Master Plan Report STUART ROAD PARK

FAIRFAX COUNTY PARK AUTHORITY

MAY 1985



Adopted Master Plan Report STUART ROAD PARK

FAIRFAX COUNTY PARK AUTHORITY

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MEMORANDUM

TO:

Chairman and Members

DATE: January 8, 1986

FROM:

Joseph E. Sicenavag

SUBJECT: Stuart Road Master Plan Approval

Recommendation:

Approve the Stuart Road Master Plan as presented at the public hearing with the following changes:

- 1. Eliminate one tennis court; add one multi-use court and switch locations from that shown on the preliminary plan.
- 2. Add five additional spaces onto the parking lot.
- 3. Move the development of the lighted tennis court, lighted multi-use courts, totlot, exercise area and parking lot from Phase II forward to Phase I and develop per priority schedule.
- Increase the width of asphalt trails within the park from 6 ft. to 8 ft.
- 5. Add a wooden fence around the tot lot area.
- 6. Designate additional landscape planting as screening around the perimeter of the park.
- 7. Modify the master plan report to reflect these changes.

Statement:

The public hearing was held on July 25, 1985. The following concerns have been expressed during and since the hearing.

- 1. Concern: Change the tot lot and lighted multi-use court from development Phase II to the first phase and in turn. push back lighting for the tennis courts from the first to the second phase.
 - Response: The totlot and lighted multi-use courts are being recommended for Phase I in addition to the facilities previously shown in Phase I. This is made possible by additional funding that will be made available for use in the first phase of development. (See Development Phasing - Page 9.)

- 2. Concern: Add a four foot fence in the tot lot.
 - Response: A four foot high fence could be included with the development of the totlot but should not eliminate the need for adequate supervision of preschool-aged children in that area.
- 3. Concern: Add landscape planting near the park perimeter for screening in Phase I.
 - Response: Staff concurs that funds should be set aside before the initial construction phase is complete to screen any open areas, along the park perimeter, from adjacent residential units. The design intent is to provide at least a 50 foot buffer between homes and park activities.
- 4. Concern: The park fails to serve a large section of the community: kids (ages 8-15) who are involved with athletics (soccer, football, baseball, softball). They really have no open areas to play in right now. Provide a simple open field it would be relatively cheap and it could serve many purposes. The kids who need this field the most (ages 8-15) are not able to drive to other parks and schools that have facilities. Likes the multi-use court push up in priority.
 - Response: Given the fact that the three-acre (west) parcel of Stuart Road Park is of relatively small size and completely covered with trees, staff concurred with the Stuart Ridge Association that space is at a premium and effectively prohibits inclusion of any "open" area for pickup ball games, etc. An option that was discussed at the public hearing was the planning of athletic fields at two proposed sites one mile north on Stuart Road. Those plans are in the concept stages and if brought to fruition, will relieve the "open area" deficiency in this area. The east parcel of Stuart Road Park is sloped excessively, making development into a level area difficult and costly.
- 5. Concern: Recently moved into the area. How will Springfield Bypass affect this park? Is glad there is no driveway access off Stuart Road. Hopefully, it will block off Substation and keep it a neighborhood park. Keep parking lot small so it won't attract night-time activities and create noise.
 - Response: The Springfield Bypass will border the eastern edge of Stuart Road Park (east parcel). A planting buffer between the proposed road and park activities should keep road noise to a minimum in the park.

- 6. Concern: Why only a 5 car parking lot? Seems like a very low number of spaces. If you have two tennis courts, and you have people playing and people waiting, this won't cover it. Did you use standards to determine the number of spaces?
 - Response: This park is classified a "community" park and is oriented toward a few hours of activity for active and passive purposes. The park is designed to be accessible by foot or bicycle for after school, after work or weekend activities. Given this criteria, no more than 10 cars are expected at any one time. Staff originally expected that once the parking lot was full, street parking would be utilized. No standards were used to determine the number of spaces. See item 21 - Concern and Response - that follows.
- 7. Statement: Coat Ridge will have a paved easement connecting up to Lake Newport Road (done by the developer); this will provide access. Also there could be parking in that cul-de-sac.
- 8. Concern: Stressed that he is very happy with the plan, but is concerned about building the park in its entirety, as soon as possible, to provide facilities for as many people as possible right away. What is the Park Authority's track record for developing a park in phases? What will this park's priority be in the next bond referendum?
 - Response: Developing a park in phases is one way to provide some facilities (for some users) with limited resources. The Park Authority's track record for developing parkland in phased sequence is very good; phasing is typically determined in the master plan phase and closely followed thereafter. In the case of Stuart Road Park, the Park Authority's district representative clearly understands that full development is desired, and has been authorized an additional \$45,000 for further development of Phase I. The park's priority in the next bond referendum will be determined by this representative and citizen groups.
- 9. Concern: In other words, if there isn't a bond referendum until 1990, Phase II can't happen for 5 years? And also the field for the kids can't happen for 5 years? If this is so, then putting the multi-use court in Phase I is all the more important, otherwise you will miss a whole age group of children.

- Response: The development phasing schedule indicates that Phase II will occur in the "future" years. In reality, Phase II would depend on either another bond referendum in 1990 or a reordering of other district priorities (in the current referendum through 1989). Therefore, by moving the lighted multi-use courts and tot lot forward to Phase I, the "teenage" group of park users will be accommodated early in the process.
- 10. Concern: Question the proximity of a lighted facility to the surrounding residential area.
 - Response: The lighted tennis/multi-use court area is separated from adjacent properties by at least a 50 ft. wide buffer of trees. These evergreen species, located on the southern edge of the park, will effectively block light penetration all year long. In addition, low-silhouette mounting (of light fixtures) will concentrate light correctly in the court without undesirable spillover to surrounding areas.
- 11. Concern: The Stuart Ridge Association requests phase I construction include these additions to the staff report: a. Tot lot with a four foot fence around perimeter. b. Multi-purpose court with lights. c. Landscape planting near the park perimeter. If including these items exceeds the phase I budget, recommend the tennis court lights be moved back to phase II.
 - Response: The tot lot with fence (see item 2) a double multi-use court and additional perimeter landscape planting is now recommended by staff for inclusion in phase I development. (See item #1.)
- 12. Concern: Noticed the omission of the Kish Valley Grills requested in our January 16 letter for placement at each end of the shelter. Please include these grills in the master plan.
 - Response: Although selection of site equipment is usually addressed on construction plans and specifications, the grills in question will be noted as part of the master plan report. This, however, will not guarantee that this specific grill will be used since the Park Authority must accept approved equals to specified products if so documented at the time of bid.

- 13. Concern: Believe the plans for the Stuart Road Park do not adequately meet the area's demonstrated need for many more multi-use courts, while providing two tennis courts for which there is no demonstrated need.
 - The master plan report does indicate that no deficiency Response: exists for tennis courts within the park's service area. While technically correct, one must also realize that the courts that are available within the 3/4 mile service area are all located at Herndon High School which is not accessible on foot from the east side of Sugarland Run. This situation eliminates easy walk-to access to tennis courts by the majority of the In reality, the population within the service area. existing tennis courts are only accessible by automobile. The surrounding community selected tennis with practice capability as a high priority item in listing their preference for recreational facilities in their area.
- 14. Concern: Have been seeing a large growth in the number of people from youngsters to adults who are playing volleyball, a sport that is particularly adaptable to the multi-use court. This increase shows in both "pick-up" games and in greatly expanded league play; RHOA is working with the organized volleyball groups to include their need for additional facilities in our future planning. Whatever RHOA is able to do will still fall somewhat short of fully meeting the need for multi-use courts in this area.
 - Response: Both multi-use courts recommended by staff will have volleyball capability built into the court, as do <u>all</u> new multi-use courts developed by FCPA. The volleyball user needs only to acquire posts and net in order to play, post sleeves in the court surface and volleyball line paint is provided.
- 15. Concern: Suggest that the people of the area would be much better served by increasing the number of multi-use courts in the Stuart Road Park from one to three or four and including them in the first stage of development; Realize this might preclude the inclusion of two lighted tennis courts in the park. However, your data indicates there is no deficiency of tennis courts in the park's service area. If two more courts were included in the park, the number of courts in the service area would exceed your standard by almost 30 percent.

