

*Managing
Maryland's Growth*
Models and Guidelines

Mineral Resource
Planning

The Maryland Economic Growth,
Resource Protection, and Planning Act of 1992

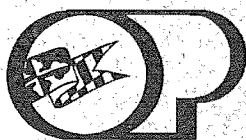
Maryland Office of Planning
Maryland Department of the Environment

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CHAPTER ONE: INTRODUCTION

This latest publication in the on-going *Models and Guidelines* series discusses planning and zoning issues for mineral resources extraction. Maryland's sand, gravel, coal, and other minerals are non-renewable rural resources that should be "protected" to ensure their eventual use.

Resource Protection

Protection is required from surface development that can preempt the mining of minerals. One significant threat to mining activities is sprawl residential development. Typically defined by homes on large lots spread over an entire tract, sprawl results in only small amounts of actual surface development. However, the pattern of this type of development preempts mining over much larger areas. Sprawl also introduces populations into rural areas and is thus a source of community opposition to mining activities.

Minerals are important to State and local economic activity and provide a substantial number of other public benefits as well. This publication describes some of the major mining activities that are the focus of local planning and zoning programs, summarizes important planning issues, and offers examples of comprehensive planning and zoning tools that can be adapted by local governments.

This booklet also features commentary on current planning and zoning approaches and discusses regulatory streamlining issues that may need to be addressed in a county's planning and zoning program to ensure that the State's mining permit process and local zoning practices are coordinated.

Long-Range Perspective

Mineral Resource Planning is not intended to be a comprehensive review of Maryland's mineral resources, or even all related planning practices. This publication discusses minerals from a broad and long range planning perspective as a means of assessing the status and future of mineral resources planning by local governments.

Mineral Resource Planning includes discussion of Maryland's coal and stone resources, but concentrates on planning for sand and gravel surface mining. Sand and gravel are vital for a sustained physical environment and present difficult planning issues because of the resources' relationship to developed areas, growth areas, and environmentally sensitive areas. This booklet also concentrates on planning and zoning at the county level of government. The reader should note that some municipalities have planning and zoning programs for mineral extraction. The Town of LaPlata is one example.

CHAPTER TWO: LEGAL AUTHORITY FOR LOCAL PLANNING

Mineral Resources Plan Element Required by Article 66B

Article 66B of the Annotated Code of Maryland is the source of authority for mineral resources planning for all local jurisdictions that exercise planning and zoning powers. (Section 7.03 of Article 66B extends this requirement to all to charter counties, including Prince George's and Montgomery). Sections 3.05 (a)(1)(v) and (a)(4) of Article 66B are quoted below:

(1) The plan shall contain at a minimum the following elements:

Identify Land That Should Be Kept Undeveloped

(v) If current geological information is available, a mineral resources plan element that:

1. Identifies undeveloped land that should be kept in its undeveloped state until the land can be used to provide or assist in providing a continuous supply of minerals...

2. Identifies appropriate post-excavation uses for this land that are consistent with the county's land planning process;

Balance Mineral Extraction With Other Land Uses

3. Incorporates land use policies and recommendations for regulations to balance mineral resource extraction with other land uses and, to the extent feasible, to prevent the preemption of mineral resources extraction by other uses; and

Where Feasible, Prevent Preemption

4. Has been reviewed by the Department of the Environment to determine whether the proposed plan is consistent with the programs and goals of the Department.

(4) The mineral resources plan element shall be incorporated in:

(i) Any new plan adopted after July 1, 1986 for all or any part of a jurisdiction; and

(ii) Any amendment or addition that is adopted after July 1, 1986 to a plan that was in effect on July 1, 1985.



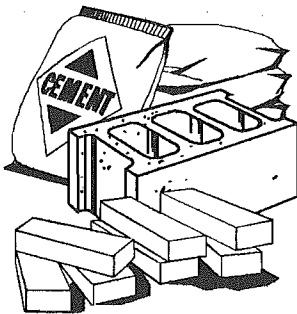
CHAPTER THREE: A SUMMARY OF MINERAL RESOURCES

The Map on page 4 illustrates the general locations of selected mineral resources in Maryland. The suitability of specific locations for mineral extraction is influenced by a number of factors including the chemical quality and physical properties of the minerals, topography and ground water conditions, access, proximity to a ready market, and the value of the land for alternative uses.

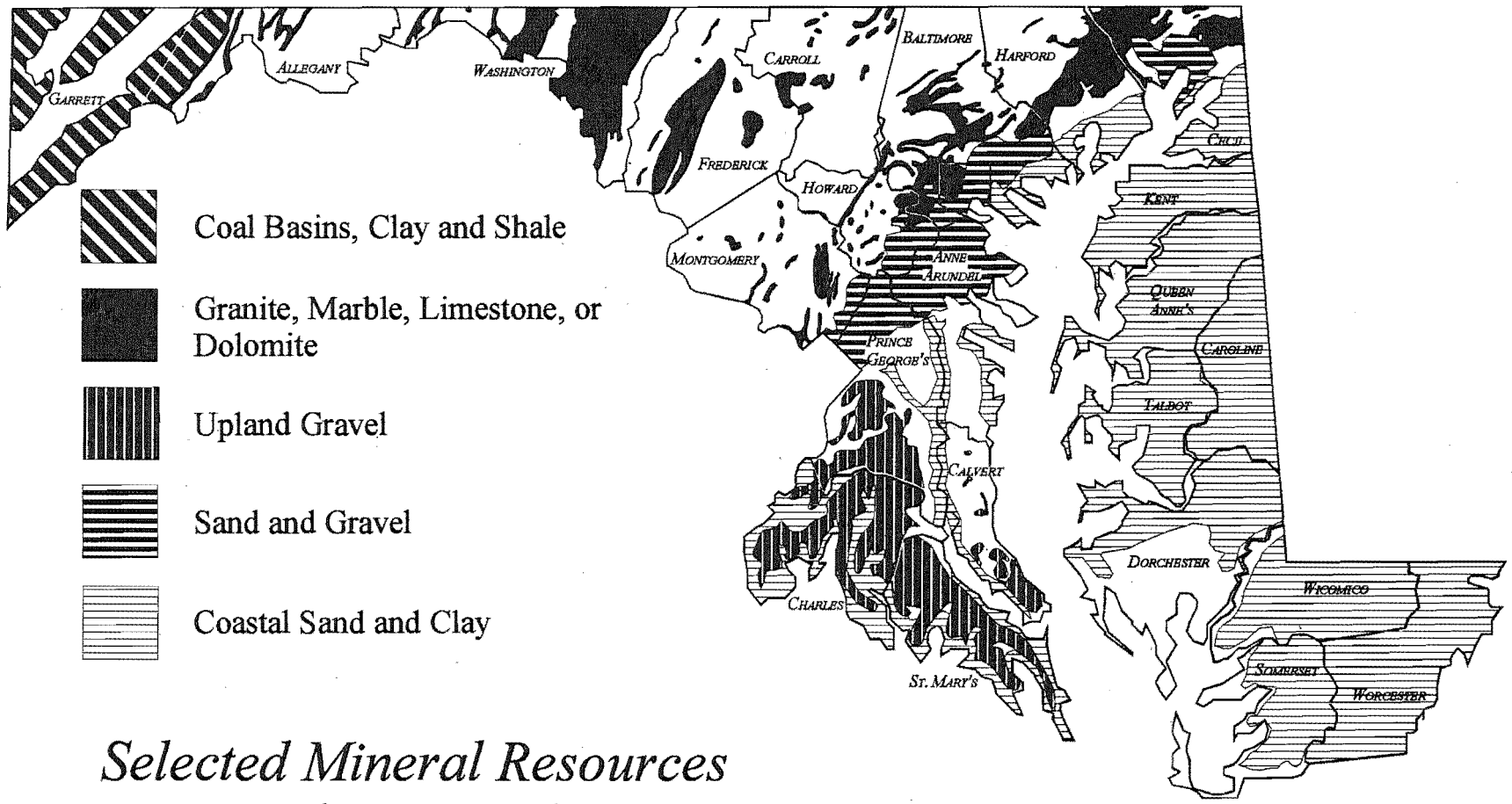
Over 90 percent of the value of mineral production in the State is associated with sand, gravel, crushed stone, and cement. Sand and gravel is located in Maryland's Coastal Plain, with the best deposits found on the Western Shore.

Central and Western Maryland contain materials used to make crushed stone, including marble, granite, limestone, and dolomite. While the region's marble and granite are important for their physical properties, limestone and dolomite are important for their chemical properties, which are marketed for the production of lime and cement.

Clays and shales occur throughout the State, ranging from unconsolidated clays in the Coastal Plain, to consolidated shales in Western Maryland. The western region of the State is also the location of mineral fuels including coal and natural gas. Finally, there are several miscellaneous deposits throughout Maryland including talc, soapstone, high-silica sand, greensand, and diatomaceous earth. The locations and uses for selected mineral resources are listed in the table below.



<i>COMMODITY</i>	<i>MAJOR USES</i>	<i>LOCATION</i>
Crushed Stone	concrete aggregate, building and road construction, lime, cement	Allegany, Baltimore, Carroll, Cecil, Frederick, Garrett, Harford, Howard, Montgomery, and Washington Counties
Sand and Gravel	concrete aggregate, building and road construction, paving, masonry sand, polishing sand	All Eastern Shore Counties, Anne Arundel, Baltimore, Calvert, Charles, Harford, Howard, Prince George's, and St. Mary's
Clays and Shales	brick, fire brick, terra cotta, aggregate	All Eastern Shore Counties, Allegany, Anne Arundel, Baltimore, Calvert, Carroll, Frederick, Garrett, Harford, Howard, Montgomery, Prince George's, and St. Mary's
Mineral Fuels	coal, natural gas	Allegany, Garrett, and Washington Counties



Selected Mineral Resources of Maryland

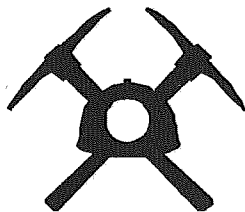
Source: Map is a composite of information in *Groundwater Aquifers and Mineral Commodities of Maryland*, Maryland Dept. of State Planning and Maryland Geological Survey, DSP Publication 152, 1969.

CHAPTER FOUR: A BRIEF HISTORY OF MINERAL RESOURCE PLANNING IN MARYLAND

The Coal Basins of Western Maryland

This history begins with Western Maryland, a region known for its coal supplies. While the subject of coal has no applicability to most of Maryland's counties, the topic is included here as a historical starting point and to inform the reader of recent planning initiatives that might be transferrable to other types of mining.

Coal mining is one of the State's oldest and longest-running industries, with the first coal mines opening in the 1830's. Coal production reached a high of 5,632,628 tons in 1907. The lowest annual production occurred in 1954 (less than one-half million tons), but since 1963 has exceeded one million tons per year. The extraction of coal remains the region's major mining industry, and is concentrated in Allegany and Garrett Counties. In 1990, 3,487,000 tons of coal were mined in Maryland, with a value of 91 million dollars.



The mining and delivery of coal resources serve a critical public interest by providing a source of fuel for power generation at reasonable costs. While Western Maryland's coal is delivered to market via rail and trucks, alternative delivery processes continue to be researched. One concept, for example, involves delivery of a "slurried" (i.e., liquified) form of coal from a pipeline system connecting Western Maryland sources with industrial users throughout the region and State. Coal gasification is another alternative.

The Western Maryland coal basins also contain associated clays and shales. The region (Garrett, Allegany, and Washington Counties) also includes various types of stone such as granite, sandstone, and limestone, as well as deposits of gravel (although these are minor in comparison to the deposits in the Coastal Plain).

Most recently, as Garrett and Allegany Counties updated their Comprehensive Plans in response to the Economic Growth, Resource Protection, and Planning Act of 1992, renewed effort was placed on proper long-range planning for the region's important coal resources.

Garrett County

Garrett County's new Plan promotes coal mining, as well as accelerated research into coal gasification and liquification. The Plan recommends that the County plan and program its road improvements to support routes used by coal-hauling trucks.

