

Strategic Mining

A Report on Mining in Lee County



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Prepared for Lee County Board of County Commissioners
by Lee County Division of Planning

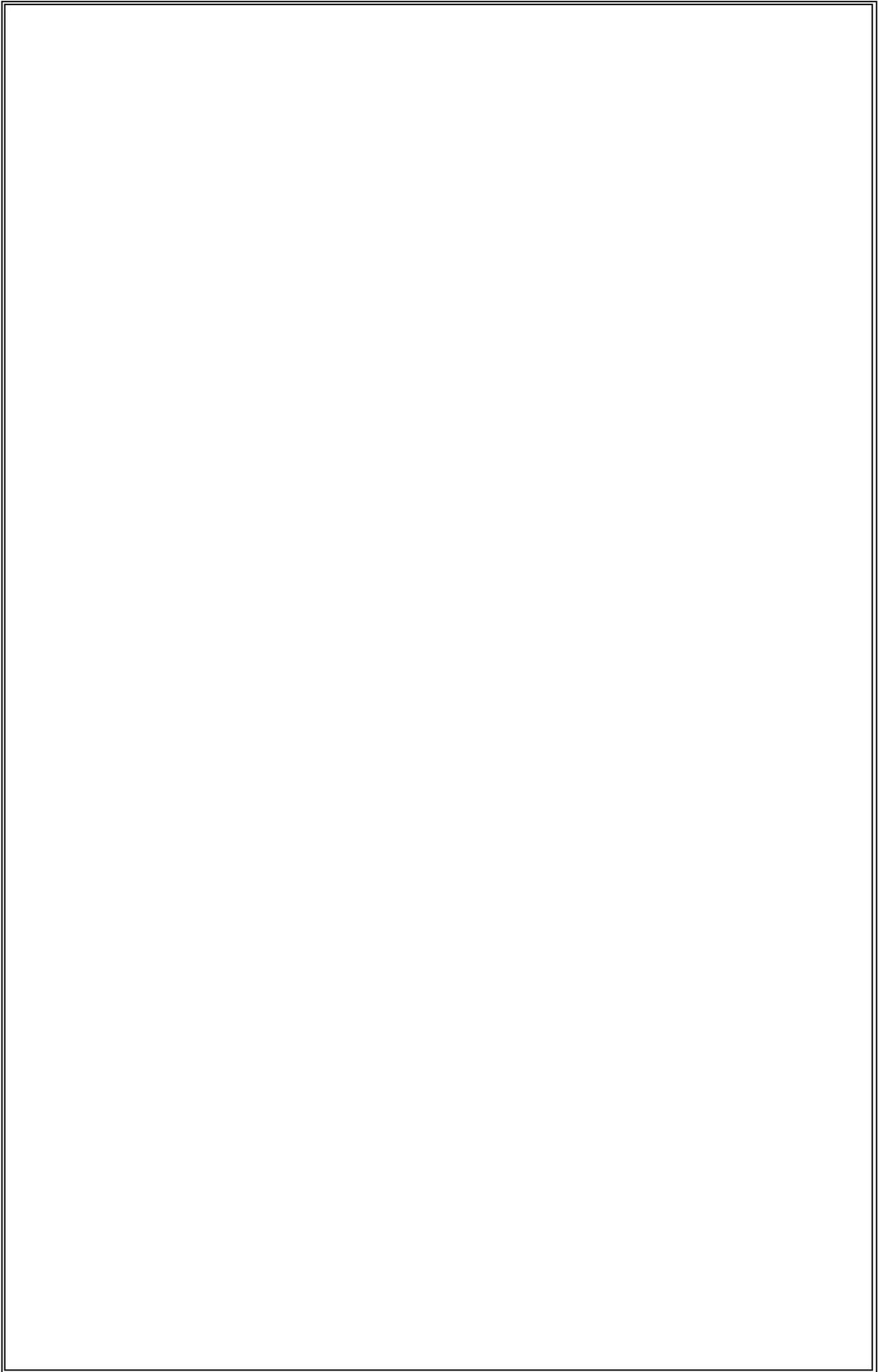


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Introduction and Background

Purpose of this Study

The Board of County Commissioners, in the context of several zoning public hearings, requested that staff address the issue of where mining operations are appropriate. Given that development in Lee County has continued at a rapid pace, this issue is an extremely important one. In particular, residential development east of the Interstate and the expansion and intensification of mining activities in that area have created conflicts and compatibility issues. Further, the State's new regulations, exempting local control of blasting in association with construction materials mining operations, have been problematic. Staff was requested to develop a plan to address the need for mining while balancing that need with neighborhood compatibility. Staff presented an item at the Management and Planning Committee meeting in February 2002 and was directed to implement several options along with more research.

The Florida Mining Industry

Florida's mining industry is vital to the state's economy. It ranks forth nationally in total nonfuel mineral production value.¹ These statistics include phosphate and aggregate mining. While there are no known phosphate resources in Lee County, Florida phosphate mining is nationally significant producing 75% of the total national production and 25% of the world's supply.²

Lee County has two general types of mining operations, fill dirt mines and limestone (rock) mines. Both of these types of mines are classified as non-metallic mineral extraction operations. Lee County has no proven metallic resources. In addition to its non-metallic minerals, Lee County does have producing oil and natural gas wells. This report does not address oil and natural gas resources in Lee County.

Lee County's mines produce various kinds of fill (dirt), Limerock, Shellrock, and Hardrock (Limestone aggregate). Limestone aggregate, known locally as Hardrock, is a stone product used to manufacture asphalt concrete. Aggregate differs from all other types of stone products in its physical composition, functional characteristics, customary uses, and pricing. It is staff's understanding that aggregate must meet Florida Department of Transportation or American Society of Testing Material's specifications for the specific type of asphalt concrete or ready mix concrete being produced. Limerock is locally used as structural fill material.

