

HOUSTON COUNTY BOARD OF COMMISSIONERS

IN THE MATTER OF ADOPTING A MINERAL EXTRACTION AND MINING ZONING ORDINANCE

FINDINGS OF FACT, CONCLUSIONS, AND POSITIVE DECLARATION

This matter came before the Houston County Board of Commissioners (the Board) on February 24, 2015, at its regular session, in its capacity as the designated Responsible Government Unit (RGU) for the adoption of a Mineral Extraction and Mining Ordinance. The Board, Houston County Planning Commission, two Land Use Study Groups, Houston County employees, quarry owners, and interested residents have spent many hours studying the potential impacts of mining and processing and transporting of construction, agricultural, and industrial minerals. Based upon the proceedings related herein, the Board makes the following findings regarding mineral extraction and mining in Houston County:

FINDINGS OF FACT

1. Houston County developed and adopted an extensive comprehensive land use plan in 2008. That comprehensive land use plan requires the County to remain primarily a rural, scenic community with historical integrity, recreational facilities, and dedicated agricultural and commercial areas. Most of the land in Houston County consists of either agricultural land or environmentally sensitive areas such as bluffs with hardwood forests, rivers, trout streams, wetlands, and sloughs adjacent to the Mississippi River.
2. Most of the growth is currently taking place in the north-eastern part of Houston County in or near La Crescent, Minnesota. Houston County possesses some limited areas containing construction minerals which are mined for repairing and maintaining roads throughout the region, and providing bedding and other materials for farming and construction. There are currently no large-scale mining operations located within Houston County.

3. Businesses and residents of Houston County are concerned about potential adverse impacts of reduction of water resources, unhealthy air emissions, substantial damage to city and County roads, contamination of streams and aquifers, damage to bluffs and wetlands, and other environmental problems if Houston County allows the mining, processing and transporting of industrial minerals to occur within the county. Businesses and residents of Houston County are also concerned that adding the mining and processing of large-scale industrial minerals to the already existing limited mining, would create a highly industrialized county, contrary to the goals and purposes contained in the comprehensive land use plan.
4. In view of these concerns the Board as the RGU has adopted a position of encouraging the protection of agricultural land by strictly limiting urban development in prime agricultural areas of Houston County. The Board has also adopted the same position in relation to some of the environmentally sensitive areas such as the steep bluffs, trout streams, and major watersheds to minimize soil erosion and potential pollution problems to the ground water. Thus, urban growth is encouraged to continue in the north-eastern portion of Houston County where growth will not result in the loss of prime agricultural land or negatively impact environmentally sensitive areas.
5. Neighboring south-east Minnesota communities have expressed concern that there is almost no information available about health hazards related to casual or ambient exposure to silica sand particulate, and have urged the State of Minnesota to develop statewide standards in regulating industrial minerals mining to protect the entire Southeastern Minnesota region.
6. Houston County is not attempting to regulate a mineral or product. Houston County seeks to regulate a mining process. The Board recognizes that the land use operations for mining and processing industrial minerals are very different than the land use operations for mining and processing construction minerals. The industrial minerals mining land use operations are larger-scaled industrial, consume more appropriated water, require more concentrated heavy truck hauling traffic to single destinations, and embrace other differences than the mining of minerals used for construction and agricultural purposes.
7. Minnesota Statute §394.21 gives counties the authority to “carry on county planning and zoning activities.” Minnesota Statutes §394.25 specifically authorizes the adoption of zoning ordinances. Subdivision two of this section indicates a county may, in its zoning ordinance,

identify land uses that are "...encouraged, regulated, or prohibited..." Courts in other states have upheld ordinances which impose complete prohibitions on certain uses. Courts have upheld municipalities' exclusions of outdoor automobile storage, heavy industry, and industrial types of uses generally. See American Law of Zoning, 2d Ed. §9.16 (citing *New York Cent. R. Co. v. Ridgefield*, 201 A.2d 67 (1964); *Duffcon Concrete Products, Inc. v. Cresskill*, 64 A.2d 437 (1949)). In instances in which a total ban of a use is proposed, courts require a demonstration of a compelling need to enforce the prohibited use. Thus, when a land use ordinance prohibits a certain use entirely, courts will require a showing of a substantial relationship between the banned use and the public welfare. See American Law of Zoning, 2d Ed. §9.16 (citing *Hodge v. Zoning Hearing Board*, 312 A.2d 813 (1973)).