The Garrett County Mineral Resources Element places emphasis on a range of environmental impacts associated with coal mining. First, it calls for mining activities to be conducted so as to have the least adverse

impact on aesthetics, recognizing that Garrett County's natural landscape is an important tourist and recreational asset. Second, the Plan proposes the coordination of reclamation activities with research and development for cost-effective extraction of residual coal deposits. Finally, the Garrett County Comprehensive Plan advocates that the reclamation of mined-out sites achieve the highest quality standards in terms of mitigating environmental impacts, and aiming at productive re-use of the site.

While the Plan has policies for protection of the natural environment, as well as for historic and archaeological resources, it does not identify resource preemption or community impacts as major policy issues. These subjects generally require less attention in this most remote and sparsely populated part of Maryland.

Allegany County

The updated Allegany County Comprehensive Plan also recognizes coal as vitally important to the County. The Plan's mineral resource element promotes efforts to convert coal to natural gas and alternative fuels.

Allegany County, unlike Garrett, is home to relatively major urban areas and population centers, including the City of Cumberland and the community of LaVale. In recognition of the potential threat of residential subdivisions upon mineral resources, the Plan advocates measures to discourage sprawl.

The Allegany County Comprehensive Plan recommends that the County modify its zoning to designate mineral extraction as a permitted use outside of designated growth areas, provided that no residence, historic site, or public water supply is within 500 feet of mining.

The Plan also calls for protection of environmentally sensitive areas, achievement of air quality standards, and protection of water resources and important habitat associated with "karst" geology - formations which are known to have sinkholes and caverns.

Finally, the Plan's Mineral Resources Element recommends a surcharge on coal that is mined and used out-of-county. The basis of the levy is that Allegany County invests in accommodating the industry with infrastructure and other actions. The Plan indicates that the revenues would be used for various purposes such as research and development, air pollution abatement, and housing.

Coal and other types of mining will remain significant to the local and regional economies of Western Maryland. The pattern of growth and development in the region minimizes the potential for conflict between the populace and mining operations, although there are "mining towns" that co-exist with nearby operations and their associated activities.

Strip mining practices are more carefully controlled today than in the past, and attention is given to abating the adverse impacts of acidic mine drainage. For the most part, mining consists of large existing operations which expand from time-to-time, into untapped land holdings. These operations proceed under State, local, and federal regulations.

Maryland's Metropolitan Corridor

While the need for fuel drives the coal mining market in Western Maryland, it is the "spread of civilization" in the State that drives the stone, sand, and gravel mining industry. The Baltimore-Washington, D.C. metropolitan corridor has been a major focal point of commerce, population growth, and land development in the 20th century. The region's economic engine gave birth to industry, shipping, housing developments, shopping centers, offices, and institutions. The post-World War II era, in particular, was a period of accelerated population growth and development. Sand, gravel, and stone formed the building blocks needed for this physical growth.

These minerals play a pivotal role in creating and sustaining the built environment. Tremendous quantities are used to make road surfaces, stormwater systems, public buildings, bridges, houses, and mall parking lots.



An estimated 400 to 600 tons of sand and gravel are used to make a typical subdivision street one block long. Fifty to one hundred tons are used in building an average single-family home. (Source: *Sand and Gravel Mining: Resource Identification and Impact Evaluation*, Maryland-National Capital Park and Planning Commission, June 1983.)

Mined materials are also used in everyday consumer products, such as toothpaste and soaps, and agricultural products such as lime.

Between 1940 and 1950, the region's production of sand and gravel went from 2.7 to 7.7 million tons, nearly a three-fold growth over the decade. The increased production coincides with the early stages of post-World War II growth in the area.

In the 1950's, those parts of Maryland which were the host of rapid post-war growth, such as Anne Arundel, Baltimore, and Prince George's Counties, were also the leading sand and gravel producers in the region.

Early local planning and zoning programs dating to the mid-1960's to the mid-1970's, recognized minerals as an economic asset. Mining generally required a "special exception" from the local Board of Zoning Appeals.

The 1968 *Master Plan for Fairland/Beltsville and Vicinity* (Prince George's County) designated some 3,000 acres of quality mineral-bearing land as a "Natural Reserve Area" and recommended that the land not be rezoned or subdivided until the minerals have been extracted. The 1975 *Master Plan for the Northwest Planning Area* (Prince George's County) was an early Plan that discussed the mining industry's dwindling access to lands having mineral resources.



In 1973, oil-producing nations stopped treating petroleum as a common and cheap commodity. The quick rise in gasoline prices had a significant impact on surface mining, and tended to complicate long range land use planning.

The cost of delivering mined materials to the market has always been an important business factor. High-priced fuel, however, made the "location" of mining especially critical. Because sand and gravel are relatively low-value products, mining companies have to sell tremendous amounts of material, which in turn generates the need for a very large number of truck trips, along with high fuel bills.

The industry's cost to deliver mined materials to the market today doubles if the user is more than 20 miles away. The industry needs mining locations relatively close to where stone, sand, and gravel are used: near concentrations of population, development, and road-building. Thus, the era of higher fuel prices tended to bring mining and people closer together, as well as increase the cost of the product.

In 1975, Maryland's Surface Mining laws were enacted to provide a uniform approach for licensing operators and for implementing environmental controls through State-approved mining and reclamation plans. The law established a permit requirement for mining companies, thus adding a new regulatory process - but one intended to achieve uniformity and predictability for the industry, and environmental protection for the public.

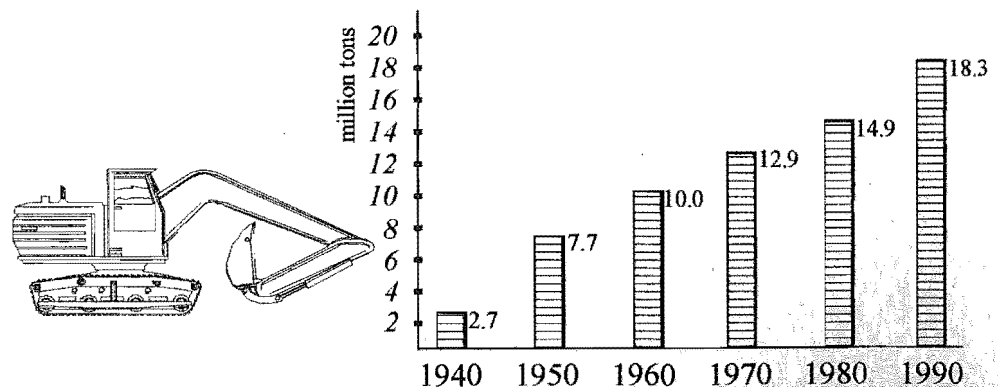
In 1980, Anne Arundel and Prince George's Counties were the major sand and gravel suppliers of the Baltimore and Washington regions, respectively. Charles County, however, was now well-established as a major provider of sand and gravel. The spreading pattern of urbanization in Prince George's and Anne Arundel Counties had effectively "nudged" at least a portion of the industry towards rural, but suitably located Charles County, with its excellent and widespread sources of upland sand and gravel.

Mines in Baltimore County produced the State's highest total dollar value of minerals in 1980, a result due in part to the valuable stone resources in the area. The mineral supplies in Baltimore County became the focus of a major study and planning effort in 1987, which led to the adoption of a new mineral resources element in the County's Master Plan.

Cecil County's 1980 mineral production, by weight, out-paced that of Baltimore County. Most of Cecil County's mined resources, however, were being exported to out-of-State markets to the northeast, along the Interstate 95/Route 40 corridor. In 1989, as part of updating the Comprehensive Plan, Cecil County identified a reversal of trends, with delivery now concentrated on markets in the County and the Baltimore-Washington, D.C. region. The County's 1990 Plan called for strong measures to protect the best mineral-bearing lands for future extraction.

Since the 1980's, other localities outside of the Baltimore-Washington corridor - such as Harford, Carroll, and Frederick Counties - have experienced accelerated patterns of growth and development, creating markets for mineral resources, as well as a need for new planning and zoning tools to manage mineral extraction. By the end of the decade, advisory groups and study committees had been formed in many counties; much of this effort led to the adoption of a new generation of zoning tools by the early 1990's.

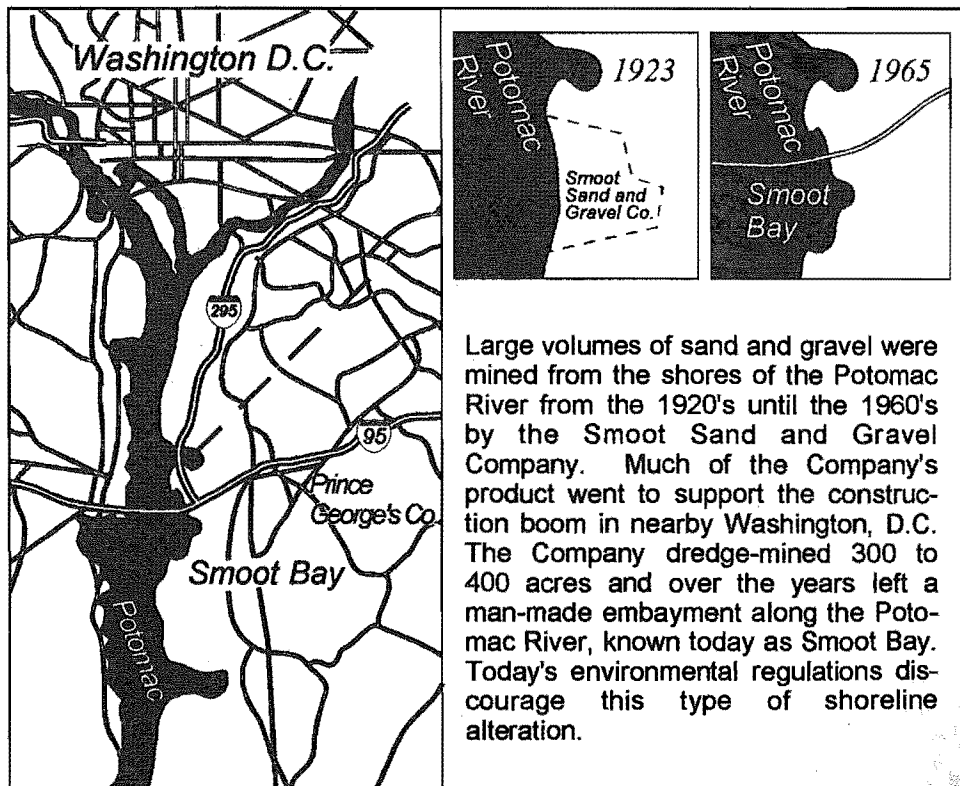
SAND AND GRAVEL PRODUCTION IN MARYLAND: 1940 TO 1990



The comprehensive planning and zoning programs developed during this "modern" period reflect sophisticated treatment of the complex issues facing land use planners. Several jurisdictions created specific mineral extraction zoning intended to address a wide array of issues and concerns about mining activity and its relationship to the overall land use pattern and Comprehensive Plan.

For example, Carroll County developed a series of controls to protect residential neighborhoods from the impacts of mining, as well as a "transferable development rights" program to protect mineral-bearing lands. Montgomery County developed mineral resource zoning as well as a series of local ordinances to address proposed mining and rock crushing facilities. Cecil County adopted mineral extraction zoning that used the Comprehensive Plan to determine specific locations where mining would be permitted.

Today, concern about the natural environment along with growing citizen interest and community activism have become important considerations for both the industry and the local governments that plan and zone for mineral extraction. Two major concerns expressed by the public are the protection of the natural environment and protection of communities.



Large volumes of sand and gravel were mined from the shores of the Potomac River from the 1920's until the 1960's by the Smoot Sand and Gravel Company. Much of the Company's product went to support the construction boom in nearby Washington, D.C. The Company dredge-mined 300 to 400 acres and over the years left a man-made embayment along the Potomac River, known today as Smoot Bay. Today's environmental regulations discourage this type of shoreline alteration.

State environmental and reclamation laws in effect since the mid-1970's, as well as other environmental initiatives, have had positive results in terms of operational activities and the post-excavation state and subsequent use of mined land. Mining reclamation projects have earned the industry environmental awards.

