner sight distance is maintained. Whenever possible, the tangent of the intersecting street is to be radial to the curve but in no case will it be more than 30 degrees from radial.

5.2.14.2 Curb Radius: The minimum acceptable curb radius at intersections is 25 feet. Larger radii must be provided in accordance with the AASHTO Policy on Geometric Design of Highways
and Streets when significant tractor-trailer, or other large vehicle, traffic is expected.

5.2.14.3 Existing Streets: The profile of existing streets on either side of a proposed intersection shall be provided to insure that adequate site distances are available.

5.2.15 Reverse Curves: Reverse curves are permissible provided that applicable sight distances are maintained.

5.2.16 Lateral Clearance: A minimum lateral clearance as shown below shall be maintained from the edge of pavement or from the back of curb or valley gutter:
Rolled curb and gutter..... 6.0'
Barrier type curb..... 4.0'
Valley gutter..... 6.0'
Flat pavement..... 10.0'
No trees, entrance gates or other obstructions, with the exception of traffic control and street name signs and mailboxes, are to be placed within these distances from the edge of the street. It should be noted that the above setbacks are minimums based on the obstruction being located on a tangent. When an obstruction is located within a horizontal curve, the setback must be calculated using the equation:

$$R = \frac{M}{\frac{S}{8}^2}$$

where:
R = The radius of curvature at the centerline of the lane closest to the obstruction in ft.
M = Distance from the centerline of the lane to the obstruction in ft.
S = Stopping sight distance in ft.
Provided the above setbacks and sight distance requirements are met, trees may be retained or planted within the right-of-way for aesthetic or environmental purposes.

5.2.17 Driveway Connections: Driveway aprons that do not involve a curb cut are to abut the back of curb or valley gutter for no more than 25 feet, including the corner radius.
For all new construction, the builder or developer is to be responsible for construction of paved driveway aprons in accordance with an approved plan.

5.2.18 Curb Cuts: Curb cuts are to be made at all points of access for traffic generators such as shopping centers, apartment buildings and complexes, restaurants, warehouses and other commercial developments. Curb cuts are to be a maximum length of 25 feet plus twice the corner radius and shall not begin closer than one foot from the extension of a side property line.

5.2.18.1 Encroachment Permits: All curb cuts on existing County maintained streets require the submittal and approval of a Richland County encroachment permit application before construction begins. The application form may be obtained from the County Engineer's office. All construction is the responsibility of the applicant.

5.2.18.2 Sight Distance: Entrances onto County maintained streets are to be made only at points where adequate corner sight distance is provided in accordance with Table II.

5.2.19 Superelevation: In general, superelevation is not required on streets in the County Road System. In situations involving rural or arterial roads where design speeds will exceed 45 MPH, however, superelevation may be required. In these cases, superelevation will be designed in accordance with the AASHTO Policy on Geometric Design of Highways and Streets.

TABLE I

Street Classification	Min. R/W Width (Ft.)	Min. Pave. Width (Ft.)	Min. Lane Width (Ft.)	Design Speed (MPH)
Rural	66(3)	22(2)	11	(1)
Minor Residential	50	20	10	25
Local Residential	50	24	12	25
Local Commercial	66	36	12	40
Collector	66	36	12	40
Industrial Service	66	36	12	40
Industrial Service	80	36(2)	12	40
Arterial	100	52	24	

(1) Determined in consultation with County Engineer
(2) Edge to Edge of Pavement
(3) May be reduced to 50' at the discretion of the County Engineer if the ground elevations at the 25' R/W line are no
more than 0.85' above the proposed centerline elevation.

TABLE II

Street Classification	Stopping Site Dist. (Ft.)	Min. Curve Radius (Ft.)	Max. Grade (%)
Rural	*	*	12
Minor Residential	160	150	15
Local Residential	160	150	15
Local Commercial	275	350	12
Collector	275	350	12
Industrial Service	275	350	12
Industrial Service	275	350	12
Arterial	*	*	*

