

Commission Meetings and Corresp.

Mar 1986

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AGENDA

Chesapeake Bay Critical Area Commissions
Maryland Department of Agriculture
50 Harry S. Truman Parkway
Annapolis, Maryland

March 5, 1986

4:00 p.m. - 6:00 p.m.

- | | |
|--|---------------------------|
| 1. Approval of Minutes of
February 5, 1986 | Solomon Liss,
Chairman |
| 2. Requirement to File
Ethics Disclosure | Sarah Taylor |
| 3. Update on Legislation | Solomon Liss,
Chairman |
| 4. Presentation & Discussion
Of Issue/Policy Paper | Charles Davis |
| 5. Announcement of Next Commission
Meeting of April 2, 1984
Dept. of Agriculture | Solomon Liss,
Chairman |
| 6. Old Business | Solomon Liss,
Chairman |
| 7. New Business | Solomon Liss,
Chairman |

CHESAPEAKE BAY CRITICAL AREA COMMISSION

Minutes of Meeting Held
February 5, 1986

The Chesapeake Bay Critical Area Commission met at the Department of Agriculture, Annapolis, Maryland. The meeting was called to order by Chairman Solomon Liss, with the following members in attendance:

Samuel E. Turner, Sr.
Barbara O'Neill
Shepard Krech, Jr.
William J. Bostian
Albert W. Zahniser
Ronald Hickernell
Parris Glendening
William Eichbaum
James E. Gutman

Lloyd Tyler, III
Robert Lynch
Ann Sturgis Coates
Florence Beck Kurdle
Robert Price, Jr.
Constance Lieder
Enest Shea for
Wayne Cawley, Jr.

The minutes of the January 8th meeting were approved as written. Chairman Liss informed the members that the first hearing was held Tuesday, February 4th, on the Administration Resolution in the Senate and that 13 Commissioners attended. There was very good support with 40 proponents and 10 opponents to the Resolution. It is anticipated that the Senate Economic and Environmental Affairs Committee will act on the resolution on Friday, February 7th. The House hearings are scheduled in the Economic and Environmental Matters Committee on February 20th. In the Senate on the 19th and 20th, the Senate bills relating to the Critical Area will be heard.

The Commission then heard several presentations from State agencies in which the theme was services which could be provided to local governments in implementation of the Critical Area Program.

Richard Sellars, Director of Water Management Administration, Department of Health and Mental Hygiene, discussed the services which could be provided to jurisdictions as they develop their Program. He said that OEP staff are part of an inter-agency team which reviews interim projects. His organization also is responsible for the county comprehensive water and sewer plan. While there is limited State funding, there is a bi-annual review of the local plans which indicate water projections. The Department of Health and Mental Hygiene approves or disapproves the plans based on public health and water quality and can turn them down. Primarily, the Water Management Administration is a regulatory program. They annually rate each sewage treatment plant in order to have rating systems for sewage capacity and where it appears that the sewage treatment plants are overloaded, the State can impose building and sewer moratoriums. Plans for pumping stations and

interceptors are also reviewed at the State level. There is a highly technical staff trained in the sanitary field, available for technical assistance and guidance. In the residential sanitation program, there are regional sanitarians available. In addition, there is an innovative and alternative technology unit. A water quality assessment called 305 B takes place annually and the State's quality of water is evaluated in each area along with suggestions for improvement. Extensive water quality data is also available and the OEP intends to prepare summaries of data.

Finally, Mr. Sellars said that if a developer wants to build a sewage treatment plant, the State will review, analyze and do waste-load allocations, and issue permits related to development.

Ann Coates asked whether the 305 B provides information which could be used to determine a buffer exemption based on water quality. Mr. Sellars responded that the State's information is not specific enough.

Larry Duket, Chief of Planning at the Department of State Planning, summarized information available from the Department. Mr. Duket had provided handouts of this information which were provided to all Commission members. He said that the DSP can look at the local government's Critical Area Plans for consistency, for re-direction of growth away from the Critical Area. Chairman Liss suggested that it might be of use to have a memorandum of agreement with regard to plan review, with DSP to avoid duplication.

Ernest Shea, Department of Agriculture, said that his agency primarily provides technical assistance and educational assistance to the farm community and works with individual land owners. The Department has been disseminating information directly to local Soil Conservation Districts, helping them to understand the criteria and will repeat this process again this Spring. They have recently had meetings in Centreville and Salisbury and two more are planned in Southern Maryland and Harford County. The Department helps them to understand their roles since the bulk of assistance to farmers comes from the Soil Conservation Districts. He said that the Districts often don't know which farms have current conservation plans, but it is guessed that approximately 50% do not have them. The State is also helping the Soil Conservation Districts with plan development, and as the Districts hold informational meetings, the State will provide printed materials and resources for the information. Mr. Shea said that technical staff are primarily

assigned to priority watersheds, those which deliver the most agricultural pollution and some of these persons may need to be shifted to work in the Critical Area. The effects of the Graham Rudman budget reduction will also dramatically affect the agricultural community since it is anticipated that the Soil Conservation Service will be gutted, and one-half of the technical people available in the State are federal employees. He indicated that cost-share assistance may be reduced and that limited county staff will be affected in the development of the county agricultural preservation plan. When asked how long it would take to get a water quality plan on a farm, he replied that it could be done in approximately one week with full implementation in approximately six months if all went smoothly. Initial efforts are toward getting the 25-foot vegetative filter strips in place. Robert Price asked if funds were available for farmers to implement their plans and Mr. Shea replied that there is great program demand and that unless more bonds are sold, there will not be sufficient cost-share monies available.

Chairman Liss then spoke of the issue of the 33 bills which have been introduced into the Legislature which will in various ways, undermine the criteria. He requested authority to tell the Legislature that the Commission's position is that no changes be approved at this time until the criteria are adopted, and that it is inappropriate to make changes to the criteria before they have even been passed. William Eichbaum said that it would be unusual for the Commission to take no position on legislation which is affecting the criteria, but that the Commission could develop an overall statement, and not act on specific bills.

The Commission then voted on the recommendation made by Chairman Liss, that it tell the Legislature that it is inappropriate to amend the Law or the criteria at this time. The vote was 13 in favor, 3 in opposition.

Dr. Taylor then introduced a new Commission staff member, Carolyn Watson.

Ms. Penny Davis, from the Department of Economic and Community Development spoke of services available from her agency. Financial and technical assistance is available for economic projects. Information is usually project-specific and extensive information is available with regard to statistics and analysis of business. The Division of Research has recently compiled the Maryland Statistical Abstract and she showed a copy to the Commission. The Business and Industrial Development section focusses on promotion and the Community Development

Administration has listings of projects financed by the Department. Ms. Davis provided names and telephone numbers of persons who could be contacted for assistance.

Charles Davis, Commission Planner, reviewed the workshop which had taken place in January, and showed the Commission the questions and answers information sheet which had been prepared, and ask that the Commission review them. Chairman Liss said that the staff should develop general answers for the Commission to review, so that the responses to questions will be consistent. It was agreed that Mr. Davis should prepare questions and answers for Commission review and adaptation at the next Commission meeting, March 5th. Florence Kurdle reported that the subcommittee on the guide book wants to review the questions and answers and they will also be sent to the subcommittee with response requested by February 24th.

Robert Price asked about funding for local government programs, and Dr. Taylor responded that \$2 million is allocated in the Commission budget for local technical assistance grants. The formula for distribution will be based on shoreline, local government expertise, data available at local level, etc. The staff has been reviewing the local government estimates to make certain that they were as accurate for one year as possible, since the counties were requested to give general estimates of cost with no time fram specified. She stated that for some municipalities, local governments will do the programs, and for others, they may need to be funded separately. The Commission's funding is a part of the Department of Natural Resources's budget and will be reviewed by the Appropriations Committee. The total requested funding for the Commission is \$3 million. Additional funds are for baseline data, economic study, funding for technical staff, and for on-call consultants.