- Given the comments received after the public hearing, Response: staff recommends that one tennis court be deleted and one multi-use court be added in its place. The tennis court facility availability data in the master plan report does state, in theory, that the service radius is not deficient in tennis courts. This statement is predicated on the fact that seven courts are available at Herndon High School, which lies within the service radius of the park. In reality, however, the courts are not available on foot to users living in Stuart Ridge, for example, since they must travel far in excess of 3/4 mile (the primary service radius) because of Sugarland Run in order to reach the school. Staff contends that in reality the number of tennis courts in the service area (shown on preliminary plan) would <u>not</u> exceed the FCPA standard by almost 30% but rather is deficient by 85% since only one court is now recommended.
- 16. Concern: In addition to the seven tennis courts at Herndon High School which are physically located in the park's 1.5-mile service area, there are numerous other tennis courts that easily serve the needs of people living near the park. These include excellent courts at South Lakes High School and the Herndon Community Center. The street distance and travel time to these facilities for those living near the park are not significantly different than to the Herndon High School courts.
 - Response: Any tennis courts located outside the service radius of the park do not satisfy the facility requirements as they relate to this park. For that matter, the existing tennis facility located at Herndon High School, which <u>is</u> located within the park service area, does <u>not</u> satisfy the needs of this park because the school facility is not easily accessible from the east side of Sugarland Run. Users from this area must travel to Herndon in order to reach the school, a distance of approximately three miles.
- 17. Concern: Many of RHOA's courts are even closer to the park, and non-residents of Reston may use these courts for what we believe is a very modest annual use fee to join our RHOA Plus program.
 - Response: The community park status of Stuart Road Park indicates that the facility be convenient and often accessible by foot or bicycle and utilizes a 3/4 mile primary service radius. As a County agency, one could not ask County residents (living outside the corporate limits of Reston) to forego recreational facilities funded by these same residents within their service area in favor of paying to use private facilities located outside the service area.

- 18. Concern: Hope you will seriously consider including additional multi-use courts in the first phase of construction for Stuart Road Park.
 - Response: Per staff's re-evaluation of the tennis/multi-use court concern, the recommendation is to eliminate one tennis court and add one additional multi-use court. This change will necessitate a relocation of the courts as shown on the plan. The recommended phasing schedule will reflect that both courts be constructed in the first phase.
- 19. Statement: The plan makes good low-intensity use of the site while providing adequate tree buffering for future adjacent residential lots.
- 20. Concern: The 6' asphalt trail should be 8' wide so as to match a proposed standard 8' wide RHOA trail extending through the portion of open space to the south of the park site.
 - Response: All trail widths within the park have been increased to 8 ft. to match the adjoining RHOA trail and to accommodate service vehicles within the park.
- 21. Concern: Parking for five cars is not adequate and should be at least doubled to provide for 10 cars on site minimum. Otherwise, users will be forced to park on Lake Newport Road which is designed to accommodate parking on the south side only, with no parking permitted on the north side. It is essential that parking be provided during the first phase of construction rather than in a latter phase.
 - Response: Given the status of Lake Newport Road, staff concurs with this recommendation. Previously, staff had envisioned that additional parking would have been available along the park side of Lake Newport Road to serve as overflow for the parking lot but this is not the case.
- 22. Concern: Lighting should be carefully located and designed so as to avoid glare and negative impact on adjacent homes.

Response: See response for item 10.

23. Concern: Any proposed fencing should also conform to Reston design standards.

Response: Since the park is physically located within the limits of Reston, all proposed work will conform to their design standards. 24. Concern:

- The failure to provide any facilities for the youth to play and to have the opportunity to burn up their youthful energy is certainly an unhealthy situation that should be rectified as soon as possible; There are currently no available funds to develop (Water Authority) land or to complete phase II of the Stuart Ridge Park. Funds would not be available until the passing of the next board referendum (for parks) tentatively scheduled in 1990. Therefore completion of the general purpose fields would not occur until at least 1991 some 15 years after Stuart Ridge was opened; It appears as though Stuart Ridge and the other home owners in the immediate vicinity have been deprived of adequate (any) facilities for our youth much longer than is reasonable; While the fields currently being constructed behind Bradlees may help alleviate the problem, the large number of multi-family housing units and the construction of the Springfield By-pass will certainly minimize the benefits of these fields for the Stuart Ridge youth, particularly the 8 to 12 group; Another possibility for early resolution of this problem concerns Armstrong Elementary School. General purpose playing fields, if included for the school construction plan, could be used by children in the neighborhood after 4:00 p.m. on school days and all day on non-school days. Hope they include plans for playing fields or can be amended to include these urgently needed facilities.
- All pertinent points are well taken by staff and Board Response: alike.
- Urge that the multi-purpose court and tot lot planned 25. Concern: for the Stuart Ridge Park be scheduled during phase I and be given top priority.
 - A double multi-use court and the tot lot will be moved Response: to phase I construction.
- A water fountain (drinking) should be provided. 26. Concern:
 - Staff does not recommend a water fountain in this park Response: because of the vandalism this type of utility seems to Experience has shown that drinking fountains in invite. unmanaged parks are both difficult and costly to maintain and are usually inoperable the majority of the time because of repeated acts of vandalism. This theory has not changed even in light of the "new" vandal resistant fountains on the market today.

Cost Estimate: (September 1985)

1.	Asphalt trails	\$11,436
2.	Play apparatus area	\$28,733
3.	Tot lot area	\$15,912
4.	Tennis court	\$38,898
5.	Multi-use courts (2)	\$23,744
6.	Picnic area/open-air shelter	\$19,622
7.	Parking lot	\$16,069
8.	Landscape planting/site furnishings	\$19,000
9.	Site lighting (courts/parking lot)	\$63,956
10.	Exercise area	\$16,152
11.	Project administration/design	<u>\$58,580</u>

Development Phasing:

Total

The total development cost estimated at \$312,102 exceeds presently programmed funding. The construction of the facilities will, therefore, occcur in two phases. Consideration has been given to accelerating the development schedule since the preliminary plan was shown. An amount of \$45,000 will be reprogrammed from the Stuart Ridge/Sugarland Run (#004626) land acquisition fund to further develop Phase I (\$196,491 + \$45,000 = \$241,491 total). Phase I, then, is prioritized in development preference and will be constructed in that priority until funds are expended. Items not built in Phase I will be given priority when Phase II occurs.

Phase	I:	(In	order	of	priori	ty)	\$241,49) 1	available
		1. 2. 3. 4. 5. 6. 7. 8. 9.	play a lighte shelte exerci totlot lighte aspha landse parkin projee	appa ed t er/p ise t ape lt t cape ng 1 ct a	aratus cennis picnic area nulti-u crails e plant lot adminis	area court area se co ing (trati	ourts (2 screen on fees	2) ing s)
Phase	II:	(\$70	,611)	fut	ure				
		1. 2.	light: landso projeo	ing cape ct a	for pa e plant adminis	rking ing trati	lot on feed	6	

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\$312,102

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Annual Maintenance/Operating Costs: (1985)

Tennis court (lighted)	\$1,975
Multi-use court (lighted)	\$2,313
Picnic area/shelter	\$1,500
Apparatus area	\$1,150
Tot lot	\$1,150
Asphalt trail	\$ 425
Exercise area	\$ 875
Parking lot (lighted)	<u>\$ 400</u>

Total

\$9,788



STUART ROAD PARK PRELIMINARY MASTER PLAN REPORT

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LOCATION Dranesville District Centreville District Map 11-3

Stuart Road Park, made up of two separate parcels totalling 6.2 acres, is located at the intersection of Lake Newport Road and Stuart Road in Herndon, Virginia. The site is generally surrounded by new residential development. A Virginia Power substation is located adjacent to the easternmost parcel on the north side. Stuart Road Park is being master planned through an abbreviated process approved by the Fairfax County Park Authority Board to expedite the park's development.

COMPREHENSIVE PLAN

Stuart Road Park is located on the Fairfax County Area III Plan; Upper Potomac Planning District; Sugarland Community Planning Sector UP4. The Comprehensive Plan's section of Parks, Recreation and Open Space states: "The Fairfax County Park Authority should acquire adequate acreage near Stuart Road for the development of a community park to serve the residential development in this area. A site should be selected which will allow the development of active recreation facilities and which will be accessible from the existing and/or planned trail network as well as by automobile.

NEIGHBORING LAND USE AND ZONING

The predominant land-use in the service area is residential consisting of residential planned community, R-1 and R-3 zoning. A less significant portion of land is classified public park, the Sugarland Run Stream Valley Park.

PROPERTY ACQUISITION

The Reston Land Corporation has dedicated two park sites previously known as Section 51, Blocks 1 and 5. The parcel lying east of Stuart Road in Centreville District measures 3 acres. The parcel lying west of Stuart Road in Dranesville District is 3.2 acres in size.