* Dependent on design speed selected

TABLE III: MINIMUM LENGTH OF CREST VERTICAL CURVES

Algebraic Difference In Grades	For Stopping Sight Distances of: 160'	275'	300'	350'
4.0	---	200.0	250.0	350.0
5.0	40.0	270.0	321.4	437.5
6.0	86.7	324.1	385.7	525.0
7.0	120.0	378.1	450.0	612.5
8.0	145.0	432.1	514.3	700.0
9.0	164.6	486.2	578.6	787.5
10.0	182.9	540.2	642.9	875.0
11.0	201.1	594.2	707.1	962.5
12.0	219.1	648.2	771.4	1050.0
13.0	237.7	702.2	835.7	1137.5

14.0 256.0 756.3 900.0 1225.0
15.0 274.3 810.3 964.3 1312.5
16.0 292.6 864.3 1028.6 1400.0
17.0 310.9 918.3 1092.9 1487.5
18.0 329.1 972.3 1157.1 1575.0
19.0 347.4 1026.3 1221.4 1662.5
20.0 365.7 1080.4 1285.7 1750.0

THE STATE OF SOUTH CAROLINA)
) TITLE TO REAL ESTATE
COUNTY OF RICHLAND) ***For Subdivision Streets***
KNOW ALL MEN BY THESE PRESENTS, That I (or we) _____

_____

(the
"Grantor") for and in consideration of the sum of One ($1.00) Dollar to the Grantor paid by Richland County,
South Carolina (the "Grantee"), the receipt whereof is hereby acknowledged, has granted, bargained, sold and
released, and by these presents does grant, bargain, sell and release in fee simple absolute unto Richland
County, South Carolina, its successors and assigns, all that certain real property comprising road rights-ofway,
_____ feet in width, hereinafter described for the purpose of constructing, improving and/or maintaining streets or roads thereon:
DESCRIPTION:
SPECIAL PROVISIONS: The Grantor understands and acknowledges that said streets or roads were
designed and constructed by the Grantor; that the streets or roads will tend to collect surface waters into
artificial channels and cast same onto the lands adjoining said streets or roads in concentrated form; that the
Grantee does not hold itself out to perform, nor does it have equipment and material or appropriations of
money to adequately pipe and ditch the lands adjoining said streets or roads; and it is therefore agreed as one
of the material considerations and inducements for acceptance of said streets or roads by the Grantee, that the
Grantor does hereby assume all risks of loss, damage, destruction or claims, of every kind, present or future,
suffered by the Grantor, his (her/their/its) heirs, assigns or successors in title resulting from the collection of
surface water and casting of same onto said lands.
And the Grantor does hereby bind itself and its successors and assigns to save and hold harmless and
release the Grantee, its successors and assigns, from all such losses, damages, destruction and claims

hereinabove specified, and shall guarantee the herein described streets and roads and the accompanying
drainage system for a period of three years from the date this Deed is recorded and shall make any and all
repairs as become necessary in the sole judgment of the Grantee or its representative. The Grantee does
hereby bind itself and its successors and assigns and agrees to maintain and repair said streets or roads in a
reasonably good and workman like manner thereafter.
Together with all and singular the rights, members, hereditaments and appurtenances to the said premises
belonging, or in anywise incident or appertaining.
TO HAVE AND TO HOLD in fee simple, absolute and singular, the said property and the rights
hereinbefore granted, unto the Grantee, its successors and assigns forever.
And the Grantor does hereby bind itself and its successors and assigns, to warrant and forever defend
all and singular the said premises unto the said Grantee, its successors and assigns, against it and its
successors and assigns, and against every person whomsoever lawfully claiming or to claim the same, or any
part thereof.
WITNESS the hand(s) and seal(s) of the Grantor(s) and Grantee this ____ day of
_____, 200__.

IN THE PRESENCE OF: **GRANTOR:**

_____

By: _____

_____

GRANTEE:

_____

By: _____

_____

THE STATE OF SOUTH CAROLINA)
) PROBATE
COUNTY OF RICHLAND) (Grantor)

PERSONALLY appeared before me the undersigned witness, who, being duly sworn, says that (s)he
saw the within-name Grantor by its officer(s) or partner(s) as its act and deed, sign, seal and deliver the within
Deed; and that (s)he with the other witness whose signature appears above witnessed the execution thereof.

_____

(Witness)
SWORN to before me this day of
_____, 200__.