Chairman Liss then asked Stephen Bunker from the Chesapeake Bay Foundation to show the Commission the painting which he received as "Conservationist of the Year", awarded to him by the Bay Foundation.

Florence Kudle said that her subcommittee had met for the first time before the meeting, and had decided how to review the guide. They will look to determine if it is useful, if there are errors, and if it sets policy beyond the criteria.

It was agreed that the next Commission meeting will be March 5th, 1986.

There being no further business, the meeting was adjourned.

These minutes were prepared by Helene Tenner.

Chesapeake Bay Critical Area Commission

Minutes of Pre-Proposal Conference
March 21, 1986 Held at the
Department of Natural Resources
Tawes State Office
D-1 Conference Room

Mr. Marcus Pollock, Administrative Officer, opened the meeting by thanking all who attended the Pre-Proposal Conference on Request for Proposal to conduct a baseline study of existing land uses and economic conditions in the critical area. He then introduced the Honorable Judge Solomon Liss, Chairman of the Commission.

Judge Liss said that this day marked a red-letter day in a sense that it is appropriate that this Pre-Proposal Conference was held on the day that the Commission managed to complete its wrestling match with the legislature. The criteria resolution has been passed by vote through the State Senate and by the House of Delegates so that the criteria, subject to certain amendments, were approved and are now in affect and will be the base from which affected jurisdictions will be operating. He stated that before any proposals were made, the conferees should familairize themselves with the criteria. He then pointed-out that this is a unique program and it is the only program, as far as he knew, in the United States in which local authorities and State regulatory authorities have taken the responsibility for governing the use of land in a very narrow strip (totalling 1,000 feet from the highwater mark) that has been designated as the Critical Area of the Chesapeake Bay. The economic effect is something that no one really knows. He said that the Commission is looking for the answer to a number of questions that were asked of the Commission during the course of the legislative hearings. The Commission was asked, "what will be the economic effect of the criteria on the economic viability of the jurisdictions that are affected by the criteria?" The criteria as adopted will affect 16 counties and 44 municipalities in the State of Maryland. He stated that the Commission was anxious to be in a position to do more than give an educated guess about the economic impact of its criteria, if and when the Commission is required to appear before the legislature during the 1987 Session. In that event, the Commission will be dealing with an entirely new legislature and many of them will have no background whatsoever in what the Commission has been trying to do over the last year-and-a-half. He said that what the Commission was looking to the contractors for was some proposals as to how to set up standards so that the effect that the criteria will have on the value of property in affected jurisdictions, can be measured. The Commission is interested in whether property values are likely to increase or decrease as a result of the implementation of the criteria;

whether tax revenues will increase or decrease, and whether the criteria's effect on the attendant industries will be positive or negative.

Judge Liss said that the Commission wants to know exactly what the predictions are as to what this program will do to land uses and economic conditions of affected jurisdictions. The contractors will not be told specifically what to propose insofar as budget is concerned; they will have 14 months before a definitive report is submitted to the Commission. Judge Liss pointed-out that the successful contractor will be expected to defend their findings before the legislature and that they can be pretty rough.

Judge Liss then commended the Commission staff for the hard work they had done with the Legislature, and thanked everyone again for attending.

Marcus Pollock then explained that the objective of this Pre-Proposal Conference was to try to give the potential contractors as much information as possible about what the criteria say, what they mean, and the implications for economic impact, and to review the provisions dealing with procurement. He then asked the members of the staff to make certain presentations about aspects of the criteria. He introduced Dr. Sarah Taylor, who serves as the Executive Director for the Commission and who would be speaking about the history of Coastal Zone Management, the history of the Commission, its legislative mandate, the Chesapeake Bay Initiatives and the relationship with those initiatives and the criteria, and current legislative activity. Secondly, he introduced Dr. Kevin Sullivan, the Commission's Scientific Advisor, who has been working with resource conservation particularly as it regards habitat protection. Thirdly, he introduced Charles Davis, who serves as the Natural Resource Planner for the Commission, who would be speaking about the implications and impact of development criteria. He then asked Dr. Taylor to begin.

Dr. Taylor explained that in Maryland, in 1972, the Coastal Zone Program set out to begin to raise consciousness at the local level about the value of conserving coastal resources. Contracts were provided to the 16 coastal counties to help conserve and manage those resources. She said that in those contracts, some of the first inklings of what is known as the criteria came into being such as the use of setbacks, recognizing important habitat areas, recognizing areas along the coastline that have experienced more erosion than others, and other types of resource assessments that perhaps local governments might not have done had it not been for the Coastal Zone Program. Over a period of time, Maryland began to find that while the contracts did somewhat enhance the recognition of coastal resources, this recognition was not being done in a uniform fashion, or in a way in which you could say that your local neighboring jurisdiction was carrying-out its planning and zoning activities with the same care and consideration that were given to those coastal

resources. That, plus the fact that it has been recognized by a number of Bay users, the Bay has declined particularly in the production of fisheries, both in species and number, with respect to areas of the Bay becoming more anoxic, and with respect to over-enrichment with nutrients, particularly in the upper part of the Bay. All of these indicators began to signal to the government that something more had to be done. And that was the patchwork approach that had been taken, and which was admirable at the time. In 1979 - 1983, not only were there studies conducted to depict what was happening on the Bay, but those studies resulted in an agreement in 1983 in which Maryland, Virginia, the District of Columbia, Pennsylvania, and the Environmental Protection Agency all signed so that they would move one step further and would begin to make some sort of common approach toward the Bay. That led to 1984, which was the first "shot in the arm" so to speak, with respect to the State of Maryland and its Bay Initiatives. She said that during this period, there were various areas focussed upon, for example: point source pollution, non-point source pollution, resource restoration, protection of land resources, resource enhancement and an environmental education and a regional data center. The Critical Area Commission and the Critical Area Law which created it in 1984, actually falls under the protection of land resources. In 1984, when the Law was passed, it basically recognized that there was a very sensitive area of 1,000 feet from the mean-high-water-line of the tidal waters of the Bay or from the landward side of tidal wetlands. The Law stated that this 1,000-foot area had to be looked at with respect to development, and that Land use simply could not occur in that area as it indeed had occurred in the past. The Commission was given a very important charge--to minimize impacts to water quality, to conserve fish, wildlife and plant habitat, and to also recognize that growth will occur and that policies had to be developed that would accommodate this growth. It was recognized that the sheer number and movement of people in the Critical Area was causing environmental impacts. Conserving natural resources and accommodating growth was probably one of the most difficult balancing acts that the Commission has had to do.

The Commission has 25 members. They vary as people with broad-based interests, from oyster culturing to owners and operators of marinas, to the Secretaries and Deputy Secretaries of the Departments that have long been familiar with the Bay. In October 1984, when everyone met each other for the first time, a good bit of education about the Bay and its resources had to be done as well as education concerning the Critical Area. In February of 1985, the staff and the Commission launched into the great criteria development which took approximately four months. The Commission divided itself into three special workgroups. One workgroup dealt specifically with development and all of the aspects thereof. The second group dealt with resource utilization which was specifically focused on agriculture, forestry, sand and gravel, and the identification of natural areas. The third group was the "If you had your druthers

group". And that is if nothing else is listed in the Critical Areas and you had all the resources there that you wanted to identify, to conserve and protect, what would be the management criteria that you would provide in order to reach that goal? It is that mix and that blend of people in addition to the experts that the Commission called in from the industry, the forestry, agriculture, development and sand and gravel experts at various State and privalte levels. Six public hearings were held before the criteria were written, followed by another nine public hearings, after which the criteria were reviewed. All of this culminated in what has been reported as the Commission's regulations. Dr. Taylor said that she hoped that the Commission will be able to have one of the strongest baseline studies and one of the strongest economic assessments ever.