Preventing or minimizing community impacts, on the other hand, is a more difficult challenge for today's planners. It is precipitated by the industry's limited options for mining sites (i.e., the land must be mineral-bearing, as well as close to the marketplace) and people's desire for rural or semi-rural living. As the demand for minerals increases with population growth, attention to long range planning will become increasingly important to ensure that mining companies have continued access to suitable mining sites, while existing communities are protected, and areas of future growth are directed away from mineral deposits.

Maryland's Coastal Plain Counties

The Coastal Plain Counties in Southern Maryland and the Eastern Shore hold vast amounts of mineral-bearing lands, although the quality varies from place to place.

Southern Maryland (Charles, St. Mary's, and Calvert) has a fairly substantial number of surface mining operations, serving both local customers and the Washington, D.C. metropolitan region. Many operations in Southern Maryland are relatively small in scale. Mineral extraction generally requires a "special exception" from the local Board of Appeals. In St. Mary's County, mineral extraction on small sites (under five acres) is permitted by right in certain zoning districts. Most of the mining activity is found in Charles County. In 1996, the County reported 40 mining permits issued to 27 operators under the State's permit program, and 25 local approvals by the Board of Appeals, with six pending.

Each county in Southern Maryland has a mineral resources element in the Comprehensive Plan. Charles and St. Mary's contain the majority of the region's minerals, with Calvert's deposits concentrated in the southern end of the County, and along the Patuxent River.

Maryland's Eastern Shore, with a few exceptions, has low development pressure. Thus, the market for industrial-scale sand and gravel mining is negligible compared to the activity in, for example, Anne Arundel or Charles Counties. Mineral statistics for 1990 show that significant production on the Eastern Shore was limited to Cecil and Worcester Counties.

It is worth noting that recently updated Comprehensive Plans from Shore Counties address mineral extraction. The mineral resource elements identify potential minerals, discuss recent mining trends, identify potential regulatory overlap or conflict, and indicate the importance of keeping a "watchful eye" on trends that might warrant different or additional policies and regulations in the future.

For example, Dorchester County studied mining trends in preparing its 1996 Comprehensive Plan and decided that mining operations should continue to be treated as special exceptions under local zoning law. Significantly, the Plan also recommends a "one dwelling unit per ten acre" zoning to protect rural resources in parts of the County. Finally, the Plan notes the possibility that local regulations on site restoration may overlap with those of the State, and calls for further study of this issue.

Recently, Talbot County initiated work on a new mineral resources element as part of updating its Comprehensive Plan. The County has no formal mineral resources element in its 1990 Comprehensive Plan; the zoning requires a special exception for mineral extraction. The draft element proposes continuation of the special exception process for mining. However, it also recommends that the County should study the merits of mineral extraction by "right" under zoning, if trends in mineral extraction change. The draft also notes that the County's "one dwelling unit per 20 acre" zoning density in rural areas helps to protect minerals.

Queen Anne's and Kent Counties are other examples of modern mineral resource planning from the Eastern Shore. Overall, in this part of the State there appears to be adequate attention to long-range planning issues, as well as to more immediate aspects of mining, such as operation, reclamation, economic benefits, and potential impacts. In this respect, the Counties that have yet to become sources of significant mining activity are much further along in their mineral policy development than were Western Shore Counties at the time industrial-scale operations commenced there.

The new planning and zoning tools developed by Western Shore Counties and Cecil County will provide many examples for future comprehensive planning efforts, including general methods, standards, procedures, safeguards, and technical requirements.

CHAPTER FIVE: OVERVIEW OF PLANNING ISSUES

This section provides a brief overview of major planning issues to provide background for the comprehensive planning and zoning tools that appear later in this publication. The venerable Israel Stollman's *Land Use Control in the Surface Extraction of Minerals* (American Society of Planning Officials Information Report Number 153, 1962) stated:

When the planner tries to fit surface mining into a comprehensive land use plan, he has a set of objectives with built-in conflicts. He wants to: (1) make available mineral resources for use in industry; (2) conserve minerals so that they can contribute to the local economy; (3) maintain low costs for mined construction materials and encourage the combination of public and private investment to carry out a development plan for the mined area; (4) protect residential areas from noise, dust, vibration, traffic, or unsightliness of pits and quarries; and (5) reclaim worked mines for a new land use that will fit a comprehensive plan.

Competition among the planner's various objectives gives rise to a series of contemporary growth management and resource protection issues. The non-renewability of minerals, the loss of potential extraction sites, and the continuation of residential sprawl combine to make the planner's job of sorting out and balancing competing planning objectives all the more difficult.

Loss of Resource Lands

The loss of mineral resource-bearing lands is, over the long term, an issue for planners in Maryland's developed and growing counties, particularly where the Coastal Plain contains sand and gravel supplies in proximity to housing and population growth. Certain counties have adopted very low density zoning in rural areas, in part, to help protect mineral supplies necessary for continued economic and physical growth.

The 1976 *Master Plan for the Northwest Planning Area (Prince George's County)* was prompted by growing concern about the trends in depletion of sand and gravel-bearing lands in the northern part of the County. The County is adjacent to Washington D.C. and has jurisdiction over large developed and developing areas within and just beyond the Capital beltway. The Plan estimated that about 55 percent of the County's 115,000 acres of sand and gravel bearing lands were lost to development by 1971.

A review of the 1994 development pattern on the Western Shore shows that, over the last several decades, growth has displaced many sources of mineral-bearing lands in the Baltimore-Washington corridor, with losses concentrated in Anne Arundel, Baltimore, and Prince George's Counties.

A 1982 study, *Sand and Gravel Resources - Planning Directions* (Department of State Planning Publication 82-19) estimated that out of a potential 2.4 million acres of sand and gravel resources, nearly 1.8 million acres were free from the constraints of development, public ownership, or the planned investments shown in the Ten Year Water and Sewer Plan.

Out of this "non-constrained" acreage, however, only 35,000 acres (1.9 percent) were "potentially available" in the Baltimore Region (concentrated in Anne Arundel and Baltimore Counties) and only 42,000 acres (2.3 percent) were available in the Washington Region (Prince George's County).

These 1982 statistics confirm trends of resource depletion discussed in some of the local Comprehensive Plans of that time. Counties needing continued supplies of sand and gravel were becoming places that had the fewest acres of accessible mineral-bearing land.

In 1987, for example, Baltimore County noted that it had begun importing some sand and gravel from Cecil County. The 1990 Master Plan identified the potential loss of mineral resources as a critical issue. The Plan noted that under current practices and trends, sand and gravel supplies might last only five to twenty years. Protecting supplies from preemptive development, however, could extend the life of mineral supplies to fifty years.

Sand and Gravel Resources - Planning Directions also indicated that Southern Maryland had close to one-half million acres of potential mineral resources that were not preempted (27 percent of the State-wide availability), and the Eastern Shore had about 1.2 million acres (69 percent).

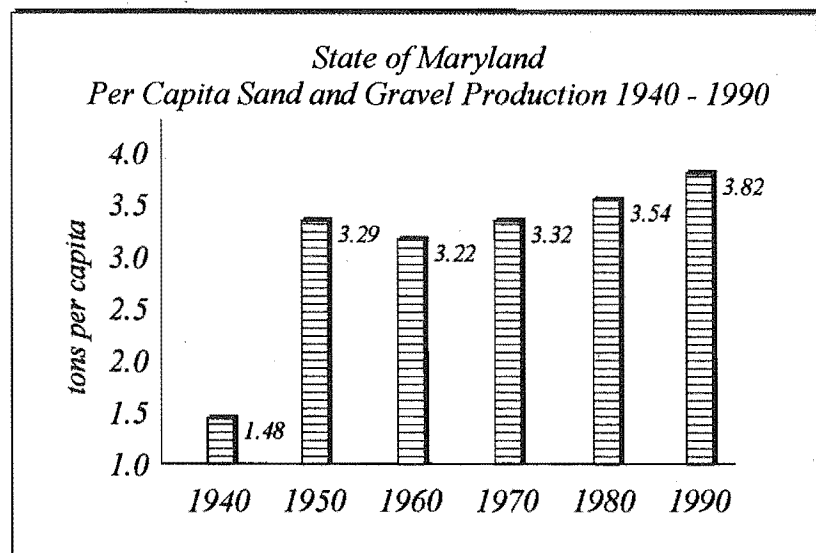
In Southern Maryland, an abundance of close-to-market resource exists in Charles County and will continue to play a significant role in Western Shore growth. For example, between 1990 and 1994, Charles County supplied over one-fifth of the annual State-wide production of sand and gravel. Preemption of mineral extraction is not a significant issue over the

life of the County's Comprehensive Plan. And in spite of its loss of resource land, the southern reaches of Prince George's County (adjacent to Charles County) continue to have accessible sand and gravel. St. Mary's County has an abundant supply, though somewhat distant from major markets.

Most of the sand and gravel resources on the Eastern Shore, however, are much too distant from major markets. In the longer term, when all accessible resources are depleted on the Western Shore, places like western Queen Anne's County, or the untouched sand and gravel in southeastern Cecil County, could become sources for Western Shore growth and development.

As sources of sand and gravel become more distant from major growth areas, there will be a significant impact over the longer term on the cost of consumer goods, government infrastructure budgets, and private businesses. One policy choice that would extend the life of sand and gravel supplies in proximity to the Baltimore-Washington region is the extraction of mineral resources on public lands. This issue has been featured in some Comprehensive Plans and mineral resource studies.

The Table below shows that there has been a fairly constant per capita production rate for sand and gravel since the 1950's. Thus, population growth, along with continued patterns of sprawl, will have a synergistic effect in depleting the availability of mineral resources.

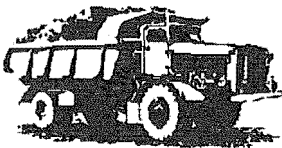


Source: *Sand and Gravel Resources - Planning Directions*, DSP 82-19, and *Maryland Statistical Abstract, 1990-1991*, Maryland Dept. of Economic and Employment Development

Environmental and Community Impacts

Surface mining, by definition, alters the natural environment. In some areas, surface mining occurs near streams and rivers because that is where the resource exists; in other places, mining may require the clearing of trees. Changes to the natural landscape are unavoidable.

Since 1975, the State, counties, and industry have made considerable progress in addressing the environmental impacts of surface mining. Under State and local laws and regulations, minerals are generally treated as a non-renewable resource which should be extracted under conditions that minimize impacts to the environment. Laws and programs to prevent erosion, sedimentation, and siltation have helped to lessen adverse impacts. Reclamation laws have been successful in converting mined sites into a naturalized condition. Future land use is often guided by the local Comprehensive Plan and local recreation and open space plans.



Surface mining can also have adverse impacts upon nearby communities. These impacts involve truck traffic, road wear, noise, dust, and aesthetics. These issues are typically addressed by limiting the daily number of trucks, establishing hours of operation, and requiring screening and setbacks from adjacent properties and land uses. County planners should generally address this issue on two fronts: existing communities and future communities.

Where mineral resources exist within a larger area characterized by little or no development, or perhaps just a few incidental rural subdivisions, the general goal should be on permitting mineral extraction by right, while reasonably minimizing the impacts of mining and associated activities. If the rural area is very fragmented with subdivision after subdivision, it might be a location where mineral extraction would not be permitted at all. Construction of future communities should not be permitted in rural areas that have mineral resources. If this type of development is permitted, however, the local planning program should focus on "notice to home buyers," right-to-mine laws, and requirements that new development be designed to avoid existing and future mining sites.

Effective long-range planning can avoid direct adverse impacts on communities by separating mineral extraction areas from areas intended for residential or mixed use. The local Comprehensive Plan and zoning can be used, for example, to prohibit or severely restrict residential subdivisions in areas planned for mineral extraction. Strong local planning is a potentially effective tool for minimizing the impact of mining on built and developing areas, and can help to ensure a long-term supply of minerals. A major task in this effort is the prevention of sprawl.