8. Therefore a zoning ordinance that prohibits a certain use altogether must be proven to be necessary to protect the health, safety, morals, or general welfare of a community. See American Law of Zoning, 2d Ed. §9.16 Further, it would be necessary to demonstrate that reasonable regulations could not be adopted to adequately control the perceived potential harms from the proposed use.

9. In 2012, the Board recognized significant public interest and concern over the potential for the proliferation of silica sand mines and related processing and transportation facilities in Houston County. These concerns became real when *Minnesota Sands LLC* leased an existing sand mine in Houston County and indicated it wished to extract two-million cubic yards of silica sand. The Houston County Highway Engineer estimated this would require thousands of loads of sand being carried by hundreds of dump trucks. *Minnesota Sands LLC* also submitted an application to the Minnesota Department of Natural Resources for a water permit to be used at the mine. The application approximated 42-84 million gallons of water per year to be pumped for use in an on-site sand processing/washing facility. Historically, Houston County mines produced a total volume of 35,000 to 40,000 cubic yards of sand for construction and agricultural purposes.

10. The Board desired to act on any conditional use permit applications consistent with the purpose and intent of the Houston County Zoning Ordinance. The Board, while not opposed to new economic activity, was concerned regarding the uses proposed in permit applications for silica sand mining operations. The Board was concerned these operations and related processing and transportation facilities could create an excessive burden on the County's infrastructure. It was also believed the possible mining activities could affect the public health, safety, and general welfare of Houston County's citizens. The Board decided at that

time that further study was required to ensure consistency with the Houston County Zoning Ordinance and Comprehensive Plan.

11. In order to provide a thorough analysis of potential impacts on road and infrastructure maintenance, public services, public health, safety and general welfare, the Board adopted in February 2012, a twelve month moratorium on silica sand mining in Houston County. This moratorium was adopted by the Board, pursuant to Minnesota Statutes 394.34. This moratorium stayed the issuance of any conditional use permit for new silica sand mining or accessory uses.
12. As part of the moratorium the Board required a land use planning study to be completed. This study would recommend any changes or requirements to Houston County Plans, Policies or Official Controls to be considered by the Houston County Planning Commission and/or Houston County Board of Commissioners. As a specific condition of the moratorium, the Board reserved the right to extend the moratorium as authorized by State Law. This moratorium was later amended to increase its scope by Houston County Board Resolution No. 12-18 on March 20, 2012, and amended by Houston County Board Resolution No. 12-35 on July 24, 2012.
13. On March 27, 2012, the Board requested that the Houston County Environmental Services Director submit a list of nominees willing to serve on a land use planning committee. The Environmental Services Director reported he had attempted to assemble a committee representing a diverse cross section of the county, including individuals with varied knowledge bases, proponents and opponents of mining, and residents from various areas of the county. He indicated he had been successful in putting together a diverse group. The Environmental Services Director stated the Board should determine which commissioners participated in the committee.
14. Richard Markos, President of the County Officers Association, was contacted to nominate potential committee members who would represent county interests. Due to potential scheduling conflicts or employment commitments, the Environmental Services Director suggested alternates be named who could serve in the event a committee member was unable to attend. The Board Chair stated the proposed committee was a fact-finding committee, not a voting committee. The committee had a duty to gather information and to take that information back to the groups they may be representing.

15. The members of the committee were to listen to experts and determine the facts, not override the experts. The committee was not being established to be for or against frac-sand mining. The committee's mission was to gather facts and consider concerns. The group was required to review zoning ordinances already in place and determine whether changes were required. Any ordinance changes would be dealt with per statutory requirements.
16. Commencing on February 13, 2012, and continuing until April 12, 2013, the Land Use Committee (hereafter Committee) met twenty times. The Committee held public meetings, met with experts, and held meetings to draft a proposed ordinance. Experts consulted included: a hydrogeologist from the Minnesota Department of Natural Resources, an air quality expert from the Minnesota Pollution Control Agency, and the South East Minnesota Waste Water Manager from the Minnesota Pollution Control Agency.
17. On March 5, 2013, the Board again adopted a Resolution extending the earlier moratorium for an additional twelve (12) months. Resolution 13-07 recognized the continued need for study regarding the potential impact of silica sand mining on road and infrastructure maintenance, public services, and public health, safety and general welfare. This moratorium was extended by the operation of Minnesota law to March 5, 2014.
18. At a special session on April 19, 2013, the Board addressed the work of the land use study committee. The Board felt the committee had completed its task and it was time for the Board to take control of the process. The Board felt the Land Use Committee had adequately researched the issues facing Houston County regarding silica sand mining.
19. The Land Use Committee's research focused on three areas of particular concern if silica sand mining were to occur in Houston County: Water Quantity/Quality, Air Quality, and Transportation of silica sand.