Dr. Taylor explained what will now be expected to happen now that the the criteria have passed.

She said that each local jurisdiction will let the Commission know within 45 days whether or not it intends to develop its own Critical Area Program. We are hoping that everyone does this. Because if they don't the Commission is required under the law to develop their program for them and to some counties that would be a fate worse then death. For the staff it would be a fate worse then death because we are very small, and for us to be able to accomplish the program development for everyone, we are going to need much assistance. But, assuming everyone goes ahead and develops the program, sixteen counties and 44 municipalities will begin to do inventories, field checks, and maps, and they will begin to take a look at ways in which they can reduce the loss of protective land uses such as agriculture, forestland, and when they begin to do this they will then have to change the zoning ordinances, the subdivision codes, comprehensive plans, all the instruments that enable them to carry out their zoning and planning functions now. The Law provided each jurisdiction two-hundred-seventy days initially to develop this program. If each jurisdiction chose to develop their own program and have shown that they have accomplished a good bit, but need more time, another one-hundred-eighty days has been given in the Law for the program to develop. At the close of this time frame all of the local jurisdictions are to submit to the Commission their completed programs and the Commission is to hold a hearing in each of the local jurisdictions, (at least one hearing and in some cases two, to have the constituents of that jurisdiction and the local planing and zoning officials of that jurisdiction get their thoughts on the programs). The hearings and the decisions must be rendered by the Commission in 90 days. The Commission will have very specifically appointed panels from its members, that will go to the local jurisdictions to conduct the hearings. Dr. Taylor said that it is within 760 days, after the aproval of the criteria, that all plans are to be in an operative position. In other words, the local jurisdictions will be carrying them out. It is only when the criteria are not being carried out and when the Commission hears of instances of projects that do not conform

to the approved Local Program that the Commission has the power of intervention.

Dr. Taylor remarked that the Critical Area Program is a viable program and one which everyone has anticipated not just to be a four-year shot, but one in which the conscientious efforts of coastal management and future land use planning will continue. It is one in which funding is intended to be provided to the local jurisdictions to enable them not just to develop their programs but also serious consideration needs to be given by the Legislature, to help the affected jurisdictions with the implementation of programs because, after all we are dealing with small areas such as Hillsboro and Sharptown, and to large areas such as Salisbury, where personnel working in planning departments varies from one person who comes in one day a week and handles all the affairs of that municipality to a fully-fledged staff in other municipalities. Every four years the Commission will be looking at the status of these Critical Area Programs committed to by the local government. Dr. Taylor suggested that when the contractors are looking at their economic baseline studies and analyses to develop for the Commission staff, to please keep in mind that the staff is going to have to have a tool which can not only be used now, but one that could be used for long-term monitoring of local Critical Area Programs.

Marcus Pollock then asked Charles Davis, Natural Resources Planner to make his presentation on development criteria.

Charles Davis showed a map of St. Mary's County to give a better sense of what was being spoken of, (the 1,000-foot Critical Area). He explained that it was one of the Commission maps and does not have keys to explain color codes. The colored areas give a sense of the area that the Critical Areas criteria are targeting. He explained that the colors in the back, (the red areas on the map) represent urban type areas (urban built up areas), the green areas represent forest lands and agriculture lands and there might be a speck or two of yellow which represents barren land. From county to county this area varies though. He then showed a map of Somerset County on the southern Eastern Shore. He explained that the area that is impacted because of wetlands is a little different in character, from that of St. Mary's county and that there are fewer red areas on the map, there are also less urban areas built up. The point to be made is that from jurisdiction to jurisdiction the kinds of local programs will be based on the kinds of existing land uses. He pointed-out that the differentiation of local programs is just one of the dilemmas that the staff ran into in trying to assess the kind of economic impact the Commission's criteria was going to have.

He then said that he wanted to speak briefly about the role of the Commission and then discuss the specific criteria that address development, and also speak about the context of the role of the Commission, particularly the management strategy that the

Commission has developed.

Mr. Davis said that it was mentioned previously that the Commission's role is to develop criteria that local governments will use in developing their own programs. So, unlike some other similar State regulations, when these regulations become effective, people who are developing land will have to comply with the criteria indirectly. So this is another factor that makes the economic assessment difficult. When the legislators ask "what impact will these criteria have on my local government", there was no way the Commission could answer that because until local jurisdictions take the criteria and tailor them for their own jurisdictions, the impacts are uncertain (other than the gross impact). He then spoke about the management strategy that the Commission developed. As was mentioned earlier, the Commission was charged to protect water quality, fish, wildlife and plant habitat and, on the otherhand, to accomodate growth. So one of the first things that one of the Commission's subcommittee's did was to look at the various land uses of the Critical Area around the State. What they found obviously is that in this State, we have urban areas such as Baltimore City, Annapolis, Cambridge, and Salisbury, which are areas that are intensely used along the shoreline, and that Maryland is benefiting highly from these areas because of their economic development. Certainly the criteria in their final form should not be such as to hurt the economic benefits for the State. On the other hand there are other resource areas around the State, shoreline areas dominated by forestland, agriculture land, and open space that are providing other benefits to the State of Maryland.

Mr. Davis said that the Commission developed a strategy where it is asking the local jurisdictions to identify, within its Critical Area, three different types of landuse categories: Intensely Developed Areas, areas of Limited Development, and Resource Conservation Areas. So that the kinds of things that the Commission expects to happen in a municipality or an intensely developed area within the county are different than the kinds of things that the Commission is expecting to take place in more rural parts of the county. For example, with Intensely Developed Areas the main point is to decrease pollution from non-point sources. Mr. Davis said that there are other criteria that address habitat protection areas that Dr. Sullivan will discuss later in his presentation. He said that there exists other types of biological enhancement in urban areas which have positive benefits to water quality and wildlife habitat, as well as the urban environment in general. There are statements about promoting public access, locating ports and industry, and clustering development in the process of developing intensely developed areas. In the criteria there are also general guidelines for local jurisdictions to use when identifying those kind of areas.

He said that the next intensity of land use is one which the

Commission calls Limited Development Areas. They are those areas which are not dominated by forest and agriculture, yet these areas have housing densities of less than 4 dwelling units per acre, but more than 5 dwelling units per acre. These areas would be identified as open, suburban settings. There is a lot of this type of development around the Bay's shoreline. In those types of areas the Commission is saying that it is appropriate to have additional development. But for these areas there are some specific criteria that relate to the habitat protection areas, impacts to streams, and appropriate wildlife corridors that provide for continuity of habitat.

Another category deals with the Resource Conservation Areas. In those areas the Commission is promoting restrictive development to very low densities. That is, one dwelling unit per 20 acres. There are other criteria requiring habitat protection areas to be inspected and other criteria that are relevant to the kinds of uses that are currently occurring, such as forestry and agriculture. Those are some of the overall management strategies. Mr. Davis said that one of the first steps that the local governments will be taking is to look at the Critical Area and identify their land according to those three categories. So it is more than perhaps a lot by lot classification.