TOPOGRAPHY

Slopes on site differ markedly between the two separate parcels that make up Stuart Road Park. For convenience, east or west designations will be given to the site (lying east or west of Stuart Road).

Slopes on the west site range from 0 to over 10%, the majority of the site is flat to gently sloped. A high point is located generally in the center of the parcel; the low point occuring on the southwest side.

Slopes on the east site range from 5 to over 10%, the majority of the site in excessive slope. Topography in this category requires major grading in order to become useable for recreation.



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SOILS

Soils on both sites fall into two major categories: Glenelg Silt Loam and Brecknock Loam. Glenelg Silt Loam has desirable properties for many uses. It is easily excavated and rates good for development including recreational use. It rates fair for road subgrade material and good for growth of ornamental plant materials. Glenelg Hilly Phase is best suited for permanent vegetation because of the erosion potential.

Brecknock Loam and Penn Fine Loam both rate good for road subbase material and ground support. See Appendix for full description.

VEGETATION

Both the east and west sites are totally wooded. The east site is made up of mixed hardwood forest (red maple, white oak, tulip tree) over the bulk of the site with Virginia Pines in the southern end and young saplings in the north.

The western section is densly vegetated with Virginia, white and loblolly pine. Some deciduous maple and tulip trees are interspersed throughout.

COUNTYWIDE TRAIL PLAN

The Fairfax County Trails Plan indicates an 8 foot wide pedestrian/bicycling trail is planned to be located on the east side of Stuart Road.

PARK SERVICE AREA

The primary service for a community park, as defined by the Fairfax County Park Authority, is that area within a 3/4 mile (aerial) radius from the center of the proposed park. A secondary service area falls within a 1-1/2 mile (aerial) radius of the park.

DEMOGRAPHICS

Analysis of current development occuring within the primary 3/4 mile radius of the park indicates there will be approximately 8,000 persons living in the area. Given the same development approved for construction within a 1-1/2 mile (secondary) service radius, the population count increases by an additional 5,900 persons.

PARK RECREATION FACILITIES

The only public park within the primary service radius of this site is Sugarland Run Stream Valley Park. This stream valley park is designed to provide a continuity of access between communities, serve as a recreational outlet for bikers/horseback riders/bicyclists as designated and a corridor for wildlife to travel between habitat areas. They are treated as critical



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environmental areas with special requirements to protect their floodplains and adjacent steep slopes in accordance with adopted policy. Since they are part of the ecological sanctuaries in the county, stream valley parks must remain largely undisturbed. Their use, therefore, is restricted primarily to activities of a passive nature.

The following are public facilities situated within the 1-1/2 mile service radius:

 Reston North Park (9.5 acres) - Under construction Little League Field
 Overlay Little League/Football Field (lighted)
 Parking Lot
 Playground
 Trails

 Baron Cameron Park (60 acres) Softball Field (lighted) Soccer/Football Fields (3) Garden Plots (76) Model Plane Airfield Parking Lot

o Stanton Park (10.8 acres) Shelter Picnic Area Playground Tot Lot

- o Sugarland Run Stream Valley Park
- Herndon High School
 Softball Field (4)
 Basketball Court (2)
 Tennis Court (7)
- Herndon Elementary School
 Softball Field (3)
 Basketball Court (2)
 Soccer Field (1)
- Lake Anne Elementary School Softball Field (1) Basketball Court (1) Soccer Field (2)

RECOMMENDED LEVELS OF RECREATION FACILITY AVAILABILITY

The following chart lists the recreation facilities most often requested in park development. It contrasts the standards established by the National Recreation and Parks Association (NRPA) and adopted by FCPA to the existing facilities available within the park service area and finds the deficiencies.



Facility	FCPA Standard	Required	Available	Deficient
Playground/Tot Lot	1/500	16	0	16
Tennis Court	1/1200	7	7	0
Multi-Use/ Basketball Courts	1/500	16	5	11
Softball	1/3000	<u>_</u> 3	8	0
Soccer	1/1500	5	3	2

RECOMMENDED LEVELS OF FACILITY AVAILABILITY (PARK FACILITIES AND SCHOOLS) ESTIMATED TOTAL SERVICE AREA POPULATION OF 13,906

SITE ANALYSIS CONCLUSIONS

Stuart Road Park is made up of two adjacent land parcels separated by the Stuart Road corridor. They are identified in this report as the east and west parcels, meaning the parcel lies east or west of Stuart Road.

The east site is heavily wooded with a deciduous, hardwood forest. Some of the trees are quite mature and worthy of protection. Slopes on the majority of this site exceed 10% making development difficult and costly. Soils are classified in the hilly phase and are best suited for permanent vegetation because of the erosion potential. The odd triangular shape of the parcel somewhat restricts the development potential for recreation. The close proximity of the Stuart Road corridor associated with poor sight distance along the existing curve makes any proposed use of this (east) site unsafe. Pedestrian traffic between parcels should not be encouraged. Given the excessive slope, soil erosion potential, extensive mature tree cover, unusual shape of property and general location of the site, recreational development should not be pursued. This site is best suited to remain in its natural state.

The west site is heavily wooded with mixed evergreens (loblolly, Virginia and white pine) and a few hardwoods. The pines are very dense and are experiencing dieback of understory branches which is a natural process. Selective clearing of substandard species should occur during the first phase of development. Slopes on the site are classified moderate to slight, all suitable for recreation. Soils fall into two separate classifications and both are suitable for recreational use. The adjacent public street offers direct access into the park; an access easement on the south side provides an additional pedestrian link. Given the close proximity of the Virginia Power substation and Stuart Road, a buffer of existing evergreen trees is recommended to remain for function and aesthetics. A standard 50 ft. wide (greenspace) buffer is also recommended where residential property adjoins parkland. All factors considered, the west parcel is very well suited for recreational use.





DEVELOPMENT PREFERENCE

As a result of meetings with Park Authority staff, the Stuart Ridge Association has recommended, through two letters, a prioritized list of park facilities and is as follows:

A. West Site

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- 1. Apparatus area
- 2. Single tennis court with lights and practice area
- 3. Picnic tables and open pavillion (shelter)

- 4. Exercise area
- 5. Tot lot area (fenced)

B. East Site

- 1. Multi-use court with lights
- 2. Parking for 5 cars

A special concern was that construction occur with destruction of as few trees as possible.

PRELIMINARY MASTER PLAN DEVELOPMENT

In planning and developing Stuart Road Park, all factors influencing the site and its future development must be considered. Physical constraints and attributes of the site such as land shape, soils, tree cover, slopes, adjacent land use, etc. are to be considered along with aesthetic values, community desires for specific facilities and for present and future recreational needs.

The existing characteristics of the Stuart Road Park make the west parcel far more suitable for development than the east section. The east section, therefore, should be left in its natural state. Based upon this study and the information gathered from the Stuart Road Association, three conceptual designs have been developed for analysis.

Development Concept A

This concept provides a trail link from the access easement directly to Lake Newport Road. The trail will somewhat separate the "active" tennis area from the more passive proposed facilities. An open-air shelter and picnic area is situated near the high point of the site, to offer full view of other park facilities. Tot lot and play apparatus areas are situated side by side but are separated with a path for accessibility and safety. Both are in full view of the picnic area. A cluster fitness area is located in the SW corner of the park just beyond the play areas. Finally, the concept includes a five-car parking lot, located adjacent to Lake Newport Road. A 50 ft. wide vegetative buffer is located on the south and west property borders to insure a reasonable distance between residential neighbors and park activities.

Development Concept B

This concept provides the same pedestrian trail link between both ends of Lake Newport Road as shown in the previous concept. The same kinds of facilities are again proposed on a rearranged site with the addition of a multi-use court and deletion of the 5-car parking lot. In this concept, cars would parallel park at the curb of Lake Newport Road and not enter onto parkland.

Development Concept C

This concept provides for all of the facilities recommended by neighboring homeowners. The pedestrian trail remains as previously shown but with an added trail loop centrally located. All facilities will be accessible via the trail system, proposed to be asphalt, 6 ft. in width.

A 5 car parking lot is situated adjacent to Lake Newport Road. Adjacent to the lot is an open-air shelter, located at the high point of the park. The previously mentioned loop trail will enclose the play area and tot lot to provide separation from other facilities, while still providing easy visual contact between shelter/picnic area and play area. A cluster fitness area is somewhat isolated from other activities in the southwest corner to provide needed space for exercise equipment. A multi-use court and tennis courts, both active areas, are located east of the trail and provide an additional buffer between passive park use and Stuart Road.