*Predictability
for the Public
and Industry*

Predictability in the local planning and zoning process is important to both the public and the mining industry. Local Comprehensive Plans describe the desired land use pattern for the future, and indicate locations for residential growth and development. These local Plans should also indicate where surface mining is a planned activity. Public and industry expectations about where mining will and will not be allowed, and under what conditions, should flow from the Plan. Comprehensive Plans should put the public on notice that mineral extraction activities can cause impacts to communities, that they may be long-term operations, and, in certain locations, are the preferred land use.

Designations for mining may be indicated on a map in the local Comprehensive Plan, but vary widely in terms of their significance. In certain jurisdictions, the Plan and zoning map designate specific properties where mining is allowed; in other jurisdictions, the Plan designation only represents general locations of mining, with other approvals still required, such as a special exception; and still other Plans have no designation at all.

To a certain degree, the treatment of mining in the Comprehensive Plan depends on the nature of mineral resources. Stone and rock tend to be localized within well-defined boundaries, extending deep into the earth. These mineral resources are extracted through a quarrying operation, are often acquired through land acquisition programs of mining companies, and are sometimes regarded as industrial uses. These circumstances facilitate the ability to create a Comprehensive Plan that has clear and predictable meaning for both the industry and the public.

On the other hand, sand and gravel deposits are spread over much larger areas, and thus tend to be interspersed with other types of land uses. Small operations can be cost-effective. In some areas, such as Southern Maryland, potential resource sites are numerous and mining companies do not always undertake advanced land acquisition. These conditions usually result in Plan designations with less precision, because data are not readily available for making more specific planning judgments.

To the mining industry, predictability is a highly desired quality. Counties using specific mineral extraction zoning effectively eliminate the added proceeding and uncertainty associated with the "special exception" process. While a special exception is not an especially difficult legal hurdle under Maryland case law, it does represent an approach to decision-making that can introduce issues not typically associated with mineral extraction zoning.

*Two-Tiered
Regulation:
State and
Local*

Two levels of government influence the location of surface mining activities. At the county level, adopted Comprehensive Plans contain goals, objectives, and policies for mining, and set the stage for local zoning, which regulates how land may be used. The Maryland Department of the Environment, a State agency, influences the locations of mining activities through a permit review process that studies the proposed activities as well as the subject site in deciding whether and under what conditions a mining permit will be granted.

This mix of State and local rules that govern surface mining can potentially be the source of conflicting regulation for the industry. Local governments have traditionally planned and zoned for mineral extraction; it was a subject of professional planning literature as early as 1962. State permit requirements enacted since then (some as a result of federal law) introduced the State as an added dimension of regulation. This topic may have important implications for the traditional role of local comprehensive planning and zoning programs; the implications involve the legal concept of State "preemption."

The regulation of industry or business by two (or more) levels of government is not uncommon. From time to time, however, the validity of such dual regulation is challenged by an aggrieved party. The legal issue is usually whether the State (being the "sovereign") has "preempted the regulatory field," thereby rendering local law null and void.

Preemption can be found through the express intent of State law. A Court can also find that preemption exists when the State's regulations on a subject have, over time, become so pervasive in terms of scope, nature, and content that they preoccupy the regulatory field. These legal controversies often involve matters of broad public policy which may warrant uniform, State regulation.

Where preemption is found to have existed, its practical effect is that a license or permit approved by the State for the requested activity may not be restricted through local regulations.

In the context of surface mining, there is no preemption under existing law. The State, through Article 66B, section 3.05(a)(1)(v), has authorized a role for local planning and zoning programs, although it has modified that role over the years. The current language of section 3.05(a)(1)(v) dates back to 1986. In that year, the State added specific substantive requirements for the local Mineral Resources Element and also required a review of the Element by the Maryland Department of the Environment.

The 1986 changes to the statute show, where mineral extraction is concerned, a trend towards greater State control, or management. The long-range issue is whether losses of accessible mineral resource-bearing lands, and increases in demand and cost for these non-renewable resources, will someday require uniform State regulation - to the exclusion of local zoning - as a matter of public interest.

The history of regulating "sludge application" in Maryland suggests that the co-existence of State regulations with local zoning powers over specific land uses is not necessarily long-term or sacrosanct. In 1985, the Maryland Court of Appeals sanctioned a two-tiered regulatory system for sludge application, indicating that the County has the role of making a basic land use decision, while the State has the role of protecting health and the environment.

By the early 1990's, the Court reversed itself, noting that since 1985, the State had broadened its regulatory powers and subject matter, thus invalidating the local zoning rules being contested in Court.

The retention of a two-tiered system for regulating mining activities is important. Mining has been traditionally regulated via planning and zoning at the local level and represents a significant on-going impact to local communities. Moreover, mining is interrelated with other local planning programs including land development, economic growth, infrastructure, environmental protection, and long-term recreation and open space planning.

Sand and Gravel Resources - Planning Directions (DSP, 1982) noted that mining companies have to comply with dual sets of regulations: State permit requirements and local zoning processes. Each requires a prescribed set of standards and criteria. In many cases, the zoning process and the permit process require duplicate information, but the necessary governmental reviews are conducted separately, which can yield conflicting results.

Another source of potential regulatory conflict for mining companies is the review and approval of sediment and erosion control plans. When technical matters such as sediment control are folded into a local process, such as a proceeding at the local Board of Appeals for a special exception, the results can be unpredictable.

The Frederick and Dorchester County Comprehensive Plans have noted the potential for regulatory overlap with the State process and recommend

Local Planning and Zoning Tools

examination of this issue. The subject has also been discussed by various industry and regulatory advisory groups. The Maryland Department of the Environment and Office of Planning welcome continued discussion of this regulatory streamlining issue with local governments.

As local Comprehensive Plans are periodically updated (a review is required at least once every six years by State law) new mineral resource elements should continue to aim at accommodating mining interests in a balanced manner. The degree to which growth and fringe counties protect mineral-bearing lands, and provide a predictable planning and zoning process for mining activities, may influence the long-term future of the current two-tiered system for regulating surface mining.

The Comprehensive Plan. The Mineral Resources Element of the Plan sets forth the jurisdiction's goals, policies, and land use recommendations for mineral resources, and provides the basis for adoption of zoning and other local regulations for mining. The Plan can be used to curtail sprawl in rural areas and give preference to mineral extraction.

In areas having an active surface mining industry, the mineral resources element of the Plan tends to be quite specific. However, in certain rural counties, mining activity is relatively low in terms of the number of operators, levels of production, and acres under mining. The mineral resources element in these areas tends to be less detailed; some counties have no element in the formal sense.

Counties having little mining activity should monitor, on a periodic basis, the loss of mineral resource lands due to sprawl development, as well as changes in mining activity. Trends identified in the monitoring process would be used to trigger the adoption of a more formal Plan element, as well as more effective ways to ensure both the protection and use of the mineral resources.

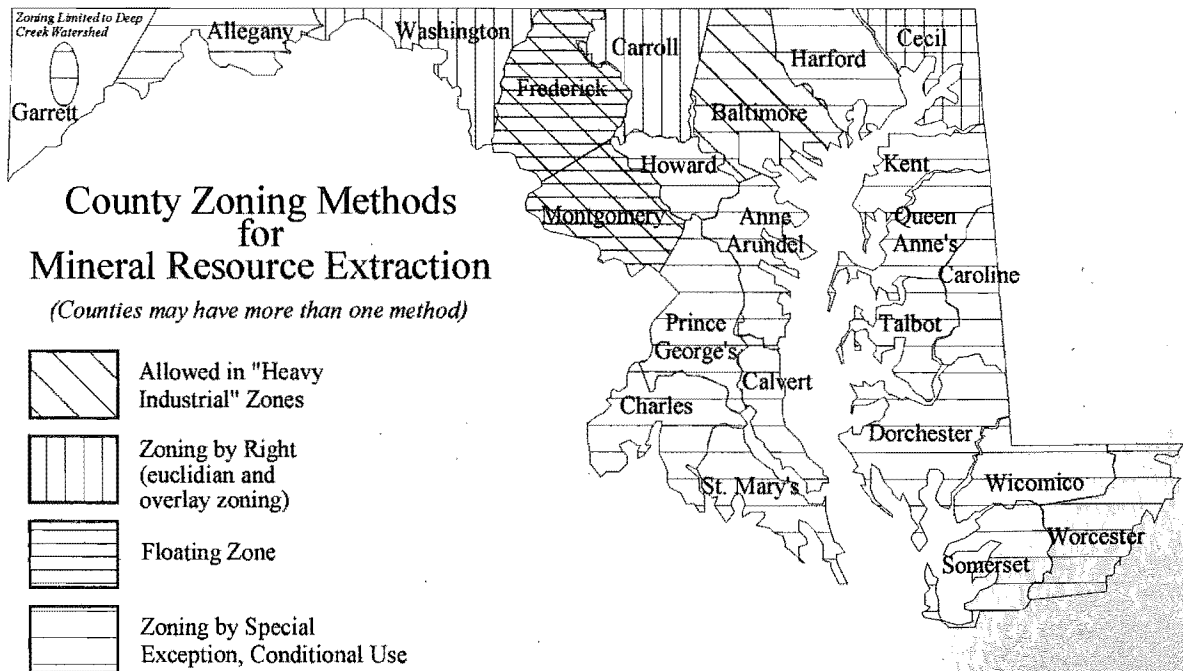
Zoning. There are three basic zoning approaches being used in Maryland counties for mining and associated activities:

1. On-going and future mining sites are assigned a "mineral extraction" zone during a comprehensive rezoning process, and mining is classified as a permitted use, subject to review and approval of site and reclamation plans. Procedures and criteria are established to guide decisions on requests for "piecemeal" rezonings. This method is used in Washington, Carroll, and Cecil Counties.

Cecil and Carroll Counties have zoning that reflects "regulatory priorities" which are rationally linked to different "types" of mineral resource areas. Cecil County's approach, the simpler of the two, uses specific mineral extraction zoning in those parts of the County that are relatively free from incompatible land uses. In those places where the potential for conflict with residential areas is greater, a special exception process is used. Carroll County's mineral extraction zoning is featured in Chapter Six.

2. Mining companies must apply for a "floating zone," and if granted, are allowed to mine under approved site and reclamation plans. A floating zone is eligible for certain locations described in the local Plan. Montgomery and Frederick Counties use this approach. The advantage is that the "rezoning" process is not burdened by Maryland's "change or mistake rule" (which, as a general rule, severely limits piecemeal rezoning).

3. Mining companies must apply to the local Board of Appeals for a special exception, as well as approval of site and reclamation plans. As indicated by the map below, this is the most common zoning method used in Maryland. A special exception has been defined by the Maryland Court of Appeals as a use that has been legislatively pre-determined to be compatible with land uses permitted by right in the zoning district, and generally may not be denied unless the proposed use has an "extra-ordinary impact." Case law aside, the special exception process has reportedly posed difficulties for the industry in certain jurisdictions.



CHAPTER SIX: COMPREHENSIVE PLANNING AND ZONING TOOLS

The planning and zoning examples presented in this section are representative of contemporary tools for long range mineral resources planning. The section also includes a generic planning and zoning model.

COMPREHENSIVE PLAN: THE MINERAL RESOURCES ELEMENT

Four Mineral Resource elements have been extracted from adopted Comprehensive Plans. Baltimore County is representative of a jurisdiction that has a relatively long history of mining, with both quarries and surface mines, and has experienced significant growth pressures and threats of resource preemption. Cecil County represents a jurisdiction that has high-quality supplies of minerals, a burgeoning demand, and a sufficient threat of preemption to warrant adoption of stronger zoning policy. Cecil County is also featured because it proposes a specific zoning plan and standards for implementation. Dorchester County is included as an example of a jurisdiction with relatively low mining activity and for its policy on examining overlap and duplication with State permit processes. Frederick County is featured for its resource-protective zoning, as well as its policy on future development plans in mineral resource areas.

BALTIMORE COUNTY MASTER PLAN 1989-2000 (Feb., 1990, page 60)

Establish Policy

It is the policy of Baltimore County to provide the effective management of Baltimore County's mineral resources, to support acquisition and development of additional mining sites, and to alleviate land use conflicts between urban development and mining operations.