Mr. Davis remarked that there are probably three other important points relative to development and they deal with a growth allocation, grandfathering and water dependent facilities. Once a jurisdiction identifies these three areas it is not meant to be a static management map. The Commission has allowed for certain amounts of Resource Conservation Land to actually be designated for intense use, that is referred to as the growth allocation. The criteria allow local governments to identify up to 5% of its Resource Conservation Area for future growth as Intense or Limited Development Areas. What that means is a county such as Anne Arundel which has less Resource Conservation land than some other counties, will also get less growth. In counties such as Somerset County (which, like other counties, will have a one house per 20 acre limitation as a program requirement in Resource Conservation Areas) anyone who owns a lot and currently does not have a house on the lot will be allowed to build a house on that lot, under the grandfathering criteria. There isn't a limitation relative to people who purchase lots and now want to build. There may be other limitations to that density or the kind of development that can take place in Resource Conservation Areas relative to some of the bills that are in the State legislature right now. (A synopsis of bills were sent to contractors previously). There are other things that are grandfathered right now such as subdivision plans provided that they comply insofar as possible with the criteria.

Dr. Sullivan was then asked to speak. He stated that one of the targets of the Critical Area Law is to preserve fish,

wildlife and plant habitat. There are basically five areas that the Commission helps with respect to habitat that is worthwhile to identify and protect. The first one is buffers. He said that the Critical Area Law requires that buffers be established as part of the Critical Area Program. The Commission had to deal with what roles buffers would play, how wide they should be and what kinds of activities could occur or not occur within them. So the Commission established a minimum 100-foot buffer within which no new development activities could occur. He explained that development activities meant roads, structures, septic systems, impervious surfaces, or any kind of facility. That is a minimum 100-foot buffer. Where there are adjacent wet soil or steep slopes, the buffer should be extended in some areas 200 or 300 feet to protect significant resources. The criteria contain provisions for instances in which the buffer can be modified such as for the cutting or clearing of trees. The Critical Area Law says that agriculture must be allowed to exist within a buffer area. Therefore, existing agriculture can continue to occur. The Commission also requires existing farms to set up 25-foot filter strips for at least one interim period.

The second area is non-tidal wetlands. The criteria require that those wetlands be identified. They already are for the most part, by the Department of Natural Resources. Protection measures specified for those areas provide for 25-foot setbacks on new development activities or for any kind of activities that would disturb the wetlands. There are also provisions for new development to examine potential hydrologic impacts and impacts to fish, plant, and wildlife.

The third area is threatened and endangered species. There are currently only three threatened and endangered species in the Critical Area. They are: the Delmarva Fox Squirrel, Bald Eagle and the Peregrine Falcon. In this criterion, there is another category called "species in need of conservation", none of which have formally been designated yet. The Maryland Natural Heritage Program is developing a list of such species and when that is done, the list will be approved by the Secretary of the Department. Protection measures will then be required in the Critical Area. Dr. Sullivan said that the approval of that list would likely be made prior to the time that responses to the RFP are required.

The fourth is a general category called "plant and wildlife habitat". Here the Commission tried to single out those habitat areas of special significance within the Critical Area. They are: colonial waterbird nesting sites, waterfowl concentration areas, riparian forests, and large forest areas that are breeding sites for forest interior dwelling birds.

Lastly, the criteria require that development activities include measures to minimize impacts to anadromous fish spawning waters.

Dr. Sullivan then explained that Chapter 3 relates to the kinds of activities that occur within the buffer. Basically the Commission established a principle that the only kinds of development that can occur within the buffer are those associated with water. The criteria set forth the process by which local governments are to identify areas suitable for water-dependent facilities. There are also regulations on where such development can and cannot occur. For example, the new commercial marinas are not allowed to exist in areas that have been identified as Intensely Developed or Limited Development. New commercial marinas cannot be put in Resource Conservation Areas. However, existing marinas can expand in such areas. The other part of water-dependent facilities is that certain kinds of facilities cannot be constructed in the buffer unless local jurisdictions seek an exemption from the buffer requirements. What that means is that the Commission recognizes areas such as Salisbury or Baltimore City and some places in northern Anne Arundel County where the existing kinds of development is such that a buffer cannot perform its water quality and habitat protection functions. Therefore, the Commission has said that in those cases, a local jurisdiction can come to the Commission and request an exemption from the buffer requirement.

Chapter 4 has to do with shore erosion and the intent of the criteria are twofold. The first is that the Commission felt that it is undesirable for shore erosion protection measures to be installed where there is no erosion taking place. The Commission is saying that if you don't have shore erosion you can't put in erosion control. The second is that non-structural erosion control measures should be used wherever they are practical and effective.

Chapter 5 has to do with forestry protection. There is one overriding requirement and that is that cutting of forest in areas greater than 1 acre occurring in one year needs a forest management plan developed by the Forest, Park and Wildlife Service or a certified private forester. The other part of the forest criteria is really directed at local jurisdictions and the intent is to maintain or expand forest cover in the Critical Area.

Chapter 6 has to do with agriculture and the main requirement is that farms in the Critical Area are required to have, within 5 years of the effective date of the criteria, a soil conservation and water quality plan, and Best Management Practices. The Commission is aware that it is unlikely that all farmers in the Critical Area are going to be able to have this done for them and implemented within 5 years, so there is some flexibility there. There is also concern recently about the availability of State and federal funds to have these plans implemented.

In Chapter 7, surface mining, the criteria address surface mining in two ways. One existing surface mining operations have

to setback 100 feet from the edge of tidal waters or tributaries to the extent that they can. That means existing operations have to observe the minimum 100-foot buffer. New surface mining operations definitely have to observe the 100-foot buffer. It is also specified in the criteria that certain areas are to be declared unsuitable for mining. These are primarily the habitat protection areas listed in Chapter 9. Chapter 8 asks local jurisdictions to identify areas within the Critical Area where natural parks could be established and used in an educational context to illustrate principles of estuarine ecology.

Dr. Sullivan concluded that the Commission staff has developed a handbook or guide to the criteria and that copies would be made available.

Mr. Pollock then stated that there would be a question and answer period and anyone having any comment may speak.

The question was asked how the contractors are going to assess the economic cost of benefits of the Critical Area criteria when they are being asked to look at one part of the solution?

Mr. Davis replied that given a specific farm plan, a farm soil conservation and water quality plan by design would be done for the entire farm. But you are asking questions bigger than that, he said, in that you are speaking about the water quality impacts for non-point sources which are coming throughout the watershed, not just this little 1000-foot ridge. He said that he didn't think that there is any Commission member who believes that this 1000-foot area in and of itself is going to clean up the Bay. One of the things to keep in mind is the Critical Area Program is just one of the State's initiatives in a broader package of initiatives meant to clean up the Bay, and that some of the other initiatives include additional staff for the Maryland Department of Agriculture to assist farmers in targeted areas that are known to create non-point pollution in the upland areas. There are some areas targeted, but it is certainly correct in stating that this program will not solve all the non-point source pollution problems.

Mr. Davis added that the different types of BMP practices have known efficiencies associated with them. Because of the nature of non-point pollution, it is very difficult to examine a site and then prescribe site-specific remedies that will have exact and precisely known effects. Consequently, the accepted management strategy is to identify the problems of a site, and prescribe practices with the known efficiencies which are referred to as Best Management Practices. The beneficial effects of those practices are then assumed, because they have been known to work at other locations. For example, even in urban areas where pollution is often outstanding, to measure site by site what the particular sources of non-point pollution are, (that is, from the ground surface or whatever the case may be), is almost

impossible. This has been the approach to date for addressing non-point source problems. Part of the question may be how much land is already out there that does not have these practices or equivalent land husbandry practices in place compared to predicted loadings and what additional practices would be required to bring everything up to a certain level of loading. Mr. Davis agreed that part of the problem is asking those same questions. Even just knowing how many separate farmers are in the Critical Areas is useful and is something we asked the Dept. of Agriculture and they just took their best guess. The question of benefits is certainly one of the questions that need to be answered and the methodology of answering that question is something the Commission hopes the contractors can help with.