PRELIMINARY MASTER PLAN DESCRIPTION

Access

Stuart Road Park will be accessible by auto and on foot. Six (6) ft. wide asphalt paths are recommended for use throughout and will connect all proposed facilities.

A five car lighted parking lot is proposed just off Lake Newport Road. Staff recommends, however, that the parking lot be built in the latter phase of development if found to be necessary, and assign other park facilities a higher priority to be built first. Experience shows that parking along a public street could become aggravated over time, possibly pressuring a decision for on-site parking after the master plan has been adopted. This recommendation, then, simply "reserves" space for a parking lot that will become an integral part of the plan, rather than a possible add-on at a later date.

Shelter/Picnic Area

A 24' x 36' wood/metal open-air shelter (pavillion) is proposed in a central location. Picnic tables will be located within the shelter to provide a covered, all-weather seating area. The structure is located so as to provide good visual connection to the majority of the facilities planned within the park. Additional picnic tables could be located adjacent to the shelter, overlooking the play areas and the tennis courts.







Tennis Courts

Two full-size, fenced tennis courts with low level lighting are proposed for this park. A tennis practice wall is proposed along the sideline of one court. The 16' wide x 10' high concave wood (surface) wall is curved horizontally and vertically in a manner that rebounds the tennis ball so that it always comes back toward the player. This is not the case with the standard flat ball wall. This double court with ball wall recommendation is made because the court area will be only slightly larger than a single court with an adjacent standard practice tennis CMU wall but will double the capacity use over the single court system.

Play Apparatus Area

It is proposed that a steel/wood play structure be used that combines important design principles such as complexity, group interaction, linkage, creativeness, safety, durability, etc. The play area will have a suitable resiliant surface (groundcover) and will be bordered by the asphalt walk. The facility will be designed for school age children.

Tot Lot

A separate facility for pre-schoolers will be provided with appropriate, scaled-down play apparatus. The same design principles apply here as discussed for the larger play area. It is viewed as an adult supervised area with some of the equipment, such as swings, requiring adult assistance for the toddler age children. Benches will be strategically placed within the tot lot area. The tot lot will be physically separated from the older age group apparatus for the safety of the younger children. A resiliant surface material will be used under the entire area.

Fitness/Exercise Area

The consolidated exercise area will provide a variety of exercise opportunities with equipment and self-guiding signs. The area is designed for broad age group use, although the adult population is anticipated to be the prime user.

Multi-Use Court

A single multi-use court is proposed adjacent to the asphalt path. This court will have a red/green colorcoat and will be lined for both basketball and volleyball use. The court will be lighted as are the tennis courts and can be lit until 11:00 p.m.

Landscape Development

Plant material will be added to enhance the new development and provide for screening where necessary. This plant material will be indigenous to the area and will include both trees and shrubs, evergreen and deciduous. Particular attention will be placed on stabilization and restoration of any cut and fill slopes created by the construction. Selection will be based upon multi-use criteria, including consideration of flower, color and wildlife forage value.



ESTIMATED USER LEVELS

The following projection of user levels for Stuart Road Park is based on an examination of similar facilities in the region and on past experiences in planning recreational facilities.

The estimated number of "users per year" (where a "user" is one person taking part in one activity on a particular day), based on the criteria below, is as follows:

Facil	lity	Estimated Number of Users Per Year
A.	2-Tennis Courts/Practice Wall	5,400
Β.	Apparatus Pla y Area (school age)	3,650
C.	Fitness Exercise Area	3,650
D.	Tot Lot (pre-school age)	1,825
E.	Picnic Area	8,640
F.	Multi-Use Court	_5,400
Total	Estimated Park Users Per Year	28,565

User Level Criteria

A. Two Tennis Court/Practice Wall (neighborhood use)

A nine month season and 20 persons on the courts per day. 20 persons x 270 days = 5,400 users/year.

B. Apparatus Play Area (school age)

Year round usage with an estimated 10 children/day. 10 x 365 days = 3,650 users/day.

C. Fitness Exercise Area (all ages)

Year round usage with an estimated 10 users/day. 10 x 365 days = 3,650 users/year.

D. Tot Lot (pre-school age)

Year round usage with an estimated 5 users/day. 5 x 365 days = 1,825 users/year. Ε. Shelter/Picnic Area

> Picnicking is estimated at four persons per table with heaviest use on weekends between April and October. The turnover is estimated at two per day per table. Six tables are assumed for the area. 6 tables x 4 persons/table x 2 turnovers x 180 days = 8,640 users/year.

F. Multi-Use Court

> A nine month season and 20 persons on the court per day. 20 persons x 270 days = 5,400 users/year.

DEVELOPMENT COST ESTIMATE

A. Facility Costs

1. Asphlt Walks (950 LF)

0	Clearing	1,055 SY @ 65¢/SY =	\$ 685
0	Grading	210 CY @ \$6/CY =	\$ 1,260
o	Gravel	635 SY @ \$3.60/SY =	\$ 2,286
ο	Asphalt	635 SY @ \$4.30/SY =	\$ 2,730
0	Seeding	2,076 SY @ \$1.10/SY =	\$ 2,284

Total Asphalt Walks

\$ 9,245

2. Open-Air Shelter (24' x 36')

0	Clearing	135 SY @ 65¢/SY =	\$ 88
0	Grading	32 CY @ \$6/CY =	\$ 192
o	Concrete	125 SY @ \$21.60/SY =	\$ 2,700
0	Structure	\$14,400 LS =	\$14,400
0	Picnic Tables	6 @ \$270/EA =	\$ 1,620
0	Seeding	20 SY @ \$1.10/SY =	<u>\$22</u>

Total Open-Air Shelter

\$ 19,022

3. Play Apparatus Area (80' x 80')

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0	Clearing	712 SY @ \$65¢/SY	\$ 463	
0	Grading	240 CY @ \$6/CY =	\$ 1,440	
ο	Gravel	715 SY @ \$3.60/SY =	\$ 2,574	
o	Filter fabric	715 SY @ \$1.50/SY =	\$ 1,072	
0	Wood chips	160 CY @ \$32.40/CY =	\$ 5,184	
0	Play equipment	\$16,000 LS =	<u>\$18,000</u>	
Tota	l Play Apparatus Area			\$ 28,733

4. Tot Lot (40' x 80)

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0	Clearing	356 SY @ 65¢∕SY =	\$ 230
ο	Grading	118 CY @ \$6/CY =	\$ 708
ο	Gravel	355 SY @ \$3.60/SY =	\$ 1,278
ο	Filter fabric	355 SY @ \$1.50/SY =	\$ 532
ο	Wood chips	80 CY @ \$32.40/CY =	\$ 2,592
ο	Play equipment	\$7200 LS =	\$ 7,200
ο	Benches	2 EA @ \$720/EA =	\$ 1,440

Total Tot Lot

\$ 13,980

5. Exercise Area (40' x 80')

0	Clearing	355 SY @ 65¢/SY =	\$ 230
0	Grading	120 CY @ \$6/CY =	\$ 720
0	Gravel	355 SY @ \$3.60/SY =	\$ 1,278
ο	Filter fabric	355 SY @ \$1.50/SY =	\$ 532
0	Wood chips	80 CY @ \$32.40/CY =	\$ 2,592
ο	Exercise equipment	\$10,800 LS =	\$10,800

Total Exercise Area

\$ 16,152

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6. Multi-Use Court

0	Clearing	600 SY @ 65¢/SY =	\$ 390
ο	Grading	150 CY @ \$6/CY =	\$ 900
0	Gravel	450 SY @ \$3.60/SY =	\$ 1,620
0	Asphalt	450 SY @ \$4.30/SY =	\$ 1,935
0	Colorcoat	450 SY @ \$3.60/SY =	\$ 1,620
0	Goals	2 EA @ \$1,800 =	\$ 3,600
ο	Seeding	300 SY @ \$1.10/SY =	\$ 330
ο	Lighting	\$12,000 LS =	\$ 12,000

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Total Multi-Use Court

\$ 22,395

7. Tennis Courts (123' x 111')

0	Clearing	2,037 SY \$ 65¢/SY =	\$ 1,324
0	Grading	780 CY @ \$6/CY =	\$ 4,680
0	Gravel	1,517 SY @ \$3.60/SY =	\$ 5,461
0	Asphalt	1,517 SY @ \$4.30/SY =	\$ 6,523
0	Colorcoat	1,517 SY @ \$3.60/SY =	\$ 5,461
0	Fencing/nets/miscellar	neous \$34,103/LS =	\$34,103
0	Practice wall	\$2,340 LS =	\$ 2,340
0	Lighting	\$37,630 LS =	\$37,630
o	Seeding	520 SY @ \$1.10/SY =	<u>\$ 572</u>