¹National Mining Association, 1999 Statistics

²Economic Impact of Florida's Agricultural Chemical and Mining Industries, Hodges, Mulkey and Philippakos, 2000

"Ready mix concrete" is a building material used in the construction of buildings, highways, bridges, tunnels, and other projects that is produced by mixing a cementing material (commonly Portland cement) and aggregate with sufficient water to cause the cement to set and bind. Silica sand is combined with aggregate and Portland Cement to produce assorted types of ready mix concrete that meet various specifications as construction materials. Silica sand is imported into Lee County to be used in the production of ready mix concrete. "Silica sand" means sand that is naturally occurring and not produced at an aggregate quarry (known as manufactured sand). Silica sand is used to produce specific types of ready mix concrete used in Florida Department of Transportation highway projects and commercial construction projects. Typical materials hauled into Lee County in bulk are Portland Cement, asphalt emulsion, and sand. Locally available sand, known as sugar sand, has no stability for uses such as for subgrade.

Limestone

Limestone or Limerock is a shaly or sandy sedimentary rock, chiefly made up of calcium carbonate. In Florida, a common form of limestone is known as coquina. Coquina is formed of shells and corals. Limestone's earliest use in Florida was as a building stone such as in the Spanish forts along the state's east coast. The principal modern use for Limestone is for the construction of roads, streets, and the manufacture of various building materials. Limestone is used in the manufacture of Aluminum, Asphalt, Cement and Concrete, Glass, and Toothpaste. Other uses include agricultural applications and water purification systems. The total amount of rock produced in the State is approximately 70-80 million tons per year.³ Almost half of that is produced in the Lake Belt Area of Dade County.⁴

Limestone Extraction Process

Limestone in Lee County is typically buried beneath a layer of material known in the industry as the "overburden." The "overburden" is typically removed and blasting is the primary method for breaking the limestone aggregate rock. Drag lines are then used to extract the rock. The rock is then typically sent through a crushing and sorting process, producing differing sized aggregate. It is also fairly typical to have an asphalt batch plant and/or a concrete plant on the mine site.