Judge Liss then added that one cannot say for example, that 15% of the economic cost of this pollution problem can be chargeable to the Critical Area and 85% will be chargeable to the rest of the landmass that is adjacent to the Chesapeake Bay and one is not able then to say then that 15% of the economic benefit is attributable to the program and 85% to the other. One is just not going to be able to do that as closely as you would like to be able to. And from a practical standpoint, he said that he didn't think one should, because there is no way really of determining that. The only thing one can do, is to say this is what the program is likely going to cost to implement and these are the benefits that are going to be gotten from the program and one can get at least the general idea of what one has gained as a result of the investment that is made, that is about as far as one can go.

Mr. Davis added that some of the discussions that the Commission staff had when the whole program started, in looking at the bigger picture, concluded that obviously if one were to look at a particular nutrient loading into the Bay, its sources are diverse and by design the Commission has been asked to look only at this 1000-foot area. From the start there is a handicap in that the entire system is not being looked at. Nutrient loadings from other sources are being addressed to a degree by the other programs. But how the dollar value of what is being proposed for a farmer in the Critical Area plays against the dollar value of cleaning up the same nutrient from a point source in the sewage treatment plan, has not been coordinated in the development of the program.

It was then asked if the Commission grandfathered the ability to build within the the buffer zone?

Mr. Davis answered yes, but only if there is a recorded lot. For instance, the buffer area Dr. Sullivan spoke about is 100 feet away from the shoreline. And if there is an existing subdivision and there is an unbuilt lot that is 100 feet deep and 60 feet wide that would also be grandfathered. The Commission is asking the local jurisdictions to come up with procedures that they would use in the process of approving a site like that for

development so that the development complies insofar as possible with the criteria. So if it is on a 150-foot deep lot, the house might be put toward the back of the lot.

It was then asked if some statistics about the Critical Area, could be given, and how many miles of shoreline, square miles are in the Critical Area, etc?

Mr. Davis answered that there is approximately 600,000 acres. That includes uplands as well as tidal wetland areas. All the statistics that have been going around have been based on maps such as he had shown earlier. The big large blue area, for instance on the Somerset County map, is actually tidal wetlands. The statistics that have been used are looking more at land cover statistics. One of the dilemmas is that the definition of the Critical Area includes all lands under the waters of the Bay and all upland areas within 1000 feet to the head of tides. By definition you are talking about the area of the Bay as well. The area that people have been referring to as the Critical Area is approximately 600,000 acres and that includes areas that would be considered emergent tidal wetlands. The actual upland area is closer to 400,000 acres.

Judge Liss added that the Department of State Planning is the source of information on the acreage of the Critical Area.

It was then asked if the Critical Area could be expanded?

Mr. Davis answered that these criteria are to be used as program guidelines for local jurisdictions. They are broad goals to protect fish, wildlife and plant habitat and development. In the process, the local jurisdiction has the option of extending this 1000-foot boundary. This ability to expand the Critical Area creates another unknown factor in the process of developing local programs in that the extent of economic impact will depend on how a local program defines an area. They can extend the Critical Area to include a swamp as a part of their Resource Conservation Area. Some counties are talking about expanding the Critical Area just to provide certain land-use controls that they want to provide anyway. This ability to expand the Critical Area is provided for in the Law, not the criteria.

It was asked who will do the mapping of the management areas?

Dr. Sullivan answered that most of the habitat protection areas have already been mapped by the Department of Natural Resources, and will be further refined by local jurisdictions. They will take whatever base maps are available and convert them to what is appropriate and useful to them and use them.

It was then asked what would be happening during the period of performance with respect to local jurisdictions and program development?

Dr. Sullivan answered that the local jurisdictions would certainly be starting with mapping the areas that Mr. Davis had mentioned. That is, to set the basis for land-use decisions in the future. The maps are items that have to be submitted to the Commission for approval. The bases for mapping decisions are likely to vary from jurisdiction to jurisdiction. The only guidance that the Commission has given to local jurisdictions, is that they must identify the three management areas and that should to be done on some kind of neighborhood scale as opposed to looking at each individual lot and saying that it is Intensely Developed or that it is Limited Development or whatever. He said that he suspected that the mapping is going to be a fairly complex process that will vary. The only thing that should be done fairly early is to get a sense of where the habitat protection areas are. That information could be gotten from the Department of Natural Resources for the most part. They would have a general sense of the three land-use categories, a general sense of where development either couldn't occur or be restricted in its intensity. Some of the other aspects of the criteria the local jurisdictions may want to defer, such as identifying areas suitable for surface mining, forest protection criteria, etc. Mapping should be of first concern. Some counties have completed their mapping already in a draft form. Others may not be available and complete.

Judge Liss then pointed-out that he thought it pertinent for everyone to know that there is going to be a difference in the amount of cooperation the contractors will get from the local jurisdictions. Some of them when will fight tooth and nail, others will bend over backwards in order to cooperate.

There was a 10 minute intermission called by Marcus Pollock.

Mr. Pollock reopened the meeting with a summary of the conference stating that the objective of the study is to establish a baseline of land uses and economic conditions and to make some projections about the impact of the Commission's criteria on those land-uses and economic conditions. He said that Dr. Taylor mentioned very briefly that one of the things we would like to do with what you provide for us is that three to five years after local programs are developed we would have to examine what has actually occurred with regard to the impact of the criteria on local economies and land-uses. He said that he was certain that many of those who have been able to read through the RFP have noted that the Commission was not too specific in relating what kind of method or measures, or indicies should be used in order to get at the sought-for objective. He said that this was done purposefully because the Commission wanted to first create some competition and creativity on the part of the potential contractors. Secondly, the Commission wanted the potential contractors, as experts, to tell the Commission what was needed to be done.

He said that it is known that the cost to local government

of implementing and enforcing these programs will be burdensome to local government. In the development category, the Commission has heard a lot about the loss of income to these local governments, through the reduction of real estate and the associated income generated by finance and the construction industry. The Commission received one letter concerning the increased value of land related to Intensive Limited Development Area and how such taxes for those areas will increase. The Commission has a great body of literature, reports, testimony recorded during the process of public hearings and other information that would be useful in determining how to respond to the RFP.

Mr. Pollock then stated that he wanted to briefly cover a couple of the project specifications. First of which was the consultation on the sampling regime. The Commission wanted to ensure that certain geographical and political considerations are taken into account when preparing the sample of affected jurisdictions. The Commission is asking that respondents to the RFP consult with them on their proposed sample. A peer review process is required that contractors must identify experts outside of their respective organizations to comprise a committee in order to give technical oversight to the study. There is only one caveat, and that is that the Commission reserves the right to select at least two of the members of that committee.

Mr. Pollock said that many of the contractors who have taken a look at the RFP may have some idea of an alternative solution to meeting the objectives which have been set forth. He said that the Commission welcomes those proposals, and that if the contractors would like to submit multiple proposals, they would be accepted as well. The only note here is that each one of the proposals will be given an independent review.