Summarize Conditions

Baltimore County's extractable minerals are recognized as a valuable natural resource. However, these minerals are nonrenewable and must be managed to keep building construction costs low and Baltimore County self-sufficient. There are currently seven active sand and gravel operations in the Coastal Plain, in addition to five active crushed stone and four building stone operations active in the Piedmont.

Identify Trends...

At current rates, it is anticipated that sand and gravel operations will be exhausted within the next five to twenty years unless specific actions are taken to identify and manage the remaining deposits in Baltimore County. With proper management, the sand and gravel operations are expected to last 40 to 50 years. Once mineral resource deposits are depleted in Baltimore County, building and construction costs will increase considerably due to the cost of transporting the material from other, more distant mines.

...And Issues

Although mineral deposits capable of producing crushed stone are distributed throughout the Baltimore County Piedmont, competitive land uses will make future hard rock quarry operations difficult to acquire.

It is expected that the Greenspring Quarry, owned and operated by Arundel Corporation, for example, will be closed by the year 1999. A replacement quarry for that operation is not scheduled. Although crushed stone operations are not experiencing the same depletion crisis that face the sand and gravel operations, crushed stone, lime and calcite are also non-renewable natural resources that will some day be exhausted. Effective long-range management plans are essential.

Baltimore County will restrict development on its commercially important mineral reserves.

Take Action

Baltimore County will develop standards and regulations including siting requirements, control of truck traffic, and visual screening requirements, in order to make mining operations more compatible with adjacent non-mining uses.

Commentary: Baltimore County uses very effective zoning (RC-2) to protect rural resources such as minerals. Under this zoning, much of the County's rural land is restricted to one dwelling unit per 50 acres. This protective zoning helps to prevent the loss of mineral-bearing lands to sprawl residential growth and minimizes incompatible land uses.

The Master Plan's concern over dwindling mineral supplies is noteworthy. When the Plan was written in 1990, the County's RC-2 zone had been in effect for over ten years. The Plan also provides a wide-ranging estimate of the life expectancy of mineral resources. These reflections indicate the difficulty of protecting mineral-bearing lands even under strong zoning, and the potentially severe impacts of sprawl on the mining industry. In 1996, Baltimore County rezoned an additional 9,000 acres to the RC-2 Zone.

CECIL COUNTY COMPREHENSIVE PLAN (Dec., 1990, pp. 29-31)

Identify Mineral Supplies

Mineral Extraction Districts consist of land areas with known mineral deposits primarily owned or otherwise controlled by members of the mineral extraction industry.

Establish and Explain Goals

GOAL: Protect mineral resources for future extraction and provide for reclamation of extracted land for other appropriate uses.

Aggregates such as sand, gravel, stone, and clay are vital to a healthy economy. Roads, residences, commercial buildings, public utilities, and industrial facilities require the use of these minerals during construction as well as maintenance. Cecil County has been blessed with large deposits of these minerals thereby providing the County with a relatively inexpensive source of building material as well as source of jobs and income as aggregates have been exported to neighboring jurisdictions. The economic well being of Cecil County, requires that at least some of the valuable deposits in the County be reserved for mining purposes. Reservation of these resources should be made before competing land uses, such as premature urbanization, make mining not feasible.

GOAL: Reduce conflicts between incompatible uses.

It is in the interest of the County that economically recoverable mineral resources be protected from encroachment by incompatible land uses until the minerals are extracted and that the excavated land be stabilized and reclaimed for productive use. The interests of the mining industry must be balanced against the interests of individuals living or working on land adjacent to areas that may be excavated in the future.

Housing and commercial development is generally incompatible with mineral extraction activities. The Mineral Extraction District is established to reduce conflict that could interfere with the orderly and timely development of mineral resources by only allowing other development of a type and intensity that is compatible with nearby mining activities until the mineral resources are removed.

GOAL: Strictly control development in sensitive and critical resources areas to protect natural resources.

The Mineral Extraction District recognizes the economic resource value of sand, gravel and hard rock deposits by protecting them from encroaching incompatible uses. Mineral extraction activities must respect stream valleys, their natural vegetation, and other special habitats.

GOAL: Maintain the rural character of the County by planning for the preservation of prime agricultural land, open space and forests.

The Mineral Extraction District protects land as open space until such time that it is excavated and reclaimed. Its post-excavation uses should be determined by a future comprehensive plan or special interim study.

*Recommend
Infrastructure
Policies*

Roads and Access: In cooperation with the mining industry, the County should initiate efforts to upgrade transportation routes where mineral resource traffic occurs now and is expected to occur in the future. Road improvements needed should be made before truck traffic from mining operations overloads substandard or undersized roadways.

Sewer and Water Supply: Service to the Mineral Extraction Districts should only be provided to correct existing problems with septic systems and groundwater resources or, if the area is assigned to another district, requiring these services based on a future comprehensive plan or study. In the interim, regional sewer and water lines may cross the Mineral Extraction District.

*Recommend Land
Use Policies and
Guidelines*

Reclamation: Because mining operations occur over many years, future land uses in Mineral Extraction Districts should be determined after mining and reclamation are complete. This final determination should be part of a periodic or special revision to the comprehensive plan. Mining operators should be required to submit a complete post-reclamation site inventory to be used in making future land use decisions.

Housing Types: Housing types appropriate to Mineral Extraction Districts are single family houses, and manufactured houses used in support of extraction activities.

Residential Density: Residential uses are permitted in Mineral Extraction Zones at a density not to exceed one dwelling unit per 50 acres.

Residential Setback (from State and County road rights-of-way): 50 feet if forested; 100 feet if not forested.

Commercial uses should not be permitted in Mineral Extraction Districts.

Agriculture and forestry uses are permitted in Mineral Extraction Districts.

*Recommend
A Zoning Plan*

The Mineral Extraction District should be separated into two subdistricts, A and B. Mineral Extraction District A consists of areas with few or no incompatible land uses in the district or adjacent to it. In the Mineral Extraction District A, mineral extraction should be permitted by right.

Mineral Extraction District B consists of areas with a substantial potential for conflict between normal extraction activities and adjacent land uses due to truck traffic and insufficient screening of noise and views of the mining operations from the sensitive uses. Mining activities in Mineral Extraction District B should require a special exception.

The zoning ordinance amendments that implement the Plan recommendations for the Mineral Extraction District B should include explicit standards, concerning traffic, hours of operation, noise, entrance treatment, setbacks, and sight lines, to be met by applications for a special exception. The applicant should be granted a special exception if the standards are met. Conditions attached to the approval implementing the standards as they affect operations or buffers on the applicant's property can be recommended to the State for inclusion in the State surface mining permit. County concerns on groundwater drawdown due to site dewatering and discharge of water from the site should be transmitted to the State for technical review of the surface mining permit application. These activities may require a water appropriations permit or a NPDES permit from the State.

*Recommend
Site Design
Guidelines*

Parking: Parking should be placed behind the principal structure to the extent possible and screened from road view with vegetation.

Outdoor storage: Outdoor storage, except that associated with agricultural activities, should be screened from public ways and adjacent residential uses by vegetation or walls.

Forest cover: Clearing of forest vegetation should be limited to areas needed for excavation, structures, unloading areas, access roads, and paved parking areas.

Setback from State and County road rights-of-way: State requirements or 100 feet, whichever is less, but in no case less than 50 feet. The setback distance should be left in forest cover.

Commentary: Cecil County's Comprehensive Plan includes designations on the Plan Map of areas eligible for "mineral resource" zoning. The County has fashioned a strong link between the Plan and Zoning Ordinance, with the Plan as the controlling document. That is, property may not be given the Mineral Extraction zone unless the Plan Map designates the property for mining. Also note the Plan discussion which favors approval of a special exception upon meeting the standards; this policy and a carefully written zoning ordinance can help to minimize arbitrary Board of Appeals decisions.

DORCHESTER COUNTY 1996 COMPREHENSIVE PLAN (Sept., 1996, pp. 3-15 to 3-16)

*Summarize
Conditions*

According to the Maryland Geological Survey, sand, and to a lesser extent, gravel are the County's only mineral resources. Areas of potential sand or sand and gravel are located mostly in North Dorchester, and south of Vienna to Henry's Crossroads. Most of the material is used locally because of the distance to major population centers.

The sand and gravel industry grew from one operator in 1966 to seven in 1992. These operations are scattered but most are north of Route 50. Production was 175,847 tons in 1993, down from 446,325 tons in 1991. As of 1994, 220 acres were under permit for mining and 111 acres were actively being worked.

*Establish A
Goal*

Support mining in appropriate locations.

*Identify Issues
and Recom-
mend Action*

The County permits mineral extraction by special exception in most areas. A State permit is also required, issued by the Maryland Department of the Environment. Both the special exception and the State permit require site restoration or rehabilitation upon completion of mining activities. There may, therefore, be some unnecessary duplication in the regulations. Eighty four acres have been reclaimed under the State program since 1977. No major changes to existing policy are proposed in this plan. To encourage streamlining, the County should examine the special exception text for overlap with the State requirements.

FREDERICK COUNTY COMPREHENSIVE PLAN (Volume I: Countywide Plan, June, 1990, pp. VI-2 to VI-4)

Identify Issues and Solutions

Planning can do nothing about natural scarcities or already depleted resources. Planning can help to prevent valuable deposits from becoming inaccessible due to urban development. Planning can also ease the impacts on the surrounding community by requiring that mining be carried out in a manner that is socially responsible. Finally, planning can help the reclamation of the site once the resource has been extracted by predetermining future use and assuring compliance with reclamation requirements.

The Comprehensive Plan [provides] for a Mineral Mining floating zone which may be established in an Agricultural zone following regular rezoning procedures. The existing mineral resource industries in the County are zoned Mineral Mining and generally include land for future production that is adjoining the existing operations.

Mineral Resources Policies

- 1) Development plans in areas where mineral resource extraction is being conducted shall not conflict with future mining activities.
- 2) Routing of mineral hauling must be accomplished in a way that minimizes impacts on neighborhoods. Truck routes for hauling should be specified at the time the use is approved and periodically reviewed.
- 3) The County should assure that all available measures are taken to protect the natural environment from all sources of pollution resulting from mineral extraction. Federal, State and local regulations should be strictly enforced.

Recommend Action

- 1) The existing Mineral Mining Zoning Regulations shall be re-examined as to permitted uses and procedures for approval. Identified conflicts with new State Regulations shall be resolved.
- 2) Working with mine operators and the local community, possible end uses of the existing mining operations shall be explored so that it can be taken into consideration in long range planning.

Commentary: Frederick County's Agricultural zoning restricts residential development to three lots per parcel (per date of record: 1976), plus one dwelling unit per fifty acres if a "clustered" form of development is used. Note also the Plan policy that calls for development plans not to conflict with future mining.

ZONING TOOLS

Four zoning examples are included in this section. Carroll County's Mineral Resources Overlay Zone is an innovative example for addressing, in a comprehensive fashion, several important issues including controls on preemptive development, community participation in the site plan review process, standards for drawing zoning lines, and the option to transfer development rights. Cecil County is included as an example of a two-tiered zoning approach: areas with little or no development are zoned for extraction by right, and areas with potential land use conflicts are zoned for extraction by special exception. Frederick County's Mineral Mining Zone is an example of a "floating zone" and Queen Anne's County is featured as an example of a conditional use or special exception approach.

CARROLL COUNTY: "MRO" MINERAL RESOURCE OVERLAY (Carroll County Zoning Ordinance, Division IV, sections 14.41 - 14.46)

This Division provides for the creation of an overlay designation to be placed on the Zoning Maps, consisting of a Mineral Resource Recovery Area ("MR") wherein any land uses that preempt resource recovery are prohibited, for a Viable Resource Area ("VRA") where potentially recoverable mineral resources have been identified and will be protected from preemptive development and for one-half mile Mineral resource Notification Area ("MRN") surrounding the "MR" and the "VRA" in which any development should be clustered away from the resource and notification of potential resource recovery activity is given.