_____ (Seal)
Notary Public for South Carolina
My Commission Expires: _____

THE STATE OF SOUTH CAROLINA)
) PROBATE
COUNTY OF RICHLAND) (Grantee)

PERSONALLY appeared before me the undersigned witness, who, being duly sworn, says that (s)he
saw the County Administrator of Richland County, the County's duly authorized officer, sign, seal, and as the act and deed of the County of Richland, deliver the within written Instrument for the uses and purposes therein mentioned and that (s)he with the other above named witness witnessed the execution thereof.

_____
(Witness)
SWORN to before me this day of
_____, 200__.
_____ (Seal)
Notary Public for South Carolina
My Commission Expires: _____

5.3 Standard Details

Richland County
Public Works Department

5.3.1 STANDARD STREET CROSS SECTIONS

DISCLAMER: This is a product of the Richland County Department of Public Works. The standards depicted here have been developed with extensive cooperation from other county departments, as well as other federal, state and local
governments agencies. Reasonable efforts have been made to ensure the accuracy of these designs. Richland County expressly disclaims responsibility for damages or liability that may arise from the use of these designs.
PROPRIETARY INFORMATION: Any resale of this information is prohibited, except in accordance with a sublicensing agreement.
COPYRIGHT:
Richland County Engineering
400 Powell Rd.
Columbia, SC 29203

Richland County Public Works Department

Design Data for
Standard Street Cross Sections

COEFFICIENTS OF RELATIVE STRENGTH
PAVEMENT (UPPER 4"
MAX) COEFF BASE COURSE COEFF SUBBASE COEFF
Asphalt Concrete Surface
Course 0.44 Earth Type Base Course (Top
Soil) 0.12 Earth Type Subbase Course
(top soil) 0.08
Asphalt Concrete Binder
Course 0.44 Earth Type Base Course (Sand
Clay) 0.15 Earth Type Subbase Course 0.10
Macadam Base course 0.15 Soil Aggregatc Subbase
Course 0.10
Cement Stabilized Earth Base

Course 0.25 Cement Stabilized Earth
Subbase 0.15
OLD PAVEMENT Hot Laid Asphalt Base Course 0.24
Asphalt Concrete Surface
Course 0.26 Stabilized Aggregate Base
Course 0.16 Old Base- 70% of original
value
Asphalt Concrete Binder
Course 0.26 H.L. Asphalt Aggregate Base
Course 0.34 Old Sub-Base 80% of
original value
Old Sand Asphalt 0.21 Cement Stabilized Aggregate
Base Course 0.34
Old Bituminous Surfacing 0.21 Old P.C.C. Pavement 0.40

DESIGN DATA

Alternate 1 Alternate 2 Alternate 3 Alternate 4 Types of Streets
Equiv.18κ
Load App's S.S.V. Min
S.N.
S.S.V. Min
S.N.
S.S.V. Min.
S.N.
S.S.V. Min. S.N.
Local Residential 6 1.5 2.80 2.5 2.50 3.5 2.12 5.5 1.56
Collector 24 1.5 3.55 2.5 3.08 3.5 2.69 5.5 2.00
Industrial Service 80 1.5 4.12 2.5 3.70 3.5 3.20 5.5 2.44
Local Commercial 80 1.5 4.12 2.5 3.70 3.5 3.20 5.5 2.44
Rural 6 1.5 2.80 2.5 2.50 3.5 2.12 5.5 1.56
Notes: (1) The minimum structural numbers (Min. S.N.) shown above are based on the soil support values (S.S.V.) and traffic loading (Equiv. 18κ Load App's) shown. If these factors on a particular site differ significantly from the values shown, the pavement design must be adjusted accordingly.
Richland County Standard Specifications
Revised April 2003 Page 29 of 49

22' Farm-To-Market

Richland County Standard Specifications
Revised April 2003 Page 30 of 49

24' OG Curb

Richland County Standard Specifications
Revised April 2003 Page 31 of 49

24' Valley Gutter

Richland County Standard Specifications
Revised April 2003 Page 32 of 49

36' Curb Section

Richland County Standard Specifications
Revised April 2003 Page 33 of 49

36' Valley Gutter

Richland County Standard Specifications
Revised April 2003 Page 34 of 49

5.3.2 STANDARD CATCH BASIN DETAILS

DISCLAMER: This is a produet of the Richland County Department of Public Works. The standards depicted here have been developed with extensive cooperation from other county departments, as well as other federal, state and local