Mr. Pollock then discussed procurement regulations that have to do with equal opportunity. One of these was the sub-contractual provision which requires that if the contractors are to sub-contract work out that is associated with this contract. They must give at least 10% of the contract to a minority enterprise. The definition of minority is included in the definition section, blacks, disabled, and others. An additional point under the equal opportunities provisions is that additional points may be awarded to potential contractors for the level or percentage of minorities which they have in the respective organizations. The Commission will use the overall percentage of minorities within the organization. (This provision has since been eliminated). (Please see Section N.E.p.16 RFP 0013 and also attached letter dated May 8, 1986). There are a couple of forms which you must use, which are located in the back. These forms are used to certify a good faith effort in identifying and using minorities as subcontractors. There is a form that is required which must be used to certify that the potential contractors could not find qualified minorities as subcontractors. The definition of a minority firm is included in the RFP. There is

also a federal form 60 which must be used to identify the candidate's cost associated with this project.

Mr. Pollock then pointed-out that the process for selecting the successful contractor is explained in the RFP. He said that the Commission is in the process of considering a slate of committee persons who will review those proposals.

Mr. Pollock then asked if there were further questions.

It was asked if, in the proposals, there would be a requirement for the contractors to propose the review committee themselves at that time?

Mr. Pollock answered affirmatively and that the Commission would also like to reserve the right to have two persons that the Commission selects.

It was then asked if, on the peer review, will they have a contract?

Mr. Pollock replied that he did not believe that there would be a contract. However, it is customary to offer an honorarium to such persons, and the arrangements are being left to the decision of the contractor.

It was asked what was the level of effort for this project?

Mr. Pollock replied that the level of effort for this project is between 1.5 to 2 person/years. (This has been reduced not to exceed 1.5 person/years).

It was asked what the four principal skills are that are necessary to perform the tasks associated with this project?

Mr. Davis replied that one of them would be track record of the personnel involved in the study in the relevant fields.

Judge Liss added that the Commission is looking for persons who can give us the information as to what the cost and benefits will be for this program.

It was then asked how is the number of studies mentioned and legislative information that is available, accessed?

Mr. Pollock answered that those are all public documents.

It was asked if there are names, titles or where they are located?

Mr. Pollock answered that they would be made available.

It was asked to what degree are data going to be provided?

Mr. Pollock answered that that was left up to the

contractor.

Mr. Davis added that there are some general statistics to be dealt with, as noted before, concerning the area of land within each jurisdiction, the kind of data that he had shown on the map, such as broad land-use patterns.

It was asked how many farms occur within a Critical Area?

Mr. Davis replied that based on estimates of the Department of Agriculture, 1600-1800 farms occur in the Critical area.

It was then asked if it can also be assumed that any computer programs that might be involved become State property?

Mr. Pollock replied affirmatively.

It was asked if between now and the proposal date, the Commission will be available for discussions?

Mr. Pollock answered that any additional questions after this point are requested to be in writing. He said that the Commission would prefer not to have any more meetings.

The meeting was then adjourned.

The following questions were asked pursuant to the Pre-Proposal Conference:

Question: Who and how many individuals should comprise the Peer Review Committee? How will these individuals be paid and how much?

Answer: The Peer Review Committee should be comprised of individuals outside the contractors' organization having expert knowledge of the technical and other aspects of the contractor's proposal. There has not been a number established for the size of the Committee; however the Commission reserves the right to select two of the persons on the Peer Review Committee. Customarily, persons providing the peer review function are offered an honorarium which is commensurate with experience and training in a particular field. In any case the contractor has latitude to establish whatever arrangements are necessary to get the most qualified individuals to participate in the review of the study. The contractor should include the cost of convening this panel in the cost proposal.

STATE OF MARYLAND
CRITICAL AREA COMMISSION
DEPARTMENT OF NATURAL RESOURCES
TAWES STATE OFFICE BUILDING
ANNAPOLIS, 21401
(301) 269-2418

TO: Critical Area Commission

FROM:  Sarah Taylor

SUBJECT: Subcommittee Meeting Schedule - March

DATE: March 8, 1985

1) Resource Based Activities (S. Taylor, staff)

March 13th

10:00 a.m. - Md Dept of Agriculture Building
Room 110
50 Harry S. Truman Parkway, Annapolis, Md.

10:00 - 12:00 a.m. - Sand and Gravel
1:00 - 5:00 p.m. - Agriculture
5:00 - 6:00 p.m. - Forest Practices

March 27th

10:00 a.m. - Md Dept. of Natural Resources
C-4 Conference Room
Tawes State Office Building, Annapolis, Md.

10:00 - 12:00 a.m. - Agriculture
1:00 - 5:00 p.m. - Aquaculture
5:00 - 6:00 p.m. - Sand and Gravel (and Forest if needed)

2) Development Activities (C. Davis, T. Redman, staff)

March 21st

4:30 - 6:30 - Md Dept of Natural Resources
C-4 Conference Room
Tawes State Office Building, Annapolis, Md.

March 28th

4:30 - 6:30 - Md Dept. of Natural Resources
C-4 Conference Room
Tawes State Office Building, Annapolis, Md.

3) Resources Enhancement and Management (K. Sullivan, staff)

March 15th

1:30 p.m. - Md Dept. of Natural Resources
C-4 Conference Room
Tawes State Office Building, Annapolis, Md.

SJT/jjd

cc: Ellen Fraites,
Myron Miller
CAC Staff

SUBCOMMITTEE ON DEVELOPMENT ACTIVITIES
MINUTES

February 21, 1985

Attending

Jim Gutman
Parris Glendening
Clarence "Du" Burns
Bob Price (Representative)
Mike Pawlukiewicz
Ardath Cade
William Eichbaum
Judge Liss
Charles Davis

I Subcommittee Progress

The Resource-Utilization Subcommittee met on February 13, with representatives of the forestry profession and is developing a list of criteria for forest resource management.

The Subcommittee on Resource Enhancement and Management is finalizing draft criteria for these topics: buffer areas, rare and endangered species, anadromous fish habitat and State Critical Areas.

II Role of This Subcommittee in the Criteria Development Process

Mr. Davis suggested that since the Subcommittee on Resource Enhancement and Management is defining those minimal portions of the Critical Area that are necessary to protect the aquatic portions of the Critical Area, the Subcommittee on Development Activities may wish to use the delineation developed by the Subcommittee on Resource Enhancement and Management as a basis to develop development-related criteria. Their delineations may result in two areas having different degrees of environmental significance or limitations for particular land uses. The two areas would be:

- 1) Within a resource protection zone (tentatively defined by the Subcommittee on Resource Enhancement and Management)
 - a. what uses/development activities may be allowed, and
 - b. under what conditions (location, cumulative impacts, construction standards, etc.)
- 2) Beyond the resource protection zone (but within the Critical Area)
 - a. what uses/development activities may be allowed, and

- b. under what conditions (location, cumulative impacts, existing resources, construction standards, etc.).

These specific points were discussed in response to that scenario:

1. Any use of the buffer/resource protection area should be severely limited.
2. Water-dependent uses should be allowed but only under strict environmental quality criteria that address location and design/construction.
3. The resource protection zone/buffer should be considered as a "last defense." Regulating the "level of development" (beyond the resource protection zone) so that impacts on the buffer are negligible should be our objective—so that shoreline areas can function as valuable habitats rather than be the fringe of a disturbed community.
4. An outright prohibition of development in certain shoreline areas will raise the "taking" issue.
5. The Commission may find that it is desirable to limit development--not based solely on the suitability of the land for development--but also to maintain certain land-uses that are considered desirable for the long-term health of the Bay and habitats within the Critical Area.
6. Throughout the shoreline of the Bay, criteria should allow nodes of development provided that they develop under strict guidelines. Only water-dependent uses should be allowed in the resource-protection zone of these nodes.
7. The nodes of development should be limited to "existing developed areas".
8. The criteria should recognize the capability and "good faith effort" of local governments to implement plans based on the intent of the Chesapeake Bay initiatives.
8. There is a specific need of this Subcommittee to resolve the question about the Critical Area:
 - a. How much development is too much?
 - b. Is there an accurate definition of "development" that could be used in criteria to give guidance to local governments concerning an acceptable intensity of development, and be used to define "existing developed area"?