Total Tennis Courts

\$ 98,094

	8. Parking Lot					
		о	Clearing	555 SY @ 65¢/SY =	\$ 360	
		ο	Grading	600 CY @ \$6/CY =	\$ 3,600	
		0	Gravel	295 SY @ \$3.60/SY =	\$ 1,062	
		0	Asphalt	295 SY @ \$4,30/SY =	\$ 1,269	
		0	Curbing/wheelstops	230 LF @ \$15.25/LF =	\$ 3,507	
		0	Seeding	260 SY @ \$1.10/SY =	\$ 286	
		0	Lighting	\$7,800 LS =	\$ 7,800	
		Tota	l Parking Lot			\$ 17,884
	9.	Misco	ellaneous			
		0	Park benches	3 @ \$720/EA =	\$ 2,160	
		0	Bike rack	\$840 LS =	<u>\$ 840</u>	
		Total	l Miscellaneous		\$ 3,000	
	10.	Lands	scape Planting	\$12,000 LS =	\$12,000	
	TOTAI	Ĺ				\$240,505
Β.	<u>Utili</u>	ity Fe	ees, Payments and Perm	<u>its</u> *		
	Build	ling P	Permit	864 SF @ \$.04/SF =	\$ 35	
	VEPCO)		2500 LS =	\$ 2,500	
	VDH &	T		40 LS =	<u>\$ 40</u>	
	Total	. Util	ity Fees, Payments and	1 Permits		\$ 2,575
C.	Desig	n/Eng	ineering**	10% x \$240,505 =		\$ 24,050

*Site plan fees paid to Fairfax County Design Review based on site construction plus utility fees (electric, sewer, etc.) and permits (building, VDH & T, etc.)

**Staff and/or consultant estimated cost to prepare construction plans and specifications.

D. Contract Administration***

Plan Review	1% x \$240,505 =	\$ 2,405	
Inspection	8% x \$240,505 =	\$19,240	
Site Plan Review	\$5,000 LS =	\$ 5,000	
Contract Administration	2% x \$240,505 =	\$ 4,810	
As-Built Survey \$500 LS =		<u>\$ 500</u>	
Total Contract Administration			\$ 31,955
TOTAL COST ESTIMATE			\$299,085

COST VS. BENEFIT

The total estimated construction cost for Stuart Road Park is \$299,085. This development cost divided by the approximate 8,006 individuals living within the 3/4 mile primary service area results in a development cost of \$37.35/resident.

During the first twenty years of operation, an estimated 571,300 individuals will use the park facilities. This results in a cost of \$0.52 per park user per visit.

DEVELOPMENT PHASING SCHEDULE

The total development cost estimated at \$299,085 exceeds presently programmed funding. The construction of the facilities will, therefore, occur in several phases. Consideration will be given to accelerating the design/development schedule depending on other priorities.

Recommended Phase I - Fiscal Year 1986/87 Available Funding: \$197,000

^{***}Staff salaries and related expenses to administer facility construction including plan review and inspection.

A. Facility Development

	Walks	\$ 9,245	
	Play Apparatus	\$28,733	
	Tennis Courts (lighted)	\$98,094	
	Picnic Area/Open Air Shelter	\$19,022	
	Miscellaneous/Landscape Planting	\$ 3,320	
	Subtotal Construction Costs		\$158,414
В.	Project Administration*		
	Contract Administration, Inspection, Site Plan Fees, Design/Engineering, Fees, Permits (20%)		\$ 38,077
	Total - Estimated Cost for Development of Phase I		\$196,491
Rec	ommended Phase II - Future		
A.	Facility Development		
	Exercise Area	\$16,152	
	Tot Lot	\$13,980	
	Multi-Use Court (lighted)	\$22,395	
	Parking Lot (lighted)	\$17,884	
	Landscape Planting	\$11,680	
	Subtotal Construction Costs		\$ 82,091
В.	Project Adminstration*		
	Contract Administration, Inspection, Site Plan Fees, Design/Engineering Fees, Permits (20%)		\$ 20,503
	Total Estimated Cost for Development of Phase II		\$102,594
*Sit con	e plan fees paid to Fairfax County Design Review based struction plus utility fees (electric, sewer, etc.) an	1 on site nd permits	

(building, VDH & T, etc.)

Staff and/or consultant estimated cost to prepare construction plans and specifications.

Staff salaries and related expenses to administer facility construction including plan review and inspection.

<u>Class*</u>	Facility	Unit Cost **	Cost
A	Tennis Court (lighted)	LS	\$3,039
A	Multi-Use Court (lighted)	LS	\$1,249
А	Picnic Area/Shelter	LS	\$1,500
В	Apparatus Area LS		
В	Tot Lot Area	LS	\$1,150
C	Asphalt Walks	44¢/LF	\$ 425
В	Fitness Exercise Area	LS	\$ 875
A	Parking Lot (lighted)	LS	<u>\$ 210</u>
TOTAL			\$9,598
*Mainten	ance Schedule: $A = Mowed/m$ B = Mowed/m C = Mowed/m	maintained once every 7-14 days maintained once every 14-30 days maintained once a year	

ANNUAL OPERATING AND MAINTENANCE COST ESTIMATE

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**Unit Costs from FCPA Maintenance and Operating Costs of Park Improvements.



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STUART ROAD PARK PRELIMIÑARY MASTER PLAN REPORT

APPENDIX

Conservation Division - Site Assessment Stuart Ridge Association Letter Stuart Ridge Association Letter Minutes of Master Plan Stakeout Soils Description PARKA AUTHORITY MEI

Fairfax County Park Authority

MEMORANDUM

To : Joe Sicenavage

Date: 3/29/85

From : Paul Engman

Subject : Stuart Road Park

As per your request I inspected the two parcels located adjacent to Stuart Road. The eastern section has relatively steep slopes throughout with an intermittent drainage in the southern section. The vegetation is mixed hardwood forest (red maples, white oaks, tuliptrees) over the bulk of the site with Virginia pines in the southern end and young saplings in the north. Some of the oaks and tuliptrees are quite large and worthy of protection. The triangular shape of the area combined with resricted access and steep slopes severely limits the development potential of the site. I would recommend that this remain in its natural state.

The western section is roughly square shaped with moderate slopes. The vegetation is mixed pines (loblolly, Virginia, white). There is one trail running east-west through the parcel which has been used in the past as access for dumping trash. The pines are very dense and will soon begin to die back to be replaced by young hardwoods. This situation should be considered in context to the maintenance and saftey requirements of the park. Although surrounded by future homes on two sides and roads on the other this site does have recreational potential.

Joepho

12012 Stuart Ridge Dr. Herndon, Va. 22070 December 7, 1984

Ms. Kay Burke 4030 Hummer Rd. Annandale, Va. 22003 c/o Fairfax Co. Park Authority

Dear Ms. Burke:

As you know, the Stuart Ridge Association through our park committee has been considering candidate park concepts for the 3.49 acre and one acre park sites on Stuart Road south of our community. With your help our committee was able to identify and visit many area parks of similar size in order to review the various designs and collect ideas for "our" two parks. As a result of the park committee's recommendations the Stuart Ridge Association, representing the Stuart Ridge Community of Herndon, Virginia has adopted the following park concepts as prioritized:

Α.	3.49 Acre Lot	
	lst priority -	Apparatus area
	2nd priority -	Single tennis court with lights and practice
		area
	3rd priority -	Picnic tables and open pavillion
	4th priority -	Exercise area
	5th priority -	Tot lot area (fenced)

B. One Acre Lot Multi-use lot (basketball, etc.) with lights and parking for five cars.

In addition, the Stuart Ridge Association requests these parks be constructed with destruction of as few trees as possible.

I have discussed our position with Mr. Ande Abbott, President of the Hunters Creek Homeowners Association which is the closest community to Stuart Ridge. Mr. Abbott has indicated his community has no disagreement with our park preferences and has agreed to confirm this position by letter if necessary.

Thank you for your continued attention to our park program. Please keep us updated on the park authority's progress in developing the parks' master plan and comprehensive design and contact us anytime we can provide further information or assistance.