Sec. 14.41 Mineral Resource Overlay

(a) Within Carroll County, there is hereby established an area designated a Mineral Resource Overlay ("MRO"). This "MRO" includes areas identified as containing a Mineral Resource ("MR"), a Viable Resource Area ("VRA"), and those areas, surrounding the resource, identified as Mineral Resource Notification ("MRN"). This overlay shall exist only in areas of the County assigned an Agricultural District ("A"), Industrial General District ("IG") or Industrial Restricted District ("IR") on the Zoning Maps as adopted or amended.

There shall be no new Agricultural Land Preservation Districts created pursuant to the Maryland Agricultural Land Preservation Program on any portion of a parcel assigned an "MR" or a "VRA" designation.

(b) The owner of property which is not identified as being within an "MR" may petition the County to place an "MR" designation on that person's property subject to the following:

(1) The applicant for an "MR" designation shall submit for the property a delineation of the extent of the mineral resource as mapped by the Maryland Geologic Survey on the Mineral

Resource Quadrangle Maps, scale 1:24,000. The applicant may request a modification of the "MR" boundaries based upon an analysis performed by a qualified geologist which identifies, locates, and estimates the amount and quality of the resource proposed for recovery. This analysis may include a literature search, well logs, existing geologic maps, flood control studies, historic aerial photographs, or other relevant data.

(2) Lands with an Agricultural Land Preservation Easement are not eligible for the "MR" designation.

(3) To establish the "MR" boundary, the minimum horizontal distances between the following features and the mapped limit of the resource shall be:

(A) 1000 feet from the nearest boundary of a Village of Historic Importance as defined in Article 14, Division XI which has been designated at the time of approval of the petition for the "MR" boundary;

(B) 700 feet from the nearest boundary of an area zoned for residential use (R-40,000, R-20,000, R-10,000, R-7500) at the time of establishment of the "MR" boundary;

(C) 700 feet from the nearest property lines of schools, hospitals, churches, sewage pumping stations, sewage treatment plants, reservoirs, and water filtration plants which are in existence at the time of establishment of the "MR" boundary.

(4) In addition to the criteria in 14.41(b)(3), the Planning Commission may use such additional criteria as it deems applicable in recommending the "MR" boundary.

(5) The Planning Commission shall review the information submitted by the applicant and make a recommendation to the County Commissioners. The County Commissioners, after holding a public hearing, shall approve, approve with modifications, or deny the petition for an "MRO" designation.

(c) In a Mineral Resource Recovery Area ("MR"), all uses which are or may be permitted in the underlying zone are prohibited except the following which are regulated as designated in the underlying zone:

(1) Mineral resource recovery operations.

(2) Agriculture.

(3) Commercial and non-commercial nurseries and greenhouses providing that any greenhouse heating plant, or any building or feeding pens in which farm animals are kept, shall comply with the distance requirements specified.

-
- (4) Borrow pits.
 - (5) Riding academies and livery stables in existing structures.
 - (6) Manufacture of brick or clay products.
 - (7) Coal yards.
 - (8) Copperage works.
 - (9) The use of heavy machinery for refining and processing other than for removing of overburden, extracting, crushing, moving, washing, and screening.
 - (10) Bituminous concrete (blacktop) mixing plants.
 - (11) Concrete and ceramic products manufacture, including ready mix concrete plants.
 - (12) Cement, lime, gypsum or plaster of paris manufacturing.

OFFICIAL COMMENT: Thus, if the underlying zone is "IG" and the [requested] use is a copperage works, it is regulated as a principal permitted use; if the zone is "A", a copperage works is prohibited as it is not a principal or conditional use in the "A" zone.

(d) (1) In the Mineral Resource Notification area ("MRN"), processing operations as defined in [the Definition Section] shall be a permitted use provided the processing operation is contiguous to an extractive operation in an adjacent "MR". In the "MRN", extractive operations are not permitted.

(2) In the "MRN", the uses allowed in the underlying district are permitted, with special recommendations for clustering away from the resource and for notification.

(e) In a Viable Resource Area, uses shall be clustered away from the mineral resource when possible. If such clustering is not possible, then a Transfer of Development Rights, as provided for in Section 14.46, or development of the property as provided for in Section 4.26, may occur at the owners' option.

Sec. 14.42 General Regulations "MR"

Extractive operations are allowed only in an area designated "MR"; processing operations are allowed in the "MR", and may be allowed in the "MRN", subject to the provisions of Section 14.41(d)(1) of this Ordinance. All mineral resource recovery operations are subject to the following:

(a) Mineral resource recovery operations shall be no closer than two hundred feet (200') from all adjoining property lines or any existing or proposed public road right-of-way and four hundred feet (400') from any existing principal building on an adjoining property. The Planning Commission may increase the distance requirements if it determines that adjacent land uses, geological, hydrogeological, topographical, natural vegetative or any other environmental feature causes a greater adverse effect at the proposed site than desired.

(b) The minimum setback distances shall not apply to the common boundary where the adjoining lot is used or planned for mineral resource recovery operations. Setbacks on the remaining property lines shall meet the setback requirements in Section 14.42(a).

(c) A person engaging in mineral resource recovery operations shall locate and conduct those operations on the site in a way that minimizes, visual, auditory and other sensory effects on surrounding property owners.

(d) Processing operations outside the pit perimeter shall be housed in a covered structure unless the Planning Commission determines, because of specific site conditions, this is unnecessary based on the effects of the use on nearby properties.

(e) The site shall be developed and maintained in compliance with the Carroll County Landscaping Manual.

(f) The line-of-sight shall be interrupted to the extent possible between mineral resource recovery operations and adjacent properties zoned for residential use, or improved by a residential dwelling, so as to reduce the visual intrusion of the operation on adjacent and nearby properties.

(g) All permanent access roads shall be paved for a distance of at least 200 feet from the adjoining public road. The paved cartway width shall be a minimum of 22 feet, and the pavement type must be approved by the Carroll County Department of Public Works. Roads marked on a site plan and approved by the Planning Commission as temporary may be of a stone construction type (i.e., crusher run).

(h) Extractive Operations shall be restricted to the hours of 6:00 a.m. to 7:00 p.m. Monday through Friday, and 8:00 a.m. to 7:00 p.m. Saturday.

Processing operations, and non-extractive related activities (i.e., administrative, maintenance, repair), may be carried out on the premises beyond the allowed hours of operation, providing the sound level does not exceed the maximum acceptable limit allowed by the State of Maryland.

On Sundays and during atypical business hours extractive operations will be allowed if expressly permitted by the Zoning Administrator because of an operating emergency or because of local or state need.

(i) The mineral resource recovery operations shall comply with all applicable federal, and State air pollution control laws and regulations. In the event of conflict between these laws and regulations the most restrictive legally applicable law or regulation shall apply. The operator shall control and contain dust to prevent visible emissions from crossing the boundary of the property.

(j) The mineral resource recovery operations shall comply with all federal, state and local laws regulating water resources management and protection. In the event of conflict between these laws and regulations the most restrictive legally applicable law or regulation shall apply.

(k) The operator shall provide, prior to beginning a mineral resource recovery operation, a contingency plan for well replacement whenever a public water supply surface intake, public water supply well, or private water supply well is within the Zone on Influence as designated by the State.

(l) (i) Prior to the issuance of any zoning certificate under this Ordinance for mineral resource recovery operation, the owner and operator shall enter into an Indenture with and provide a satisfactory bond or guarantee to the County Commissioners to ensure compliance with this ordinance and the provision of relocated public improvements, adequate landscaping, fencing, screening, health and safety safeguards, reclamation and restoration plans including regrading, site access, draining or other treatment as required by this Ordinance at the completion of the extraction or processing operation. The Indenture shall be prepared by the County Attorney and the bond or guarantee shall be satisfactory to the County Commissioners.

The Indenture shall include language discussing the availability of the water pumped in dewatering a site for a public water supply and the use of any resulting reservoir when the site is abandoned for a public water supply.

The Indenture shall require the applicant to provide the County Commissioners a copy of all necessary State permits or letter of certification from each State agency that it has completed its review of the proposed mining operations and is prepared to issue its permit before the zoning certificate may be issued.

(ii) Prior to the completion of an Indenture, the County Commissioners may impose any other condition, limitation or requirement which they deem necessary, to protect the public health, safety or welfare of the people of Carroll County.

(m) The reclamation plan shall consider providing for use of any water-filled pits as a public water supply. Other proposed land uses for the reclaimed site shall be detailed. Reclamation plans shall be developed with consideration to the condition of adjoining mineral resource recovery operation.

(n) When the property on which the mineral resource recovery is planned to take place contains a historic structure, or a known archaeological site, any documentation sent to the State concerning the structure shall also be forwarded to the Carroll County Department of Planning to assure the structure and site are surveyed.

(o) All plans for mineral resource recovery operations shall be submitted to the Planning Commission pursuant to the provisions of Section 4.26 of this Ordinance.

(p) Prior to site plan approval, the Planning Commission shall determine the adequacy of transportation facilities on the local land route as detailed in the traffic impact study. If inadequacy is determined by the Planning Commission the Planning Commission will consult with the County Commissioners and the Director of Public Works to make a determination as to the extent the public works agreement may be adjusted to include road improvements that would alleviate the inadequacy.

Sec. 14.43 Community Involvement in the Site Development Plan Review Process

(a) An applicant for site plan approval under this section shall submit a preliminary concept plan prior to submission of a detailed mineral resource recovery site plan and the accompanying documentation. The applicant shall then hold a site visit and tour of the subject property for the County Commissioners, the Planning Commission, adjacent property owners, appropriate state regulating agencies, and interested citizens for the purpose of explaining the concept plan.

(b) Following the site visit, the Planning Commission shall conduct the Community Involvement Meeting. The applicant for the mineral resource recovery operation shall present the concept plan for comment and discussion concerning siting and location of processing operations, setback requirements, screening, berming, landscaping, and transportation routes.

(c) After the Citizens' Involvement Meeting, the applicant may submit his site plans and accompanying documentation to the County.

(d) Adjacent property owners, the County Commissioners and the Planning Commission will be notified by the applicant, by first class mail, of the date, time, and place, of the site visit and tour and the Community Involvement Meeting. There will also be a public notice specifying the date, time, and place of the site visit and tour and the Community Involvement Meeting, which will be advertised twice by the applicant in two newspapers of general circulation in the area in which the mining is proposed to occur. The public notices will appear no more than 14 and no

less than 7 days in advance of the site visit and tour and the Community Involvement Meeting. The site will be posted with a notice of the time and pace of the site visit and tour and Community Involvement Meeting at least two weeks before the tour and the Meeting.

Sec. 14.44 Application Requirements to Establish a Mineral Resource Operation [Not included]

Sec. 14.45 Special Requirements for Development in the "MRO"

(a) Except as provided in Section 14.41(e), within a "MRO", residential building lots created after the effective date of this Ordinance shall only be located on portions of the parcel not overlaid by the "VRA". Development in the mineral resource notification area "MRN" should be located to minimize conflicts between the development and the planned or existing mineral resource recovery operation.

(b) On properties where residential building lots can not be located outside of the "VRA" based upon the boundaries of the properties as they existing on January 1, 1991, a Transfer of Development Rights (TDR) will be permitted to another area within the "A", or R-20,000, R-20,000, and R- 10,000 Residence District Cluster subdivision, pursuant to Section 14.46.

(c) All subdivision plans, site plans, record plats, and building permits dealing with land in the "MRN" shall contain notations identifying the property as lying within a Mineral Resource Overlay and as within one-half mile of an area where mineral resource recovery operations are currently occurring or may occur in the future.

Sec. 14.46 Transfer of Development Rights

The owner of a parcel on which an "VRA" designation has bene placed has the right to create residential lots only at the density permitted in the underlying zoning district, subject to the provisions of Section 14.45. The property owner may transfer the development rights to property in the Agricultural "A" District pursuant to the provisions of Section 6.6(a) or to property zoned "R-40,000", "R-20,000", and "R-10,000" Residential District which is being subdivided under the cluster subdivision provisions in Section 14.5, and pursuant to the following:

(a) Creation of a Transfer Development Right (TDR) will be permitted by the Planning Commission only when it determines that residential lots can not be clustered from the portion of the property designated "VRA" to a portion of the property or to adjoining property under the same ownership not designated "VRA".