III Discussion of Policies

Bill Eichbaum presented five general land-use policies for the Subcommittee to consider as goals for development activities in the

Critical Area. Subcommittee members suggested minor changes to these policies and agreed to use these policies as a basis for future discussions. The staff was directed to interpret the feasibility/limitations of these policies. Discussion will continue at the next meeting.

Two policies were generally agreed upon by the Subcommittee. They are:

- 1) Development activities in the shoreland areas should be limited to water-dependent uses.
- 2) Certain land uses are intrinsically too intense to be allowed anywhere within the Critical Area.

IV Water-Dependent Uses

Charles Davis presented a list of water-dependent uses (derived primarily from Anne Arundel County Zoning Regulations) so that Subcommittee members could see the types of uses that must be considered when developing criteria for a resource protection zone along the shoreline.

SUBCOMMITTEE ON DEVELOPMENT ACTIVITY

Minutes

February 28, 1985

Attending

William Bostian
Clarence "Du" Burns
Ardath Cade
Charles Davis
William Eichbaum
Jeff Frank
Parris Glendening

Jim Gutman
Frank Gerred
Bob Lynch
Bob Price
Gene Lauer
Tony Redman

The Commission Subcommittee discussed process for review and approval of minutes. At Jim Gutman's suggestion, there was consensus that minutes distributed at each meeting should be adopted or adopted with modifications at the beginning of each subsequent meeting.

Tony Redman then outlined the relationship between the legislative goals of the Critical Area legislation and draft policies prepared by staff. Staff requested that S-C members review and comment on those policies that were distributed in draft form for the next scheduled meeting of March 7. Mr. Gutman underscored the terms preserve, protect and enhance as operable terms in Criteria development.

The discussion of policy prompted a number of comments concerning the need for the Subcommittee's decision relative to uses and activities that should or should not be permitted in the Critical Area.

Bill Eichbaum suggested that we discuss, refine and agree on those six criteria or policies derived from his memorandum dated February 11, 1985. After discussion, these policies were adopted with revisions which will be incorporated by staff for the next meeting.

Subsequent discussion focused on a number of topics prompted by interest in determining what kind or types of land use should be permitted or prohibited in the Critical Area.

While policies suggest certain uses should clearly be prohibited within the Critical Area (e.g., landfills, hazardous waste storage and disposal, etc.), other development activities need further consideration.

Two development activities wherein the Subcommittee requested more information included airports, and dredge spoil disposal sites, to determine their acceptability within the Critical Area. Staff agreed to follow-up in getting information on these uses.

Staff indicated that they would begin preparation of draft criteria for water-dependent uses reflective of the policies agreed on by Subcommittee members.

SUBCOMMITTEE ON DEVELOPMENT ACTIVITIES

Revision of Policies Derived From
Discussion on February 28, 1985

- I. Except as provided below, existing forest, wetland and natural wildlife habitat is to be preserved.
- II. Future development activity within the Critical Area should be largely limited to areas of existing development.

--Any change in the use of developed land must provide for a reduction in pollutants and increase in habitat over that associated with the prior use (offsets).
- III. Limited areas may currently have mixed beneficial use and development, and can have further similar development under strict controls and not diminish the effects of the beneficial use.
- IV. Maritime and recreational development, although preferred in or near existing centers of development, may be provided for outside of existing developed areas if:
 1. stringent controls are met
 2. natural conditions are ideal for such use
 3. offsets are provided
 4. there is an immediate demand for such facilities
 5. no adverse effects on high value habitats
- V. Under no circumstances will the following uses be permitted:
 - 1) non-maritime heavy industry
 - 2) transportation facilities and utility transmission facilities except those necessary to reach water-dependent uses, or where regional or interstate facilities must cross tidal waters
 - 3) solid or hazardous waste, collection, storage and disposal facilities, sanitary landfills and sludge handling, storage and disposal facilities
 - 4) existing permitted facilities referred above or expansion of such facilities shall be subject to permitting standards and requirements of the Maryland Department of Health and Mental Hygiene
- VI. A buffer zone should be established within which agriculture can be conducted only with best management practices.

(Revision: February 28, 1985)

to enhance man's visual reaction to wildlife and the environment.

If roads or parkways cross the migration routes of reptiles and amphibians, heavy losses will result during the breeding season. Providing tunnels or culverts underneath the road enables these animals to have safe passage. This is done in Bavaria and Switzerland. Tunnels underneath highways at deer crossings have been helpful in preventing accidents. But deerproof fences may be more effective, generally.

In the case of existing streets and highways, maintenance of vegetation through mowing and the selective use of herbicides affords opportunities to benefit wildlife. Thus, the delay of roadside mowing until mid-June or later will save many bird nests from destruction and also will benefit birds and mammals that use the cover along roads and parkways.

In the inner city, benefits to wildlife will depend in large part upon the types of trees and shrubs selected for planting (see Appendix B). The American Horticultural Society, with financial support from the U.S. Department of Transportation, has developed an informative manual on transit plantings. This manual, arranged to show 10 plant hardiness zones encompassing all of the contiguous 48 states, recommends plant species adapted for use at downtown bus stations, bus stops, and suburban terminals.⁹² Again, consultation with biologists or referral to the appendices and recommended readings will help in selecting plants most useful to wildlife.

Much additional information on highway-wildlife relationships and on planning and management of highways to benefit fish and wildlife is available in a 1975 state-of-the-art report published by the U.S. Department of Transportation.⁹³

AIRPORTS

Because wildlife, especially birds, at or near airports can be hazardous to human life and property, planning and management in this instance are directed toward making airports unattractive to wildlife. This means that environmental planners involved in developing the initial management strategies, as well as the resident planning staff responsible for their implementation, should, instead of providing water, food, and shelter to encourage wildlife, try to discourage wildlife by taking the opposite approach.

Between 1960 and 1972, bird strikes on aircraft in North America cost more than 100 human lives and property damage of more than \$100 million. Three-quarters of civil aircraft collisions with birds occur at or near airports, usually airports located near cities. Gulls are involved in about half of all bird/aircraft impacts.

Although presently against the law in many states and municipalities, open dumps near airports formerly contrib-



Bicolor lespedeza, used here in a woodland edge planting, could also be used along a highway.

uted greatly to the bird/aircraft hazard. Dumps can still be a problem if the airport is located between a dump and a water area where gulls may concentrate.⁹⁴

One investigator has reported that large numbers of gulls have been attracted to metropolitan areas by dumps and fish wastes from fish-handling and fish-processing plants. He states that as long as gulls are attracted to metropolitan areas, they will congregate at the relatively undisturbed parts of airports, which often are close to dumps because both are placed on marginal land, especially marshland. He found that the dumps attracting the largest number of gulls provided an open area, a large flat surface for loafing (such as a sanitary landfill), a fresh water supply, a lack of trees at the edge of the dump, and a lack of dogs. Pig farms also attract gulls, but at pig farms trees were less important and water more important.⁹⁵

But gulls are only part of the problem. Accidents may be caused by other birds and other types of wildlife. Thus, blackbirds and starlings, when they roost at or near airports or when their flight lines cross runways and approach areas, may be ingested into turbine engines. For this reason, it is well to avoid having marshy areas nearby or dense vegetation such as pine plantations where large flocks of birds roost. Thinning a pine plantation also will reduce its attractiveness to birds.