³Northwest Dade County Freshwater Lake Belt Plan, SFWMD, 1997

⁴Ibid

The Resource

Why Allow Mining - The Importance of the Resource

General research has shown that there are only a few areas where the limerock deposits meet Florida Department of Transportation specifications for hardness and chemical content. Discussions with Florida Department of Transportation engineers indicated that there are “good” deposits of limerock located here in Lee County. These limerock resources are located in the Alico Road area, generally centered in the vicinity where Alico Road turns to the south. These deposits are a valuable resource to the County and surrounding areas.

The high quality limestone aggregate products produced in this location meet state and national specifications for cement, concrete, concrete products, and asphalt. These materials are needed to build the roads, schools, homes, hospitals, and offices of the community. Were Lee County not to have this resource, these types of building materials would have to be imported from other locations. As these materials are bulk materials, the additional transportation costs would increase and could substantially increase the cost of these materials, and the subsequent costs of the end product. These increased costs would have an effect on the current viability of the construction industry.

Fill pits, mining operations that only extract dirt to be used in a non structural manner, are also important to the County. This resource allows individual properties to be developed in compliance with the Federal flood insurance regulations as well as with health department septic system requirements. Once again, transportation costs are a major factor in the ultimate cost of these materials.

Economic Impact

There are three principal ways in which an industry’s impact on the local economy can be measured, direct, secondary and tertiary impacts. Direct impacts would be measured by the actual outputs of a mine, the number of employees and the total wages paid. Secondary impacts would be the goods and services that the mining operation has to purchase to maintain their operation. An example of a tertiary impact is the circulation of money once it has been introduced into the local economy through employee paychecks.

In addition to these impacts, there are numerous independent haulers of the materials that originate in these mines. These independent haulers do not work for the mining companies. They deliver these materials to various construction sites both within and beyond the county limits.

Planning staff conducted research on the direct and secondary impacts and found virtually no data upon which to draw conclusions. While data was available on the total output of materials by this industry state wide, no data was available on outputs within Lee County. According to this research, in 1999 there were 584 people who received their wages from the mining industry in Lee County.⁵ For this same year, the mining industry paid a total of \$10,421,000 in wages and salaries in Lee County.⁶ Given the recent rezoning and special exception requests for additional mining land and activities, staff expects that the industry will continue to expand its operations. A review of the available literature bears this out. From 1998 to 2008 the job growth rate for the nonmetallic mining industry in Lee County is projected to be 32%.⁷

Active Mines in Lee County

Lee County staff has reviewed the permitted and active mines in Lee County. A list of mines in southern Lee County is included as Attachment #1, “Permitted and Active Mines in Southern Lee County.” Staff notes that there are additional mining operations located outside of southern Lee County, such as along Burnt Store Road. Staff is providing a brief discussion below on mines that have been approved by FDOT to provide materials.

Florida Rock Industries, along Alico Road, is approved for limerock and hardrock (limestone aggregate). Staff believes that Florida Rock is not currently producing limerock and is concentrating on the production of hardrock. Staff also believes that the Florida Rock properties contain large reserves of limerock.

CSR Rinker Materials, along Alico Road, is approved for limerock and hardrock. Staff believes that this mine is currently producing limerock and that this mine is the only current source for limerock in south Lee County.

Burnt Store Mines, along Burnt Store Road, is approved for shellrock.

Bonita Farms, at the end of Bonita Grande Drive, is approved for limerock, but staff believes that the mine is not producing limerock at this time.

RMC, along Corkscrew Road, is approved for hardrock, but staff believes the mine production is chiefly for their own use to produce cement products.

⁵Florida County Perspectives, BEBR, University of Florida, 2001

⁶Ibid

⁷Florida Industry & Employment Projections to 2008, Florida Agency for Workforce Innovation, 2001 Edition

The Process

Meeting with Industry Representatives

On February 20, 2002 Community Development Staff, along with members of the County Attorney's Office, met with representatives from the mining industry. In attendance were 15 members of the industry and 12 staff members. The purpose of the meeting was to hear the concerns and issues from an industry viewpoint.