(b) Before an owner of property which has been given approval to create Transfer Development Rights may transfer these rights, the owner shall:

(1) File an application for Transfer Development Rights (TDR) with the Bureau of Development Review. A metes and bounds description of the property and a survey plat, prepared by a registered engineer or surveyor and certified by them to be correct must accompany each application;

(2) Obtain written approval from the Planning Commission of the base number of development rights on the property.

(3) Once the Planning Commission has determined the base number of development rights, that number shall be multiplied by two, which shall be the total number of development rights available for transfer.

(c) At the time of the approval of the total number of Transfer Development Rights, a serial number shall be assigned to each development right approved.

(d) Before a transfer of development rights may occur, the owner of the property from which the development rights have been approved must record a Transfer Development Rights Easement in the Carroll County Land Records, as well as file a copy with the Carroll County Bureau of Development Review. The Easement must state the total number of development rights approved on the property. The recordation of the Transfer Development Rights Easement creates a permanent easement against residential subdivision or development of land for residential use on the property.

(e) At the time of transfer of a development right or rights, a Deed of Transfer of Development Rights must be recorded in the Carroll County Land Records, and a copy placed on file with the Carroll County Bureau of Development Review.

(f) When subdivision approval is given by the Planning Commission and a plat recorded for a property using TDR, a Transfer of Development rights Extinguishment must be recorded in the Carroll County Land Records and a copy filed with the Carroll County bureau of Development Review.

(g) All preliminary subdivision plans on which transfer development rights are to be incorporated shall have a notation as to the number of lots on the plan that have a notation as to the number of lots on the plan that are being created through TDR. The plan shall also contain the serial number of each TDR lot being used. A copy of the Deed of Transfer of Development Rights must accompany each subdivision plan using TDR.

(h) Subdivision of land in the "A" Agricultural District which utilizes TDR shall be performed in accordance with Section 6.6(a) and any applicable development guides and standards.

(i) Subdivision of parcels in the R-40,000, R-20,000, and R-10,000 cluster subdivision utilizing TDR shall be performed in accordance with Section 14.5.1.

CECIL COUNTY : MINERAL EXTRACTION ZONES (Cecil County Zoning Ordinance, Sections 38,67, and 68)

Section 38. MEA - Mineral Extraction A District

1. The purpose of the MEA zone is to protect economically important mineral resources of the County for current and future use; to prevent incompatible development that may directly or indirectly preclude access to the mineral resources until such time that the resource can be removed; and to protect existing land uses adjacent to potential mineral lands from undue harm that may result from mineral extraction activity. This zoning classification shall only apply to certain areas found within the Mineral Extraction District on the Land Use Plan of the 1990 Cecil County Comprehensive Plan...

2. Maximum Residential Density Provisions. Maximum permitted residential densities for major and minor subdivisions shall be one dwelling unit per fifty (50) acres.

[remainder of section not included]

Section 67. Mineral Extraction

1. Mineral extraction shall be permitted in the MEA zone provided that any mineral extraction activity in the MEA zone shall only be permitted in accordance with a site plan ... and shall meet the following requirements:

a. No excavation shall take place within 100 feet from any right-of-way line of any road.

b. No excavation shall take place, nor shall the slope of the natural land surface be altered as a result of such excavation, nor shall the storage of materials take place nearer than one hundred (100) feet to any property line. This setback shall not apply where the adjoining property is used for mineral extraction.

c. All [County] Environmental Performance Standards...are met.

d. Operation structures shall not be erected within two hundred (200) feet of any property line or within one hundred (100) feet of any road. The setback to adjoining property lines shall not apply where the adjoining property is used for mineral extraction or heavy industry.

e. A bufferyard ... shall be required between any operation structures and the right-of-way of any road.

[remainder of subsection not included]

2. Mineral Extraction may be permitted as a Special Exception in any zoning district in the MEB overlay zone provided:

a. Excavation shall not take place within 100 feet from any right-of-way line of any road or 300 feet from any lawfully permitted residential or institutional building.

b. Excavation shall not take place, nor the slope of the natural land surface be altered as a result of such excavation, nor shall the storage of materials take place nearer than one hundred (100) feet to any property line.

c. Operation structures shall not be erected nor storage of material take place within two hundred (200) feet of any property line or one hundred (100) feet to the right-of-way of any road.

d. A bufferyard meeting the Bufferyard Standard D in Appendix B shall be required between any operation structures and the right-of-way of any road.

e. All of the Environmental Performance Standards, except the regulations pertaining to steep slopes ... are met.

f. The use of heavy machinery for refining or processing other than for extracting, crushing, moving, washing and screening shall be permitted only in a Heavy Industrial (M2) parent zone.

g. New wash plants shall not be located in the Buffer of the Chesapeake Bay Critical Area.

h. No mineral extraction activity takes place within the [Critical Area] Buffer.

i. The mineral extraction activity is consistent with the Habitat Protection Program Element of the Cecil County Critical Area Program.

j. The mineral extraction activity is consistent with the Mineral Resources Program Element of the Cecil County Critical Area Program.

k. The requirements of the applicable Critical Area land use management area met.

Section 68. Mineral Processing . Mineral processing shall be permitted in the MEA and M2 zone provided that:

1. Operation structures shall not be erected and storage of materials shall not take place within two hundred (200) feet of any property line or one hundred (100) feet to the right-of way of any road.

2. The setback from property line shall not apply if the adjoining lot is being used for heavy industry or mineral extractions.

3. A bufferyard meeting the Bufferyard Standard D in Appendix B shall be required between any operation structures and the right-of-way of any road.

FREDERICK COUNTY: MINERAL MINING DISTRICT (Frederick County Zoning Ordinance, Section 1-19-323)

(1) General provisions.

(a) The mineral mining district (MM) shall be a floating zone which may be established (1) where specifically designated on the comprehensive regional plan map as appropriate; and (2) within the agricultural (A) zone. A comprehensive regional plan map which designates appropriate mineral mining areas may include further criteria for the use of those areas in addition to any requirements set forth in this section (e.g., rail hauling, prohibited truck routes, etc.).

(b) Mining activities have the potential to adversely impact the surrounding area by virtue of the noise, dust, light, glare, vibrations and traffic generated, and may also impact groundwater supplies. Therefore, compliance with or satisfaction of the criteria contained in this section shall not create a presumption of compatibility with nearby land uses, nor shall it require the granting of the requested reclassification. Because of the potentially adverse impact on the area, the applicant shall demonstrate the existence of a mineral deposit which is economically important and commercially valuable, which can be extracted within the limitations set forth by this article and applicable state, federal and local laws.

(2) Uses permitted.

(a) Mineral mining, as used herein, applies to the extraction and processing of crushed stone, building stone, sand, clay, limestone, gravel deposits, and other minerals mined in a quarry type operation. The standards set forth in this section do not regulate or permit the extraction of metallic minerals, fossil fuels or other minerals not specifically enumerated above.

(b) The uses permitted in the mineral mining district shall be agricultural activities and forestry activities permitted in the agricultural zone over which the mineral mining designation was attached and the following:

1. Mineral extraction and processing, including grinding, polishing, washing, mixing and sorting, stockpiling, and manufacture of finished products which contain at least forty (40) percent of material derived on site;

2. Borrow pits and rubble fills; and

3. Accessory uses operated in conjunction with the mineral extraction such as business office, caretaker's or watchman's structures, or facilities for the repair of equipment used in conjunction with the mining operation.

(c) All accessory uses shall occupy no more than twenty-five (25) percent of the land zoned mineral mining.

(3) Application process.

(a) The property owner or party having interest in the land shall submit to the zoning administrator:

1. An application;
2. Site plan;
3. Mining and reclamation plan which meets the requirements of Subtitle 7-6A of Natural Resources Article of the Annotated Code of Maryland;
4. If the applicant is licensed, a copy of its Maryland surface mining license or evidence of application for the license; if the applicant is not licensed, a copy of the license of the proposed operator;
5. A copy of the application for surface mining permit and evidence of its filing with the State of Maryland;
6. Plans showing:
 - a. Compliance with the development standards set forth below; and
 - b. Haul routes and adequacy thereof.

(b) The application shall be filed and processed in the same manner as a zoning map amendment. The application may be granted if the board of county commissioners find that the proposed use is compatible with neighborhood uses, consistent with the comprehensive development plan for the county and the region in which it is to be located, and it satisfies the development standards and criteria set forth in this section and all other applicable provisions of this chapter.

(4) Development standards.

(a) On site:

1. Minimum lot size shall be twenty-five (25) acres.

2. Required setbacks:

Type of Operation	Adjacent Zoning:	
	C, R, ORI GC, HS, RS	A, GI, LI
Crushing or rock processing of stone, gravel, or other material	300 ft.	150 ft.
Stockpiling of materials	300 ft.	150 ft.
Building used for mineral mining operation	300 ft.	50 ft.

3. Blasting activities shall be conducted in accordance with the rules and regulations promulgated by the State of Maryland, Department of Natural Resources, Water Resources Administration, applicable to surface mining activities.

4. Building height restrictions: The height of principal use equipment shall not exceed one hundred (100) feet from grade; accessory structures shall not exceed sixty (60) feet from grade. Agricultural buildings are exempt from height restrictions.

5. Frontage: The site shall have a minimum of eighty (80) feet frontage on public road meeting the collector street standards established in the master highway plan. Access shall not be provided by use of a panhandle.

6. Lot width: The lot width at the front building line shall be a minimum of three hundred (300) feet.

7. Open space/green areas: All setback areas shall be landscaped and maintained as green space.

8. Exclusions from setbacks: Fences, railroad access, warning signs, security/noise barriers, berms may be located within the setback areas.

9. Fencing: Fencing shall be required around all mineral mining and accessory activities activity areas.

10. Lighting: Lighting shall be designed and directed so as not to adversely impact adjoining properties and shall be specifically approved during the site plan approval process.

11. Access: Commercial/industrial entrance standards shall be utilized in the design of any point of access to a public road, including acceleration and deceleration lanes.

(b) Off site:

1. The applicant shall establish that the roads serving the site and which will be utilized as haul routes meet the collector street standards and are capable of handling the traffic to be generated by the proposed activities.

2. The applicant shall provide evidence as to what effect the proposed use will have on the groundwater supply and quality of all adjoining properties.

(c) Mineral mining and all activities conducted on site shall meet all federal, state and local regulation governing noise, dust, air pollutant emissions, vibrations, water appropriation and discharge.

(5) Development standards for property with existing mineral zoning.

(a) The minimum lot size for all permitted uses within the district will be twenty-five (25) acres.

(b) All operations including storage or stockpiling of excavated or processed materials will be located a minimum of one hundred and fifty (15) feet from all property lines, except land zoned GI general industrial or land upon which other extraction or processing operations are being conducted, in which case the setback from all property lines will be fifty (50) feet. The required setback area will be landscaped and maintained as green area.

(c) The public road providing access to the site will meet the minimum pavement standard of a collector street as established in the master highway plan.

(d) Prior to the issuance of a zoning certificate, copies of all State of Maryland permits must be submitted to the zoning administrator in order that any conditions placed on the permits can be incorporated into the conditions under which the zoning certificate was issued. In addition, any conditions placed on renewed permits shall also be submitted in order to determine if they also should be made conditions of the zoning ordinance.

QUEEN ANNE'S COUNTY: CONDITIONAL USE PERMIT (Queen Anne's County Zoning Ordinance, section 7203.D.)

Sand, clay, shale, gravel, topsoil, or similar extractive operations including borrow pits (excavations for removing material for filling operations). When applying for a zoning permit or change of zoning, the applicant shall provide the following plans and information in addition to what is otherwise required for a conditional use permit:

1. Plans Required

a. Plan of general area (within a one (1) mile radius of site) at a scale of one thousand (1,000) feet to the inch or less with a ten (10) foot contour interval or less to show:

1) Existing Data

a) Location of proposed site.

b) Land use pattern including building locations and historical sties and buildings within a one (1) mile radius of proposed site.

c) Roads -- indicating major roads and showing width, weight loads, types of surfaces and traffic data.