Sincerely, Third V. Entir

David V. Pauling J President, Stuart Ridge

cc:Ms. Nancy Falck, Supervisor Mr. Ande Abbott, Hunters Creek Stuart Ridge Association David Louling, Precident 12012 Stuart Ridge Dr. Herndon, Va. 22070

January 16. 1985 Ns. Kaye Burke 4030 Hummer Rd.

Annandale, Va. 22003 c/o Fairfax County Dark Authority

Dear Ms. Burke:

Supplementing my December 7, 1984 letter prioritizing mark concepts is the following Stuart Ridge Community's prefer ed park equipment chosen from the catalogs you sent us:

MUY NEW #1 P

A. 3.49 Acre Lot

Six enches (Mexico Forge Catalog #165-506) to be positioned randomly throughout the park

- <u>lst priority</u> Apparatus Area Catalog - Timberform 10th edition * Play Platform Area #4045 pg. 24 but standard swings replaced with two Mexico Forge catalog swings on ng. 14-a slashproof rubber infant seat (322-000) and a molded rubber seat (323-000). Catalog - Mexico Forge * Heavy Duty swings #1006-600, pg. 11 2nd priority - Single tennis court, lights, and practice area Catalog - None * Any FCPA standard design 3rd priority - Picnic tables and open pavillion Catalog - Mexico Forge * Iroquois Shelter #2436, pg. 12 * 6 picnic tables (non stationary) FCPA standard * Kish Valley Grills #454-000 pg. 92, 2 ea. (1 at each end under shelter) priority - Exercise Area - Mexico Forge * ExerCenter #2600-800, ng. 60-57
 - 5th priority Tot lot area (fenced)

court).

- Catalog Natural Structures
- * See Saw #564, ng. 14 Catalog - Mexico Forge
 - * Spin Around #1508-555, pg. 17
- B. One Acre Lot Multi-use lot, lights, and parking for five cars. Catalog - Mexico Forge
 - * Heavy Duty Basketball Outfits #904-610, pg. 75, 2 ea. (1 on each end of basketball

Kelle UN, J.J.

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Your catalogs are returned as requested. We will standby for any necessary clarification of the foregoing listed park equipment or for any other issues on these park sites. Thank you for your continued support.

Sincerely,

Charid V to

David V. Pauling President, Stuart Ridge

cc: Ms. Nancy Falck, Dranesville District Supervisor Mr. Ande Abbott, Hunters Creek



То

Fairfax County Park Authority

MEMORANDUM

ALL ATTENDEES

Date April 16, 1985

From Joseph Sicenavage

Subject Stuart Road Master Plan Stake-out

Subject stake-out was held on Thursday, April 11, 1985 and was attended by Chris Hoppe, Bill Hellwig, Tim Scott and myself.

- 1. The trail located between the tennis court and Stuart Road could become a safety hazard by directing users to cross Stuart Road (to the future County trail) at a place other than at the intersection. Removal of that section of the park trail was recommended.
- 2. Any parking that may occur by park users (none is envisioned) can parallel park along Lake Newport Road.
- 3. The heavy evergreen tree growth over the majority of the site could stand selective clearing of deficient species and some understory pruning (limbing up) to achieve a safe and useable site.
- 4. The play apparatus, tot lot and fitness area can be situated around significant trees (if any) and should not require edging or border to retain wood chips. Topo in these areas is generally flat.
- 5. The multi-use and tennis court is oriented directly on a north/south axis. Given the heavy tree cover on the site, this orientation will work well even though it is second design preference.
- 6. An attempt will be made to relocate the tennis and multiuse court closer together if the move will save grading and some tree clearing.
- 7. The CMU practice wall question of usage was discussed. Rather than build a separate practice court on this site, a suggestion was made to build a double tennis court and utilize a "practice-plus" plywood ball wall on one sideline fence of the court. This idea has merit

because persons practicing could use the "doubles" court line as their 39 ft. baseline. Any recessed wall (in the fence) will offset this measurement, will require additional asphalt and will be more costly. The final recommendation was to design a double court and use the new plywood ball wall on the standard tennis court fencing.

JS/jpb

cc: Louis A. Cable Donald F. Lederer near the bases of slopes that surround Bowmansville silt loam help remove some of the seepage. (Capability unit IVw-2.)

Brecknock Series

The Brecknock series consists of deep, light-colored, well drained to moderately well drained soils that have formed in the residuum of baked Triassic shale and shaly sandstone. The soils are on moderately low, wide, upland ridgetops and mild slopes in association with the Catlett, Calverton, Croton, and Kelly soils. Brecknock soils have formed from the same parent rock as the Catlett, but they are deeper to bedrock than the Catlett and have a much more highly developed profile.

Brecknock silt loam, eroded undulating phase (2 to 7 percent) (Bh).—A profile of this soil in a cutover wooded area is described as follows:

- 0 to 8 inches, very pale brown (dry), very friable, smooth silt loam; weak, fine, granular structure.
- 8 to 18 inches, pale-brown (dry), friable silt loam; weak, medium, subangular blocky structure.
- 18 to 25 inches, dark grayish-brown (dry), firm silty clay loam; faint surface coatings of pink, black, and strong brown; strong, medium to coarse, blocky structure.
- 25 to 34 inches, very dark grayish-brown, firm silty clay loam; streaks of gray and specks of strong brown; coarse, blocky structure.
- 54 to 46 inches, very dark grayish-brown, friable silt loam to light silty clay loam soil material; faint mottles and streaks of gray, strong brown, and yellowish brown; many particles of baked shaly sandstone in lower part.

Range of characteristics .-- The color of the surface layer ranges from dark grayish brown to pale brown, but it is mostly yellowish brown and grayish brown. The texture of the surface layer ranges from gravelly silt loam to loam. Some places have outcroppings of stones and angular cobbles. The location of these outcroppings is shown on the detailed soil map by appropriate symbols. The subsoil ranges from yellowishbrown, friable silty clay loam to dark grayish-brown, faintly mottled silty clay and clay. In places thin horizons of yellowish-brown and light olive-brown, plastic clay occur immediately above the parent material. Small wet spots and areas of Catlett gravelly silt loam are included. Most cleared areas have been slightly to moderately damaged by sheet erosion, and, in places, occasional shallow gullies have formed.

Brecknock silt loam, eroded undulating phase, is very strongly to strongly acid and contains low to moderate amounts of organic matter. It is moderate to low in natural fertility. It has a moderately high water-holding capacity and is retentive of added plant nutrients. Runoff is medium, and internal drainage is medium to slow. The surface layer is moderately to rapidly permeable; the subsoil, moderately to moderately slowly permeable. The soil is fairly easy to work and conserve.

Use and management.—Most of Brecknock silt loam, eroded undulating phase, is used for crops. Of the rest, about 15 percent is pastured, 5 percent is idle, and 20 percent is in cutover forest and miscellaneous uses. A cropping system that is in general use on this soil consists of corn, a small grain, and several years of hay. Alfalfa is grown on a few farms, but this soil is not so well suited to alfalfa as the Bucks and the Glenelg soils. Brecknock silt loam, eroded undulating phase, is fairly well suited to all crops grown in the county, but it is probably best suited to small grains and to hay crops excluding alfalfa. For high yields it needs lime to raise the pH to a desirable level and fairly heavy applications of most plant nutrients. This soil also needs large quantities of manure and crop residue, and it responds well to these amendments. (Capability unit IIe-2.)

Brecknock silt loam, eroded rolling phase (7 to 14 percent) (Bk).—This soil is similar to the eroded undulating phase of Brecknock silt loam except that it has steeper slopes, has a slightly thinner profile, and is more susceptible to erosion. Runoff is medium to rapid, and internal drainage is medium to slow. Shallow gullies have formed in some areas. In some places, the plowed layer is now partly in subsoil. Small areas that resemble the Catlett soils have been included with this soil.

Use and management.—Most of this soil is cultivated. Of the rest, about 18 percent is in permanent pasture, 5 percent is idle, and 20 percent is in cutover forest and miscellaneous uses. This soil is more difficult to work, needs better management to control erosion, and produces smaller yields than Brecknock silt loam, eroded undulating phase. More use should be made of improved cropping systems, close-growing crops, contour cultivation, and stripcropping to control soil and water losses. (Capability unit IIIe–1.)

Brecknock loam, undulating phase (2 to 7 percent) (Bf).—This soil is similar to Brecknock silt loam, eroded undulating phase, but it has been derived mostly from baked sandstone instead of baked shale. It also differs in having a loam to fine sandy loam surface layer, a fine sandy clay loam to clay loam subsoil, and more sandy parent material. It contains less gravel and is slightly more erosive on similar slopes. Internal drainage is medium, but it is slightly more rapid than in Brecknock silt loam, eroded undulating phase.