Industry members stressed the importance of the resource and the need for mining activities locally. Staff had produced a preliminary map showing "Strategic Mining Areas" and the map was the subject of discussion. The concept was to identify where mining is appropriate and to warn potential residents that they would be subject to the problems associated with mining if they choose to live in this area. Staff proposed this map as a starting point, to be further refined. The industry representatives were of the opposite opinion.

Also discussed was the recent control over blasting in mining operations by the State Fire Marshal.

In addition to this meeting, staff was invited to tour the RCM Mine on Corkscrew Road. Staff observed a blast, the facilities rock crushing operation, and the control room operations.

Meeting with Affected Homeowners

On February 19, 2002 Community Development Staff, along with members of the County Attorney's Office, met with residents who live near existing mining operations. Residents and their representatives numbered 8, with 4 Staff members present. Several of the residents lived on or near Devore Lane. Devore Lane is located south of Alico Road, just prior to where Alico Road turns to the south. This location is in close proximity to some of the largest scale mining operations in the County.

Some of the issues discussed at the meeting were: requiring all mines to be Industrial Planned Developments; blasting and the implications of the recent legislation removing local control of this activity; and, the supply of rock under current approvals.

Also discussed were traffic issues, berms around mines, the need for more monitoring of mines, speed of trucks, need for setbacks around mines and basic compatibility issues.

Conclusions of the Meetings

While these meetings did improve staff's understanding of the concerns and issues of both sides, the meetings did not produce any type of consensus or compromise.

Current Regulations

LDC Changes

In the past, mining activities of up to 320 acres were allowed as a Special Exception in all three of the agricultural districts, AG-1, AG-2, and AG-3. In accordance with the procedures established in the Land Development code, Special Exceptions are decided by the Hearing Examiner. This meant that proposed new mining activities on currently AG zoned property would be reviewed by Staff and the Hearing Examiner, but not the Board of County Commissioners.

Recent amendments to the Land Development Code have removed that possibility by eliminating mining as a Special Exception in the AG districts. All new mining proposals are required to be Planned Developments. This change assures that Staff, the Hearing Examiner and ultimately the Board of County Commissioners will all review such proposals with the Board of County Commissioners having the final authority over approving; approving with conditions or denying such uses.

Blasting

During the 2000 session of the State Legislature an amendment dealing with blasting was attached at the last minute to a transportation bill. The amendment was apparently aimed at blocking proposed new rules in Miami-Dade County in response to homeowners' complaints about blasting in rock quarries. The amendment made the state fire marshal the "sole and exclusive authority" over standards, limits and regulations of explosives used with mining of construction materials.

The bill, Senate Bill 0772, added a new section to Florida Statute 552, Manufacture, Distribution, and use of Explosives. The new section states:

552.30 Construction materials mining activities.

(1) Notwithstanding the provisions of s. 552.25, the State Fire Marshal shall have the sole and exclusive authority to promulgate standards, limits, and regulations regarding the use of explosives in conjunction with construction materials mining activities. Such authority to regulate use shall include, directly or indirectly, the

operation, handling, licensure, or permitting of explosives and setting standards or limits, including, but not limited to, ground vibration, frequency, intensity, blast pattern, air blast and time, date, occurrence, and notice restrictions. As used in this section, "construction materials mining activities" means the extraction of limestone and sand suitable for production of construction aggregates, sand, cement, and road base materials by any person or company primarily engaged in the commercial mining of any such natural resources.

(2) The State Fire Marshal shall establish statewide ground vibration limits for construction materials mining activities which conform to those limits established in the United States Bureau of Mines, Report of Investigations 8507, Appendix B - Alternative Blasting Level Criteria (Figure B-1). The State Fire Marshal may, at his or her sole discretion, by rule or formal agreement, delegate to the applicable municipality or county, the monitoring and enforcement components of regulations governing the use of explosives, as recognized in this section, by construction materials mining activities. Such delegation may include the assessment and collection of reasonable fees by the municipality or county for the purpose of carrying out the delegated activities.