2) Site and geological data.

a) Soil and geology, with soil borings on a 100-foot grid for disposal or storage facilities.

b) Surface drainage patterns.

c) Groundwater movements and aquifer information.

d) Aquifer recharge data.

e) Vegetation cover on the site and dominant species.

f) Annual precipitation, and dominant seasonal wind direction.

3) Proposed operation of the site.

a) Extractive operations.

-
- i. Type of material to be removed.
 - ii. Annual removal rate.
 - iii. Method of extraction, including types of equipment, use of conveyors, use of blasting materials.
 - iv. Supplementary processes, drying, grading, mixing or manufacturing.
 - v. Estimated life of the operation and maximum extent of area disturbed, final depths and side wall slopes.
 - vi. Approved sediment erosion control plan.

b) [Note: text to unrelated subject matter deleted]

b. Plan of proposed site at a scale of one hundred (100) feet to the inch or less with a two (2) foot contour interval or less to show:

- 1) Basic data.
 - a) Soils and geology.
 - b) Groundwater data and water courses.
 - c) Vegetation -- with dominant species.
 - d) Wind data -- directions and percentage of time.
- 2) Proposed usage.
 - a) Final grading by contours.
 - b) Interior road pattern, its relation to operation yard and points of ingress and egress to state and county roads.
 - c) Estimated amount and description of aggregate and overburden to be removed.
 - d) Ultimate use and ownership of site after completion of operation.
 - e) Source of water if final plan shows use of water.

c. Plan of Operation showing:

- 1) Proposed tree and berm screen locations.
- 2) Soil embankments for noise, dust, and visual barriers, and heights of spoil mounds.
- 3) Method of disposition of excess water during operation.
- 4) Location and typical schedule of blasting.
- 5) Machinery -- type and noise levels.
- 6) Safety measures -- monitoring of complaints.

d. End Use Plan

1) An end use plan for the rehabilitation of the site after the extraction ... operation is completed shall be submitted and must be approved. Such plan shall show and provide for either a final end use or an open space use. If it is to be an open space use, documentation as to who shall own and maintain such site or restrictive easements must be presented as well as a final contour and site plan submitted. If there is an end use other than open space, then engineering data on the length of time needed for the restoration work to be sufficiently settled to construct the end use shall be submitted. For all such uses, evidence of post operation maintenance and legal responsibility for any environmental pollution that occurs after the facility is closed and financial ability to clean up such pollution must also be presented.

2) Performance Standards

a) Operations. Extractive operations shall meet all development and performance standards of this Ordinance and all applicable local, state and federal regulations.

b) Setbacks. No excavation, quarry wall, or storage area shall be located within fifty (50 feet of any lot line, one hundred twenty-five (125) feet from any street right-of-way, nor within two hundred (200) feet of any residential or commercial district boundary line.

c) Grading. All excavations shall be graded in such a way as to provide an area which is harmonious with the surrounding terrain and not dangerous to human or animal life.

i) Excavations shall be graded and backfilled to the grades indicated by the site plan. Grading and backfilling shall be accomplished continually and as soon as practicable after excavation. grading and backfilling may be accomplished by use of construction rubble such as concrete, asphalt, etc. or other materials, providing such materials are composed of non-noxious, noncombustible solids.

ii) Grading and backfilling shall be accomplished in such a manner that the slope of the fill or its cover shall not exceed normal angle of slippage of such material, or thirty-three (33) degrees in angle, whichever is less. During grading and backfilling, the setback requirements in paragraph (b) above may be reduced by one-half, such that the top of the graded slope shall not be closer than twenty-five (25) feet to any lot line, seventy-five (75) feet to any street line, nor within one hundred (100) feet of any nature reserve or residential district boundary line.

iii) When excavations which provide for a body of water are part of the final use of the tract, the banks of the excavation shall be slopes to a minimum ration of seven (7) feet horizontal to one (1) foot vertical, beginning at least (50) feet from the edge of the water and maintained into the water to a depth of five (5) feet.

iv) Drainage shall be provided, either natural or artificial, so that disturbed areas shall not collect nor permit stagnant water to remain.

d. Access. Truck access to any excavation shall be so arranged as to minimize danger to traffic and nuisance to surrounding properties.

e. Planting. When planting is the final use to which the tract is put, all that is not covered by water shall be covered with the sufficient amount of arable soil to support vegetation. A planting plan shall be prepared for the entire finished tract using various types of plant material for the prevention of soil erosion and to provide vegetative cover. When buildings are proposed as part of the final use to which the tract is put, planting in areas adjacent to proposed buildings shall be planted with a vegetative cover in keeping with the requirements of the ultimate building purposes.

*MODEL MINERAL RESOURCE PLAN ELEMENT
COASTAL COUNTY, MARYLAND*

*New Element
Triggered by
Emerging
Trends*

Coastal County is experiencing accelerated growth and development within its designated growth areas, as well as an increase in the number of rural residential subdivisions. In the past couple of years, there also has been an increase in mining in terms of the number of operators, active mining sites, land holdings, and annual production levels.

The zoning administrator reports an increase in questions and complaints about trucking activity and other sources of mining-related noise and dust that can impact the fringes of rural neighborhoods. Finally, the Planning and Zoning Office reports that there are occasional informational requests by mining companies and consultants for zoning maps, land use maps, environmental regulations, and transportation programs.

Coastal County has long permitted borrow pits and other small-scale surface mining activity (under five acres) throughout its rural and industrial areas, with setback restrictions. Surface mining over five acres requires a special exception in rural areas and is permitted by right in heavy industrial zones. Indicators of growth and a rise in mining activity point to the need for a more sophisticated planning and zoning approach in Coastal County for mineral extraction.

*The Adopted
Plan is the
Framework for
the Element*

The County recently updated its Comprehensive Plan under the Economic Growth, Resource Protection, and Planning Act of 1992. The adopted Comprehensive Plan contains recommendations and policies for the protection of environmentally sensitive areas, the conservation of rural resource lands, and the direction of growth towards suitable areas. This Mineral Resources Element builds on that framework for growth and protection. This Element is adopted as an amendment to the Comprehensive Plan.

The County recognizes the important economic benefits to both the public and private sectors of having suitably located in-County surface mining operations. It also recognizes the need to minimize the impacts of these and related operations upon the community and natural environment.

Collect Data

Based on Maryland Geological Survey data, planners know that the County contains widespread sources of sand and gravel which vary in quality from place to place. Planners have an indication of potential mineral resource areas based on historic and on-going extraction activities. Also,

planners have collected data on mineral resources and the industry through a planning "out-reach" process. The out-reach involved mining interests, the Maryland Department of the Environment, other units of State and local government, road and building contractors, and other industrial and commercial users of sand and gravel.

*Evaluate the
Suitability of
Resource
Areas*

Potential sites for mineral resource extraction are limited to locations which possess mineral deposits and are free from surface development. From this pool of potential sites, several additional factors were applied to identify the areas most suitable.

An important factor was the distance between point-of-extraction and the market place. Other factors were the County's Land Use Plan and associated policies, land use composition and patterns, proximity to major roads, presence of stream buffers and habitats of threatened and endangered species, the zoning map, and approved subdivisions.

The categorization process included, where possible and useful, criteria and guidelines. For example, a distance less than 20 miles to market was used to identify areas that were "potentially suitable" for extraction within the time frame of the Comprehensive Plan. Resource areas where over one-half the acreage was devoted to rural subdivisions or villages were ranked as having "low potential," while areas having a pattern of a few scattered homes on individual lots and no subdivisions, were ranked "high potential."

The process enabled planners to classify areas with mineral resources into one of several categories ranging from "not suitable" to "very suitable." For example, areas found to be very suitable were relatively free of incompatible land uses, but close enough to developing areas, with good access to major roads, and no serious environmental issues.

*Recommend
Zoning*

The ranking process lead to specific recommendations for zoning. The table on page 50 summarizes zoning options for Coastal County's mineral resource areas. The process was not a perfect one. For example, the quality of data on potential mineral yield varied from place to place. The process was rational, however, and thus useful for developing recommendations. This Element is based on the following goals, objectives, and policies.

Goals

GOAL: Allow mineral extraction in suitable areas, and protect mineral resources in areas suitable for future extraction.

GOAL: Protect the natural environment in terms of water quality, sediment and erosion control, threatened and endangered habitats, stream buffers, and site reclamation.

GOAL: Protect developed areas and communities from the impacts of mining.

GOAL: Improve predictability in the zoning process, and strive for compatibility between the County's requirements and the State's permit process.

Objectives

OBJECTIVE: Evaluate and prioritize the County's mineral resource lands according to a suitability analysis, and assign corresponding zoning policies.

OBJECTIVE: Tailor the requirements of mineral zoning districts to facilitate extraction in areas found "very suitable" and "suitable," including development of a coordinated review process with the State.

Policies

POLICY: Outside of designated growth areas and rural villages, the County supports the protection of accessible mineral-bearing lands for future extraction.

POLICY: The County supports the extraction of sand and gravel resources in an environmentally sensitive manner, and will regulate mining operations with the goal of minimizing impacts that can and should be avoided. Unavoidable impacts, where possible and reasonable to do so, shall be mitigated as part of site operation and reclamation.

POLICY: In mineral resource areas, new development shall be discouraged, and any development permitted shall be designed to avoid future mining.

POLICY: In mineral resources areas, communities, residential areas, and lands having a valid and approved preliminary subdivision plat shall be protected from the impacts of mining; residents shall be given timely notice of proposed mining; and residents shall be authorized to participate in mediation discussions with the applicant and the County.

POLICY: Zoning for lands categorized as "highly suitable" shall have a right-to-mine clause. Methods shall be developed to provide timely

disclosure to prospective buyers of homes and residential lots about the presence of, and plans for, mining and associated activities.

POLICY: This Element and amendments to the Element shall be referred to the Maryland Department of the Environment for review and comment as part of the required public and agency review process.

POLICY: The County's requirements affecting site plans, sediment and erosion control plans, and reclamation plans shall be referred to the Maryland Department of the Environment for review and comment. While the County and the State may have different goals with respect to each review process, the County shall strive for efficiencies in terms of required data, analyses, reports, plans, and procedures, and shall also strive for compatibility between its standards, criteria, and guidelines, with those of the State.

Zoning Options			
Each mineral resource area in the County is placed into one of the categories below. Many areas are easy to classify, but some require judgment calls where a mix of positive and negative attributes makes classification more difficult. Zoning decisions for each resource area are supported by written findings of fact and use the Comprehensive Plan as a guide.			
<i>Type of Resource Area</i>	<i>Mineral Extraction Regulations</i>	<i>Permitted Density</i>	<i>Overlay Zoning</i>
VERY SUITABLE: No, or very few incompatible land uses in the immediate area or larger environs, ready access to major roads and markets, no environmental issues	Extraction and related activities permitted and supported by a right-to-mine policy; advance disclosure to buyer; notification to residents within one-half mile; required public meetings and site visits; work with State and industry to design and implement a unified and streamlined permit/zoning process; integrate reclamation into public open space plans where feasible.	One dwelling unit per 50 acres, with TDRs	Mineral Zone-1 (MZ-1)
SUITABLE (two levels): Few incompatible land uses in the immediate area, scattered rural residential on the fringes, good access to major roads, no serious environmental issues, 20 miles or less to market	Level One - Permitted in areas at least one mile from a rural village and 1500 feet from residential zoning, residential use, or approved subdivision; notification to residents within one-half mile; required public meetings and site visits. Level Two - Permitted by special exception in remaining areas but not within 1 mile of rural village and 500 feet of residential zoning, residential use, or approved subdivision; required notification, meetings, site visits.	One dwelling unit per 20 acres, with TDRs One dwelling unit per 20 acres, with TDRs	Mineral Zone-2 (MZ-2) Mineral Zone-3 (MZ-3)
NOT SUITABLE: Incompatible land use patterns, environmental issues, preempted by development, planned and zoned for incompatible alternative use	Mineral extraction prohibited. Zoning may not be changed to a "mineral zone" without an amendment to the Comprehensive Plan, and requires a finding that a mistake was made in the original zoning.	(Varies)	N/A

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