Use and management.—Most of this soil is cultivated; small parts are forested, idle, or in permanent pasture. Crops and management are similar to those described for the Brecknock silt loams. Because of its coarser texture and consequent greater loss of plant nutrients through leaching, Brecknock loam, undulating phase, needs plant nutrients more frequently than other Brecknock silt loams, but it needs lime less frequently. (Capability unit IIe-2.)

Brecknock loam, eroded rolling phase (7 to 14 percent) (Bg).—This soil is similar to Brecknock loam, undulating phase, except that it has steeper slopes, is slightly more eroded, and is generally shallower to bedrock. Runoff is medium to rapid, and internal drainage is medium. A small, slightly eroded acreage has been included with this eroded phase.

Use and management.—Most of this soil is used for crops and pasture. A small acreage is idle or forested. This soil is more difficult to work and conserve than Brecknock loam, undulating phase, and is less productive under similar management. Consequently, more use should be made of contour cultivation and stripcropping, and the cropping system should contain a greater proportion of close-growing crops. (Capability unit IIIe-1.) surfaces of the Appling or Cecil soils instead of those of the Glenelg and Elioak soils. (The Cecil soils were not mapped in Fairfax County.) Runoff is medium. Internal drainage is medium to slow and is slightly slower than in areas that overlie the old Glenelg and Elioak land surfaces. In addition, the stone line is thicker and there is considerably more subangular gravel on and in the soil than where the Fairfax soils overlie the Glenelg and Elioak soils.

Use and management.—Most of this soil is in forest; a small acreage is in pasture and crops or is idle. The management this soil needs is very similar to that for the undulating phase of Fairfax silt loam. The loam texture makes this soil easier to till and work than Fairfax silt loam, undulating phase, but the leaching of plant nutrients from the surface layer is slightly more rapid. (Capability unit IIe-3.)

Galestown Series

The Galestown series consists of deep, excessively drained, coarse-textured, sandy soils that have formed in very sandy marine deposits. These soils occur chiefly near Gunston Cove in the lower Coastal Plain in association with the Sassafras and Woodstown soils. They resemble the Sassafras soils in relief but are paler in color and coarser in texture throughout. They are extremely droughty because of the coarse texture and rapid internal drainage. Only one soil was mapped in this series.

Galestown loamy fine sand (0 to 2 percent) (Go).—A profile of this soil in a cutover forest is described as follows:

- 0 to 8 inches, brown, loose loamy fine sand; few small roots; the upper 1/4 inch contains dark grayish-brown loamy sand.
- the upper 1/4 inch contains dark grayish-brown loany sand. 8 to 52 inches, strong-brown, loose loamy fine sand; structureless; contains some discontinuous iron pans and iron concretions.
- 52 to 62 inches, predominantly brownish-yellow, loose loamy fine sand; faint mottles of pale brown, yellow, strong brown, and pale yellow; discontinuous iron pans and concretions common in places; few, small, rounded pebbles.

Range in characteristics.—The subsoil ranges in color from strong brown to pale yellow. Some areas have a sandy loam subsoil below a depth of 30 inches. The remnants of iron pans and iron concretions are encountered in some places, but in many areas they are absent. A few, small, slight depressions have received some deposition, and in these the brown surface layer is thicker.

Galestown loamy fine sand is strongly to very strongly acid and low in natural fertility and organic matter. Runoff is slow; internal drainage is very rapid. Permeability is very rapid, and the water-holding capacity is very low. The soil is easy to work and conserve but is low in productivity for most crops except some vegetables.

Use and management.—About 80 percent of this soil is in cutover forest, 10 percent is in crops, and 10 percent is idle or in miscellaneous uses.

Because it is very sandy and droughty, this soil is best used for vegetables. It needs water and organic matter for most crops. In most seasons irrigation is needed for high yields. Green-manure crops, lime, a complete fertilizer, and a side dressing of nitrogen are also essential for obtaining good yields of most crops. (Capability unit IIIs-1.)

Glenelg Series

The Glenelg series consists of moderately deep, welldrained soils that have formed in the residuum of quartz sericite schist. The Glenelg soils occupy fairly wide, undulating to rolling interstream divides and are among the more extensive soils of the upland. They are associated with the Elioak and Manor soils, which have formed from the same kind of parent rock, and with the Meadowville and Worsham soils. The Glenelg soils differ from the Elioak soils in containing more mica, in having a thinner profile, and in having less clay and less red coloring in the subsoil. The Glenelg soils have a better developed profile than the associated Manor soils.

Glenelg silt loam, undulating phase (2 to 7 percent) (Gb).—A profile of this soil in a cultivated field is described as follows:

- 0 to 7 inches, brown to yellowish-brown, very friable silt loam; weak to moderate, fine, granular structure; few very fine flakes of mica; few small quartz pebbles; in wooded areas the surface layer is lighter in color except in upper 1 inch.
- 7 to 18 inches, yellowish-red, friable silty clay loam; strong, medium, subangular blocky structure; small flakes of mica and small pebbles of quartz are common; upper 2 inches slightly lighter in color and coarser in texture.
- 18 to 24 inches, strong-brown, friable to very friable silt loam; moderate, fine to medium, subangular blocky structure; numerous pebbles of quartz, particles of sand, and many fine flakes of mica, all of which are more numerous in the lower part.
- 24 to 36 inches, light reddish-brown, mixed with reddishyellow and black, quartz sericite schist material; highly micaceous; very friable, soft; some fine to medium quartz gravel and partly decomposed schist rock mixed with soil material; material is deeply weathered and varies greatly in color from place to place.

Range in characteristics .- The surface layer ranges from yellowish brown to dark brown in cultivated areas and from very pale brown to dark grayish brown in The subsoil is predominantly strong wooded areas. brown to yellowish red, and it is generally lighter colored in wooded areas. The thickness of the subsoil ranges from 10 to 20 inches. In places quartz pebbles and angular cobbles on and in the soil are numerous enough to interfere greatly with tillage. Very small areas of the Elioak and Manor soils and of reddishbrown soils similar to the Myersville soils (not mapped in Fairfax County) that have formed from more basic rock material are included with Glenelg silt loam, undulating phase. Small areas that have a loam surface layer are also included. In addition, a small acreage of Manor silt loam, undulating phase (not mapped separately in Fairfax County), has been included with this soil.

Nearly all the acreage, particularly that in cultivation, has lost small to moderate amounts of soil through sheet erosion, and in places the subsoil is exposed. However, Glenelg silt loam, undulating phase, has lost less surface soil than the Elioak and Manor soils. This soil is very strongly to strongly acid, contains a fairly small amount of organic matter, is moderate to low in natural fertility, and is fairly susceptible to erosion. This soil is relatively high in potassium and is fairly retentive of added plant nutrients. It is not so retentive as the Elioak soils but is more retentive than the Manor soils. Less lime is needed to raise its pH to a given level than is needed for the Elioak soils. The permeability of the surface soil is rapid; that of the subsoil is moderate to moderately rapid. The water-holding capacity is moderate.

Use and management.—Glenelg silt loam, undulating phase, is used mostly for crops and pasture (fig. 4). A small acreage is idle, and much of the soil is in forest.



Figure 4.—Idle field of Glenelg silt loam, undulating phase, a soil well suited to farming or residential development.

The management of this soil is similar to that used for the Elioak soils, and for most crops the expected yields are similar. Glenelg silt loam, undulating phase, is easier to work and conserve than either the Elioak or the Manor soils. If management is good, the soil is productive of most crops grown in the county; it is probably the most productive upland soil in the county (fig. 5). (Capability unit IIe-2.)

Glenelg silt loam, eroded rolling phase (7 to 14 percent) (Gc).—This soil is similar to Glenelg silt loam, undulating phase, except that it has stronger slopes and occurs on narrow rolling ridgetops and on side slopes that extend from smooth ridgetops. It also has a thinner profile in most places and is more susceptible to erosion than the undulating phase of Glenelg silt loam. Also, some areas have lost considerable surface soil. In places a few shallow gullies and occasional deep gullies have formed. Surface runoff is medium to rapid, internal drainage is medium. Included with this soil are areas similar to those described for Glenelg silt loam, undulating phase.

Use and management.—About 40 percent of Glenelg silt loam, eroded rolling phase, is in crops and pasture, 10 percent is idle, and 50 percent is in forest or miscellaneous uses.