- a. Water Quantity

a.i. Silica sand activities such as mining, mine de-watering, slurry pipeline transportation and wet processing have the potential to impact groundwater and surface water resources. Mining at or below the water table often requires the removal of large volumes of groundwater to de-water the mine to facilitate dry mining operations. Washing of sand to remove fine-grained particles, dust control, and the transportation of sand from the mine to the wet processing facility may also require large volumes of water. *See Minnesota Environmental Quality Board, Tools to Assist Local Governments in Planning for and Regulating Silica Sand Projects* (March 7, 2014); *see also*, Land Use Committee minutes from 2012-2015.

a.ii. A cone of depression forms within the water table aquifer near any well or mine sump that is pumping groundwater. Depending on sump depth, well construction, pumping regime, and local geology, the degree and lateral extent of the water table drawdown will vary. De-watering of a mine has the potential to impact water availability in nearby domestic wells and municipal production wells, and to impact water-dependent resources. De-watering of a silica sand mine, or other large appropriations of groundwater, can reduce discharge to surface water resources such as wetlands, ponds, lakes, trout streams, springs, seeps, and watercourses, leading to degradation of fish and wildlife habitat. *Id.*

a.iii. The Land Use Committee identified a number of potential Water Quantity impacts silica sand mining could have upon Houston County:

- Reduced water availability in domestic and municipal wells
- Reduced discharge to water-dependent resources including wetlands, ponds, lakes, trout streams, springs
- Degradation of fish and wildlife habitat
- Impacts to state protected species
- Well interference complaints as well as water use conflicts

b. Water Quality

- b.i. Mining operations pose a potential risk to groundwater as a result of the removal of protective geological materials that help to filter contaminants from water infiltrating from the surface or prevent contaminant migration into lower aquifers. Some silica sand processing operations use flocculants to accelerate settling of fine-grained materials from sand-washing water. This allows for the wash water to be rapidly recycled, so less water and smaller settling ponds may be used at the processing facility. While these chemicals are considered to be nontoxic and are used in the food production and drinking water treatment industries; small residual amounts of the chemicals from which they are formed may pose a risk for groundwater and surface water contamination. Id.

- b.ii. A related concern is that mines may require ponds, trenches, or other structures through which water is infiltrated to control the effects of dewatering on nearby wells or natural features, such as wetlands and surface water bodies. These processes can potentially create conditions conducive to the formation of “karst features” such as sinkholes which can accelerate the migration of surface contaminants to groundwater. Id.

- b.iii. Silica sand mining operations that have stormwater (meaning stormwater runoff, snow melt runoff, and surface runoff and drainage) have the potential to impact surface waters (meaning all streams, lakes, ponds, marshes, wetlands, reservoirs, springs, rivers, drainage systems, waterways, watercourses, and irrigation systems whether natural or artificial, public or private) and groundwater. Stormwater runoff can come into contact with silica sand mining processes and significant materials (i.e., materials with potential to contaminate stormwater). Stormwater runoff that is contaminated by industrial activities and significant materials may lead to contamination of receiving surface water and groundwater. Id.

- b.iv. Stormwater runoff can become contaminated through contact with significant materials such as storage piles, process equipment, and dust emitted during silica sand processing. Stormwater can be discharged two ways: through groundwater or surface water. In areas prone to sinkhole development, alterations of sinkhole drainage areas may result in formation of new sinkholes nearby, with the potential for unanticipated impacts to groundwater and surface water. Id.

b.v. The Land Use Committee identified a number of potential Water Quality impacts silica sand mining could have upon Houston County:

- The amount and type of geologic materials to be removed and the potential for this to increase the vulnerability of groundwater to contamination
- The type of wastewater (e.g., from sand processing, de-watering, or stormwater) stored in ponds or reinfiltreated at the site
- The proximity of the site to surface water features and the potential for those surface waters to enter the mine site during periods of flooding
- The type and volumes of chemicals used at the site and their potential to reach the groundwater
- The use of de-watering at the mine, its potential to alter local groundwater flow systems and aquifer characteristics
- The potential for structures used to manage de-watering drawdown impacts aquifer characteristics and increases the potential for contaminants to reach groundwater
- The location and proximity of groundwater users (especially public or private drinking water wells) and sensitive surface waters that may be negatively impacted by any changes to groundwater quality or chemistry

c. Air Quality

c.i. Particle pollution is regulated by particle size. A particle's size has implications for how the particle can enter the body and effect human health. The Minnesota Environmentally Quality Board recognizes there is a growing body of literature regarding the health impacts of very small particles termed "ultrafines." Id.

- c.ii. Ultrafine particles, or particles with an aerodynamic diameter of 0.1 microns or less, are an aspect of particulate emissions that have received increasing scrutiny in recent years. Particles of this size are being investigated for human health effects. Due to their size, fine particles can get deep into the lungs and cause serious health problems. Numerous scientific studies have linked fine particle exposure to respiratory discomfort, decreased lung function, aggravated asthma, irregular heartbeat and heart attacks, increased doctor's visits and hospitalizations, and premature death in people with heart or lung disease. Id.

- c.iii. Respirable crystalline silica is a dust-sized particle invisible to the naked eye that when inhaled is deposited deep within the lungs. Crystalline silica is a common component of soil and a well-known occupational hazard in certain trades. People who work in the hydraulic fracturing or frac sand mining industries are most at risk for exposure to elevated levels of respirable crystalline silica, but people living downwind of silica sand mining, processing, or hauling operations could also be exposed to respirable crystalline silica. Id.

- c.iv. Due to the greater risk for exposure in the occupational environment, respirable crystalline silica is routinely measured in the workplace. However, levels of respirable crystalline silica in ambient (outdoor) air are rarely determined. Diseases associated with chronic exposure to respirable crystalline silica over many years include: silicosis, emphysema, chronic obstructive pulmonary disease, tuberculosis, lung cancer, and immune system diseases. Id.

- c.v. The exhaust from diesel engines is another area of Air Quality concern. Diesel exhaust contains a complex mixture of air pollutants including gases and particles. Major chemical components of diesel exhaust include carbon dioxide, carbon monoxide, nitrogen dioxide, nitric oxide, particles (coarse, fine, and ultra-fine), black carbon, and sulfur dioxide. Diesel exhaust also contains air toxic pollutants such as acrolein, benzene, formaldehyde and polycyclic aromatic hydrocarbons. Id.

- c.vi. The majority of scientific studies conducted to measure the health risks associated with exposure to diesel exhaust focus on the particle components of the exhaust. Similar to the health effects associated with fine particle pollution, exposure to diesel particles can cause adverse respiratory and cardiovascular health effects including decreased lung function, aggravated asthma, irregular heartbeat and heart attacks, increased doctor's visits and hospitalizations, and premature death in people with heart or lung disease. The United States Environmental Protection Agency has also classified diesel exhaust as a likely carcinogen due to increased risk for lung cancer resulting from long term exposure. Id.

- c.vii. A summary of estimated air monitoring capital and annual costs have been compiled. This compilation of costs of monitoring Air Quality includes: Site Infrastructure, Pollutant Monitors, Supporting Equipment, Sample Analysis, and Operation/Maintenance. The estimated one-time capital expenses per monitoring site varies from \$19,000-\$142,000 depending site location and placement. The Estimated annual expenses per monitoring site varies from \$12,000-\$56,000 depending site location and placement. Id.

d. Transportation

- d.i. Silica sand mining is a high volume and concentrated activity. A mine may generate from 50 to 250 loads per day of raw silica sand. While some silica sand operations are self-contained with mining, processing and rail loading all on a single property or adjacent properties, others rely on truck hauling from an active mine site to an associated but distant processing plant and transload site for rail or barge loading. This entails a high level of truck traffic on a single highway route by vehicles loaded to the 80,000 pound gross vehicle limit. Id.; see also, *Winona County, "Sand Mining Road Impacts"* (February 7, 2012).