In locating new airports, consideration should be given to the soil type, drainage conditions, type of vegetation present, and land uses in the surrounding areas. Ideally, the airport should be on land with a low capability for agriculture and wildlife. Preferably it should be on sandy land with good drainage. The land should not harbor

92. American Horticultural Society, *Transit Planting: A Manual*, undated, 156 pp. (Urban Mass Transportation Administration, U.S. Department of Transportation, Washington, DC 20590.)

93. Daniel L. Leedy, *Highway Wildlife Relationships. Volume I. A State-of-the-Art Report*, Offices of Research and Development, Federal Highway Administration, U.S. Department of Transportation, 1975, 193 pp. (National Technical Information Service, Springfield, VA 22161.)

94. Victor E. F. Solman, *Influence of Garbage Dumps Near Airports on the Bird Hazard to Aircraft Problem*; Paper presented at the National Conference on Urban Engineering Terrain Problems, Montreal, Canada, May 7, 1973, 8 pp.

95. W. H. Drury, "Results of a Study of Herring Gull Populations and Movements in Southeastern New England," pp. 207-219 in *Colloque—Le Problème des Oiseaux sur les Aéroports* (Paris: Institut National de la Recherche Agronomique, 1963), 326 pp.



earthworms and other ground-loving invertebrates that attract birds, nor should it be fertile enough to produce crops that provide fruit and seeds.⁹⁶

At airports, as elsewhere, buildings attract birds. Overhanging roofs provide protection for nest construction by barn and cliff swallows and other species with similar nesting requirements. Ornaments may provide crannies and openings that can be used for bird nesting. Foundation plantings may provide berries and seeds that attract birds. Design and landscaping can eliminate all those attractions.

Flat gravel roofs, unless the drainage is carefully designed, may provide pools of rainwater that attract waders and gulls. Near some airports, flat, gravel-covered roofs of industrial buildings may hold a few inches of water and provide roosting areas for gulls. They may not be readily visible from the ground but may take off and fly into the path of aircraft approaching airport runways. In some cases, it has been necessary to ask building owners outside the airport boundary to improve the drainage on their roofs in order to minimize gull roosting.⁹⁷

Predatory birds searching for small mammals also may cause hazards at airports. Large snowy owls, for example, perch on runway marker lights at Canadian airports. One possible means of reducing such hazards is to equip potential perches with sharp spikes on the top. Perches also should be kept at a minimum.⁹⁸

96. Victor E. F. Solman, "Aircraft and Wildlife," pp. 137-141 in *Wildlife in an Urbanizing Environment*.

97. Victor E. F. Solman, "Airport Design and Management to Reduce Bird Problems," pp. 143-147 in *Proceedings of the World Conference on Bird Hazards to Aircraft* (Canada: National Research Council, 1969), 542 pp.

98. Solman, "Airport Design and Management."

Planners and developers may wish to keep in mind the following bird attractants at airfields, as outlined in a technical circular on wildlife control issued by Transport Canada.

1. Bird occurrence on airfields can be attributed to any one or all of the following reasons: water, food, shelter, safety, and nesting sites or because of an established migration route across the airport.

2. Existence of water impoundments of any size, from temporary after-rain puddles to ponds, water-filled drainage ditches, or local streams on the airport, will attract a wide range of bird species.

3. Food can be derived from garbage dumps at or near the airfield; ponds that are inhabited by small fish; tadpoles, frogs, insect larvae, or pond weeds; earthworms; insects in general; seeds; bush and tree fruits; moles, mice, lemmings, rabbits, and other animals that attract predatory birds.

4. Shelter can be found in nooks in hangars or other buildings and in trees and shrubs.

5. Certain birds will come to roost on runways where they will feel safe because the clear view of the surroundings eliminates the risk of a surprise attack by predators.

6. There may be a tendency for migratory birds to stop for a short time when migration routes cross an airfield.

7. Nesting sites will be found in or about buildings in dense growths of weeds, grass, legumes, trees, or shrubs.

With respect to airport management, Transport Canada recommends the following:

Water sources should be reduced or eliminated. This may be accomplished through drainage, preferably with covered tiled drains. Where open drainage ditches must remain, they should be cleaned regularly to remove silt, and vegetation should be chemically controlled so that the

water flow will not be impeded. Borrow pits, old quarries, and swampy areas should be filled. Leveling or shaping of borrow pits to ensure runoff should be included in the original construction contract.

Food sources should be reduced or, where possible, eliminated. Garbage presents one of the greatest problems. Extreme care is required in its handling and disposal. It should be placed in closed containers and buried. Municipal officials should be apprised of the problem so that dumps can be located where they present the least hazard.

Where airports are located near lakes or other large bodies of water, the dump should be on the same side of the airport as the lake to reduce the bird traffic across the airport.

Control of earthworms will require periodic sweeping of runways. This requirement will vary from site to site and season to season.

Elimination of food sources in ponds or wet areas also is necessary. Seeds of grains, peas, and so forth can be restricted by suitable land management practices. Bush and tree fruits can be eliminated by judicious thinning or removal of such material from the site. Retention of nut-bearing trees will retain the squirrel population, which is a deterrent to birds. Voles, mice, lemmings, and rabbits will be reduced by good habitat management and the removal of cover and food sources.

Transport Canada also recommends keeping infield grass areas free of weeds and at a height of between five and eight inches to make access to worms, beetles, and insects difficult to birds and to make the areas less desirable for resting or roosting. Grains and truck market crops should be removed from areas within 1,200 feet of

runways and replaced with hay, alfalfa, flax, and so forth, which require little or no plowing or cultivating and attract few birds. The growing of corn, oats, and sunflowers, anywhere near the airport should be prohibited."

Methods of controlling birds at airports also have been summarized by the International Civil Aviation Organization.¹⁰⁰

Information pertinent to planners and legislators regarding where to locate airports and how to regulate land use in adjacent areas to minimize wildlife hazards to aircraft has been developed by the Canadian Air Transportation Administration.¹⁰¹

Finally, a report prepared jointly by the National Audubon Society and the U.S. Fish and Wildlife Service provides maps showing the principal wintering areas of 143 species of North American birds that are considered to pose potential hazards to aircraft.¹⁰² Many of these concentration areas are in coastal regions.

99. *Wildlife Control: Birds*, Field Maintenance Technical Circular FMTC No. 4031-1, 1971, 6 pp., appendices. (Transport Canada, 275 Slater St., Ottawa, Ont K1A 0N9, Canada.)

100. *Bird Control and Reduction*, Airport Services Manual, Doc. 9137-AN/898, 1975, 52 pp. (International Civil Aviation Organization, P.O. Box 400, Montreal, Que. H3A 2R2, Canada.)

101. *Land Use in the Vicinity of Airports: Planning Guidelines for the Use of Land Outside the Airport Boundary*, 1972, 46 pp., appendices. (Aviation Planning and Research Division, Civil Aeronautics Branch, Canadian Air Transportation Administration, 116 Albert St., Ottawa, Ont. K1P 5G3, Canada.)

102. Danny Bystrak et al., eds., *Wintering Areas of Bird Species Potentially Hazardous to Aircraft*, Special report prepared by the National Audubon Society and the U.S. Fish and Wildlife Service, 1974, 156 pp. (National Audubon Society, 950 Third Ave., New York, NY 10022.)

This 10-acre lake served as a desilting basin during construction of the airport and was allowed to remain. However, water bodies near airports are discouraged since they may attract birds to cross airplane flight paths.