governments agencies. Reasonable efforts have been made to ensure the aceuracy of these designs. Richland County expressly disclaims responsibility for damages or liability that may arise from the use of these designs.
PROPRIETARY INFORMATION: Any resale of this information is prohibited, except in accordance with a sublicensing agreement.
COPYRIGHT:
Richland County Engineering
400 Powell Rd.
Columbia, SC 29203
Richland County Standard Specifications
Revised April 2003 Page 35 of 49
Richland County Standard Specifications
Revised April 2003 Page 36 of 49
Richland County Standard Specifications
Revised April 2003 Page 37 of 49
Richland County Standard Specifications
Revised April 2003 Page 38 of 49
Richland County Standard Specifications
Revised April 2003 Page 39 of 49
Richland County Standard Specifications
Revised April 2003 Page 40 of 49

5.3.3 STANDARD HEAD WALL DETAILS

DISCLAMER: This is a product of the Richland County Department of Public Works. The standards depicted here have been developed with extensive cooperation from other county departments, as well as other federal, state and local
governments agencies. Reasonable efforts have been made to ensure the accuracy of these designs. Richland County expressly disclaims responsibility for damages or liability that may arise from the use of these designs.
PROPRIETARY INFORMATION: Any resale of this information is prohibited, except in accordance with a sublicensing agreement.
COPYRIGHT:
Richland County Engineering
400 Powell Rd.
Columbia, SC 29203

Richland County Council Request of Action

Subject: Enter negotiations with Richland County Solid Waste Collectors for Extension of Contracts & Rate Increases.

A. Purpose

County Council is requested to consider a request for approval to enter negotiations for extension of contracts and rate increases with Whitaker Container Services ("Whitaker") & Southland Sanitation Incorporated (SSI) to provide continued solid waste collections services.

B. Background / Discussion

Whitaker Container Services (Area 4) & Southland Sanitation Incorporated (Area 3) are currently providing solid waste collection services to over 25,591 residences in Northeastern Area of Richland County.

Whitaker Container Services has been contracted to provide solid waste collection services to Richland County since July 2001. Below is detail of their services:

Whitaker Container Services (Area 4)

Year	Current Contract Rate	# of Residences Served (Area 4)
2006	$10.341/residence	14,531

Southland Sanitation Incorporated has been contracted to provide solid waste collection services to Richland County since December 2001. Below is detail of their services:

Southland Sanitation Incorporated (Area 3)

Year	Current Contract Rate	# of Residences Served (Area 3)
2006	$9.92/residence	11,060

With the amount of time before both contracts expire, it is recommended that negotiations with these contractors begin in order to establish contract durations and rate increases, if any. This will ensure continued solid waste collection services for Richland County residences in Area 3 & 4.

C. Financial Impact

Financial impact to the Solid Waste Collection Budget would be determined after completion of the negotiations.

D. Alternatives

3. Approve to enter negotiations for extension of contracts and rate increases with Whitaker Container Services & Southland Sanitation Incorporated to provide continued solid waste collections services.

4. Do not approve negotiations for Solid Waste Collection Contracts for Service Areas 3 & 6 and direct Administration to move to emergency procurement procedures to secure a bid to provide those services.

E. Recommendation

Alternative 1 is recommended.

Recommended by: Teresa Smith, P.E. **Department**: Public Works **Date**: 9/12/2006

F. Reviews

Finance

Reviewed by: Daniel Driggers Date: 9/15/06

✓ Recommend Council approval ❑ Recommend Council denial

Comments regarding recommendation:

Procurement

Reviewed by: Rodolfo Callwood Date 9/22/06

✓ Recommend Council approval ❑ Recommend Council denial

Comments regarding recommendation: This collector continues to have collection problems and have received substantial fines for non-performances in some residential locations (failure to collect on designated days, mixing, picking-up outside of designated hours for collection (7:00 a.m. to 7:30 p.m.). I recommend approval of a non-exclusive contract for area three renewable annually base on the performance and quality of service.

Administration

Reviewed by: Tony McDonald Date: 9/22/06

✓ Recommend Council approval ❑ Recommend Council denial

Comments regarding recommendation: Recommend that staff be authorized to negotiate the contract renewals, with the final contract terms to be brought back to Council for approval.