Lee County recently adopted revisions to its blasting ordinance, but these only affect land development blasting actions because the county has been pre-empted by the State on blasting associated with construction materials mining activities.

Current Lee Plan Mining Policies

The Lee Plan currently contains a Goal, Goal 10, that is specific to mineral extraction. This Goal and subsequent Objective and Policies are reproduced below:

GOAL 10: MINERAL EXTRACTION. *To protect areas containing identified mineral resources from incompatible urban development, while insuring that extraction operations minimize or eliminate adverse effects on surrounding land use and natural resources.*

OBJECTIVE 10.1: *Designate through the rezoning process sufficient lands suitable for providing fill material and limerock to meet the county's needs and to export to other communities, while providing adequate protection for the county's natural resources. (Amended by Ordinance No. 94-30)*

POLICY 10.1.1: *Mineral extraction operations intending to withdraw groundwater for any purpose must provide a monitoring system to measure groundwater impacts.*

POLICY 10.1.2: *Applications for mineral extraction permits for new or expanding areas must include an environmental assessment. The assessment will include (but not be limited to) consideration of air emissions, impact on environmental and natural resources, effect on nearby land uses, degradation of water quality, depletion of water quantity, drainage, fire and safety, noise, odor, visual impacts, transportation including access roads, sewage disposal, and solid waste disposal. (Amended by Ordinance No. 00-22)*

POLICY 10.1.3: *Applications for mineral extraction permits for new or expanding sites must include a reclamation plan which provides assurance of implementation. Reclamation plans in or near important groundwater resource areas must be designed to minimize the possibility of contamination of the groundwater during mining and after completion of the reclamation. (Amended by Ordinance No. 00-22)*

POLICY 10.1.4: *Mineral extraction activities (and industrial uses which are ancillary to mineral extraction) may be permitted in areas indicated on the Future Land Use Map as Rural, Open Lands, and Density Reduction/Groundwater Resources, provided they have adequate fire protection, transportation facilities, wastewater treatment and water supply, and provided further that they have no significant adverse effects such as dust and noise on surrounding land uses and natural resources. In order to reduce transport costs and minimize wear on the county's roadways, the extraction and transport of fill material may also be permitted as an interim use in the Future Urban Areas provided that the above requirements are met; however, special restrictions may also be applied to protect other land uses. These determinations will be made during the rezoning process. (Amended by Ordinance No. 94-30, 00-22)*

POLICY 10.1.5: *Lee County will support efforts by government, community leaders, and the rock mining industry owners and businesses to seek incentives that will help to facilitate the connection of rock mining borrow lake excavations into a system of interconnected lakes and flowways that will enhance wildlife habitat values, provide for human recreation, educational and other appropriate uses, and/or strengthen community environmental benefits. (Added by Ordinance No. 99-15)*

As can be discerned from these regulations, it is the County's goal to protect "identified mineral resources from incompatible urban development" while minimizing impacts on surrounding uses and natural resources. Policy 10.1.1 includes a provision that extraction operation must provide a groundwater "monitoring system to measure groundwater impacts." Policy 10.1.3 provides that the developer of these sites must provide a reclamation plan. Policy 10.1.4 sets forth the land use categories in which new mineral extraction activities may be permitted. This Policy identifies the Rural, Open Lands, and the Density Reduction/Groundwater Resources Future Land Use Map categories as areas that this use may be permitted if there is adequate infrastructure and that the proposed operation will "have no significant adverse effects" on surrounding uses. This policy also provides that extraction activities can be considered in the Future Urban Areas.

Policy 10.1.5 is a somewhat recent addition to the Lee Plan. This policy states that Lee County supports efforts "that will help to facilitate the connection of rock mining borrow

lake excavations into a system of interconnected lakes and flowways that will enhance wildlife habitat values, provide for human recreation, educational and other appropriate uses, and/or strengthen community environmental benefits.” This policy has never been implemented in any Land Development Code provisions. Staff is recommending to the Board of County Commissioners that staff continue investigating this issue and develop a strategic plan for improved reclamation of the “potential mining area.”