The management of this soil is similar to that used on Glenelg silt loam, undulating phase, except that a few areas have been stripcropped, and other areas have been used mainly for hay. Mainly because of the steeper slopes, this eroded rolling phase of Glenelg silt loam has a narrower range of suitability for crops than Glenelg silt loam, undulating phase. Under similar manager the yields of most crops are slightly lower.

Glenelg silt loam, eroded rolling phase, responds 1 ily to good management, but it is not so easily we and conserved as the smoother Glenelg soils. It sh be protected from erosion through cultivation on contour, the use of more sod crops and longer rotat and perhaps some stripcropping on the longer sl especially if row crops are grown. Glenelg silt 1 eroded rolling phase, responds well to management a medium range of suitability for crops, and is less ductive of most crops than the undulating phas Glenelg silt loam. (Capability unit IIIe-1.)

Glenelg silt loam, severely eroded rolling phas to 14 percent) (Gd).—This soil is similar to Glenelg loam, eroded rolling phase, except that it is seve eroded. Nearly all the surface layer and a small of the subsoil have been lost, and in places a few gullies and many shallow gullies have formed. Ma because of its eroded condition, Glenelg silt loam verely eroded rolling phase, has more rapid runo lower water-holding capacity, and a narrower rang suitability for crops than either the eroded rollin the undulating phase of Glenelg silt loam. Workabi conservability, and productivity are less favorable on the noneroded phases of Glenelg silt loam.

Use and management.—A small acreage of Gle silt loam, eroded rolling phase, is used for crops,



Figure 5.—Glenelg silt loam, undulating phase. Some of the dairy farms are on this soil.

most of it is, in about equal parts, idle or used for pasture or forest. The management of this soil is similar to that used on the undulating and eroded rolling phases of Glenelg silt loam, except that, in general, more manure is applied to this severely eroded rolling phase. Except in deeply gullied areas, the management described for Glenelg silt loam, eroded rolling phase, should be good for this phase. The most severely eroded and gullied areas, however, are probably best suited to permanent pasture. Yields of most crops are slightly less than on the eroded rolling phase of Glenelg silt loam, but the soil responds well to management, especially to heavy applications of manure. (Capability unit IVe-1.)

Glenelg silt loam, eroded hilly phase (14 to 25 percent) (Ge).-This soil is similar to Glenelg silt loam, eroded rolling phase, and Glenelg silt loam, undulating phase, except that it has steeper slopes, is shallower to bedrock, and has a slightly thinner profile. Most areas have fairly thin, slightly coarse textured subsoil. In some places very small areas of the Manor soils have been included. Runoff is rapid; internal drainage is medium. The soil is naturally somewhat excessively Small areas of reddish-brown, friable soils drained. that have been formed from a more basic rock are included with this soil.

Use and management.-Glenelg silt loam, eroded hilly phase, is mostly in forest. Some of it is idle, a few areas are in crops, and a fairly large part is in permanent pasture.

The management used on permanent pasture includes mainly close grazing, clipping, moderately heavy fertilization, liming, and topdressing the more eroded or thinner areas with manure. Where this soil is used for crops, management is similar to that used on Glenelg silt loam, eroded rolling phase, except that longer rotations and more sod crops and stripcropping are used.

Mainly because of the steep slopes, this soil is very susceptible to erosion, is difficult to work and conserve, and has a narrow range of suitability for crops. Under similar management, yields of most crops are lower than from the undulating and eroded rolling phases of Glenelg silt loam. Glenelg silt loam, eroded hilly phase, is best suited to permanent pasture or forest. Pastures respond well to good management, and the soil is easily conserved and kept productive. (Capability unit IVe-1.)

Glenelg silt loam, severely eroded hilly phase (14 to 25 percent) (Gf).—This soil is similar to Glenelg silt loam, eroded hilly phase, except that it has lost most of its surface layer through erosion. Shallow gullies and a few deep gullies have formed in some areas. This soil has more runoff and is more droughty than Glenelg silt loam, undulating phase.

Use and management.—Glenelg silt loam, severely eroded hilly phase, is mostly in forest. Some of the acreage is used for pasture, a small part is idle, and the rest is used for crops. Because of the strong slopes and severe erosion, this soil probably is suited best to permanent pasture. It is difficult to work and conserve if used for row crops. However, it responds well to management, is easily conserved, and can be improved if used for permanent pasture. (Capability unit VIe-1.)

Glenville Series

The Glenville series consists of light-colored, moderately well drained to somewhat poorly drained soils that occupy depressions on foot slopes and at the heads of drainageways. These soils have formed in local alluvium and colluvium that washed from the adjacent upland. They are associated with the Glenelg, Elioak, Manor, Meadowville, and Worsham soils and in position and drainage are intermediate between the Meadowville and Worsham soils. Few slopes exceed 5 percent.

Glenville silt loam (2 to 7 percent) (Gg).—A profile of this soil in a cultivated field is described as follows:

- 0 to 8 inches, yellowish-brown, very friable silt loam; weak,
- to 8 menes, yenowish-orown, very friable slit loam; weak, fine, granular structure; many grass and weed roots.
 8 to 18 inches, reddish-yellow, friable, light slity clay loam; moderate, medium to coarse, subangular blocky structure.
 18 to 50 inches, predominately light-gray, slick, heavy slit loam to silty clay loam mottled with brownish yellow and voluciph brown; friable; mediant to coarse, mediant and structure. yellowish brown; friable; moderate to strong, medium and coarse, subangular blocky structure; many finely divided mica flakes and a few small quartz pebbles. 50 to 60 inches, mottled brownish-yellow, yellowish-brown, light-gray, and white, slick, heavy silt loam; very friable;
- highly micaceous; weak, platy to weak, fine and medium, subangular blocky structure; a few small pebbles of quartz and particles of coarse sand.

Range in characteristics.-The surface layer ranges from 6 to 20 inches in thickness and from loam to silt loam in texture. It is mostly silt loam. In places the subsoil and parent material are highly micaceous. The solum ranges from 24 to 60 inches in thickness, but in most places is about 50 inches thick. The soil is predominantly somewhat poorly drained, but included with it are small areas of moderately well drained soils that are similar to the Meadowville soils and small areas of poorly drained soils that are similar to the Worsham soils. In some places along deep, narrow drainageways adjacent to first bottoms, small areas are included that resemble the Chewacla soils. A few pebbles and stones of quartz are in some areas.

Glenville silt loam is strongly acid, moderately low in organic matter, and fairly low in natural fertility. Runoff is fairly slow; internal drainage is slow. The waterholding capacity is moderate to high. The surface layer is moderately rapidly permeable; the subsoil, slowly permeable. Glenville silt loam is retentive of plant nutrients and is easy to conserve. Because it occupies depressions, erosion is not a problem. Some places are covered by fresh material that washed from surrounding slopes.

The water table is in the lower part of the soil. In some areas water stands on the surface a fairly long time after rains. Ditch or tile drainage is needed in many areas if row crops are to be grown. This soil has a narrower range of moisture conditions under which it can be cultivated than have Meadowville or Glenelg soils. In addition, it is not suited to so wide a variety of crops as the Meadowville or Glenelg soils.

Use and management.-About 13 percent of Glenville silt loam is in crops, 25 percent is in pasture, 5 percent is idle, and 50 percent is in forest. The rest is in miscellaneous uses.

Except for using a little ditch drainage, this soil is managed like the Glenelg and Meadowville soils. Crops

67BI, 2 - PENN FINE SANDY LOAM, UNDULATING PHASE (67CI, 2 and 67D2)*

This is a shallow, porous, somewhat excessively drained, sandy soil that is derived from the weathered products of red, pinkish red, to grayish sandstone rock materials. It is low in organic matter content, and has a low to very low water holding capacity. It is very strongly to strongly acid in reaction. (pH 4.5 - 5.5)

SUITABILITY

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This soil is excessively drained and is best suited for small grains and mixed hay crops, but row crops including corn, potatoes and other vegetables are grown successfully where high levels of fertility are maintained. Irrigation, complete fertilizers, and organic materials are essential for good lawn growth. The soil is permeable but shallow to hard rock. It rates good for road subgrade material. In those areas where hard rock is deeper than thirty inches below the surface, it rates good for septic tank drain fields. However, hard rock at or near the surface makes many areas of this soil unsuitable for septic tank drain fields.

* 67Cl,2 and 67D2 differ from 67Bl,2 by having steeper slopes and thinner profiles.

Fairfax County Soil Survey Office Soil Scientist 691-2259 Revised: May, 1976