As Policy 10.1.4 notes, within the Density Reduction/Groundwater Resource areas mineral or limerock extraction and related facilities are permitted uses. Staff notes that this language was included in this descriptor policy in recognition of the fact that this use was occurring and concentrated in the Alico area which was included in this new category.

In the recent past, the Lee Plan’s Industrial Development areas descriptor policy, Policy 1.1.7, was amended (by PAT 98-17) to provide that “new mineral extraction (mining) activities and fill dirt operations must be approved through the Industrial Planned Development rezoning process.” More recently, the Land Development Code was amended to require that all new mining proposals be submitted, reviewed, and approved as Planned Developments.

Options

There are several options available to address the issues, as noted below:

Status Quo

One option available to the Board of County Commissioners is to continue the current rezoning process, evaluating on a case by case basis each new mining request.

Potential Mining Area

A second option is to designate a “Potential Mining Area.” Staff research has identified two generalized mining areas in Lee County. The major area is located in southeastern Lee County in the Density Reduction/Groundwater Resources area. This is the DR/GR area centered on Alico Road where Alico Road turns south. It has not been demonstrated to staff that the other identified general mining area, located along Burnt Store Road, has the quality and quantity of mineral resources that exists in the southern Lee County general mining area. Furthermore there are only limited opportunities to expand mining uses in the Burnt Store Area. The attached map “Mining and Conservation Lands in Northwest Lee County” identifies existing and past mining activities, the existing Cape Coral residential road network, and existing publically owned conservation lands. This map demonstrates the limited opportunity for new large scale mining operations.

Staff has investigated other areas, such as the Bayshore Community subject to CPA2001-09, but has been unable to confirm the presence or absence of a mineral deposit that is mineable. Staff has concluded that commercial mining in the Bayshore community is not compatible with existing and future uses. The attached map “Bayshore Planning Community - Generalized Existing Land Use” demonstrates the predominantly residential character of the community.

There are other large properties further east, such as the Babcock Ranch where mining uses could be compatible with surrounding uses, but staff has no information on whether or not those lands contain mineable resources. Based on the known information, staff recommends that the Board direct staff to amend the Land Development Code to establish a “potential mining area.” Staff has identified this area and has included it in the attached map, “Potential Mining Areas of Lee County.” Given compatibility concerns outside of this “potential mining area,” staff recommends that the Board direct staff to evaluate new criteria or performance standards for mining uses in these geographic areas. These areas, while potentially mining areas, are not to be precluded from other allowable uses, such as agriculture and low density residential as described in the Lee Plan.

Buy-out of Impacted Homes

One option to alleviate those homeowners whose properties have been irrevocably impacted by ongoing and potentially new mining operations, is to investigate the possibility of the county or the industry buying these homes. These acquired properties could be utilized for mine worker housing, or incorporated into the mining operations.

Required Notification

This option would require property owners to sign disclaimers (recorded notices) when buying property or transferring ownership of property located near existing or future mines or within a “potential mining area” if these areas are established. This option is similar to the use of aviation easements for property near the airport and located within certain airport noise zones.

Mitigation Fee

Community Development Staff, in conjunction with the County Attorney’s Office, have been investigating the possibility of mitigation fees for mining, to address the impacts of mining activities on the roadway network. A draft fee was developed, but in developing that fee it was determined that an operations and maintenance fee would be more appropriate. The attorney’s office is currently reviewing the legal aspects of such a fee and this will be brought back to the Board of County Commissioners at a future date. In addition, this option could be enhanced to include increased enforcement of truck traffic to reduce impacts on the nearby residents.

General Revisions to the County's Mining Regulations

This option includes establishing performance standards in the Land Development Code for mines. Staff has routinely been proposing conditions to mitigate the impacts of requested mines through the rezoning process. Examples include conditions concerning paved aprons and wheel washers to eliminate impacts to Lee County's roadways. These types of conditions could be made a permanent part of the County's Land Development Code. In addition, staff could evaluate other jurisdictions' mining regulations for applicability in Lee County. Following Board direction, staff could evaluate the Land Development Code for possible revisions to improve the county's mining regulations.

Alternative Development Practices for Non-Mine Development Sites

Many development sites include rock resources. This is evident by the recent issues with requested blasting on several development projects. Development projects have in the past utilized blasting, when rock material is present in the areas being excavated for stormwater management features. Staff has observed in many case that this material is essentially wasted by being buried in project berms. Staff is aware that one project in Collier County utilized the onsite material by running the excavated material through a portable rock crushing machine. The crushed material was then utilized as stabilized fill for the project's roads and development pads. Essentially this project recycled the material in a more beneficial manner than just simply burying the rock material in the berms and having to haul additional material onto the site. There are advantages and disadvantages to this approach. Advantages include a potential reduction of truck traffic on the community's road network as less material would have to be brought to the individual development site. Disadvantages include concerns about compatibility of the crushing operation and surrounding uses. Staff realizes that the reasonably mineable material in Lee County is a finite resource that could be exhausted. Encouraging or requiring a project to essentially capture this resource when creating a development project could extend the supply of these materials. The building industry's (as well as the public sector's) reliance on cement building materials will in all likelihood exhaust Lee County's Limerock and Limestone resources. The public sector is also a contributing factor with several very large public work projects in the near future. Public projects that are also increasing the demand for mined resources include the continued road building program (U.S. 41, Alico Road, Three Oaks Parkway and I-75 to name a few), and the airport expansion. Staff recommends that the Board of County Commissioners direct staff to further investigate alternative development practices for the utilization of rock resources on individual development sites.

Strategic Reclamation Plan

As noted above, the provisions of Policy 10.1.5, to establish a comprehensive approach to the reclamation of mining lands, have not been implemented. The County could establish a strategic plan for improved reclamation within the “potential mining area.” This reclamation plan would look at the long term integration of the existing and future mining areas into a system of interconnected lakes and flowways that will enhance wildlife habitat values, provide for human recreation, educational and other appropriate uses.

Summary of Options

1. Status Quo - Zoning to be determined on case by case basis.
2. Establish “potential mining area” through amendments to Land Development Code. Property outside of “potential mining area” would have to meet additional performance standards.
3. Require buy-out of homes if new mines locate adjacent to existing residences.
4. Require property owners to sign disclaimers (recorded notices) when buying property or transferring ownership when in a “potential mining area”.
5. Investigate establishment of mitigation fees, taxing district or similar mechanism to provide for (1) increased enforcement of mining truck traffic by Sheriff’s office; (2) repair and maintenance of county roads affected by mining truck traffic; and (3) enhanced reclamation standards for long term.
6. Evaluate the Land Development Code for possible revisions to improve the county’s mining regulations.
7. Investigate alternative development practices for the utilization of limerock resources contained on individual development sites.
8. Develop a strategic plan for improved reclamation of “potential mining area.”

Recommendations

Staff recommends that the Board of County Commissioners direct staff to: establish a “Potential Mining Area” through amendments to the Land Development Code; establish a mitigation fee to provide for increased enforcement of mining truck traffic and repair and maintenance of roads affected by mining truck traffic; evaluate the Land Development Code for possible revisions to improve the county’s mining regulations; investigate alternative development practices to allow the utilization of limerock resources on individual development sites; and, develop a strategic plan for improved reclamation.

Implementation of this recommendation would carry out options 2, 5, 6, 7, and 8 listed in the Summary of Options above.

Attachments

Attachments

Attachment #1, Permitted and Active Mines in Southern Lee County

Maps

Potential Mining Areas

Mining and Conservation Lands in Northwest Lee County

Bayshore Community Plan - Generalized Existing Land Uses