- d.ii. The local government units along the route will have concerns in several areas. These include accelerated wear on local roads and bridges on the route that may have a light duty design, safety of other local road users including passenger vehicle, farm implements, recreational users, and non-motorized

vehicles, and traffic impacts on residents and businesses adjacent to the route that may see increased levels of traffic, dust, and noise. Other local government units on the route but not directly authorized to permit the sand facilities will have similar concerns but reduced authority to control the impacts. Id.

d.iii. The Land Use Committee identified a number potential impacts silica sand mining could have upon Transportation in Houston County.

- Accelerated wear and failure of light-duty roads and bridges from intensive use, and disruption of transportation for both silica sand operator and existing road users
- Unsafe travel conditions for all users in areas of substandard road condition or design due to increased heavy truck traffic
- Environmental and life style impacts for residents and businesses immediately adjacent to designated route
- Reduction or elimination of recreational and non-motorized uses on some road segments, impacting tourism, recreational businesses and culturally distinct local religious and farming communities.

20. Because of the issues raised by the Land Use Committee, and the hope the State Legislature would provide some guidance pertaining to the regulation of silica sand mining, the matter was not formally addressed by the Board until April 8, 2014. At the April 8, 2014, meeting the Board discussed whether the now-dormant study committee should continue. It was also discussed what form the committee should take if it were to become active again.

21. Legal counsel for the Board indicated it was the Board's prerogative to consider all options. It was agreed that two commissioners would work with legal counsel to continue research on a possible ban of silica sand mining. At this meeting it was further discussed whether the number one priority of the Board was banning frac sand mining or regulating it. It was expressed that the Board should prepare both options for the public to consider.

22. It was the consensus of the Board to move forward with drafting a frac sand mining ordinance with the assistance of a frac sand study committee working group. It was noted that the study committee had no decision-making authority and that the recommendations of that committee would be discussed during a public hearing prior to any decision being made in their regard. There would not be a quorum of commissioners in attendance. The public was welcome to attend the meetings; members of the public were encouraged to contact commissioners to find out when the meetings would be taking place.

23. Commencing April 4, 2014, the frac sand study committee met at least bi-monthly, drafting a proposed mining ordinance. On December 2, 2014, a report of the committee's progress and status was presented to the Board. On December 2, 2014, a thirty day written comment period regarding the proposed ordinance began. On January 6, 2015, a meeting allowing public comment on the proposed ordinance was held by the Houston County Planning Commission.

24. On January 23, 2015, the Houston County Planning Commission finalized its recommendation and voted to recommend the proposed draft mining ordinance to the Board. On February 18, 2015, a meeting allowing public comment on the proposed draft mining ordinance was held. Following the hearing, the Board immediately convened and amended the text of the proposed ordinance. Specifically, the Board limited the mining of silica sand to construction and agricultural purposes. On February 24, 2015, the Board voted to accept the proposed draft mining ordinance as amended by the Board at the February 18, 2015, meeting.

CONCLUSIONS

1. The Board determines that large-scale mining and the mining and processing of industrial minerals are incompatible with (i) this county's comprehensive land use plan, (ii) the non-industrial character of this county, (iii) the need to protect the sensitive natural features prevalent throughout this county, (iv) concerns about unhealthy exposure to ambient air emissions of mining industrial minerals, (v) the need to protect sensitive streams, aquifers and water resources in this county, and (vi) the need to protect agricultural, residential, and historic residential/commercial areas.

2. The purpose of this section on excavation and mining is to (i) protect natural landscapes from excessive excavation and mining activity, (ii) protect water resources, aquifers, streams, and rivers from excessive contamination and appropriation, (iii) minimize soil erosion, (iv) protect agricultural land and farming activity, (v) prohibit large-scale extraction and mining of industrial minerals, (vi) protect existing recreational and tourist businesses, (vii) protect residents from unhealthy air emissions from mining activity, (viii) prevent the industrialization of agricultural, open space and residential communities, (ix) minimize road and bridge damage from high-volume and heavy truck traffic hauling industrial minerals, and (x) minimize land use conflicts.

3. The Board is cognizant of the practice of neighboring counties wherein they have dealt with the afore-mentioned issues by strict regulation of silica sand mining. Houston County is unique in its abundance of environmentally sensitive areas. If silica sand mining were to occur the Board concludes irreparable harm could occur to these areas. The harm to these areas would be of the type and nature that could not be repaired by a reclamation plan.

4. It is concluded that the monitoring of the impacts of silica sand mining is beyond the financial resources of Houston County. The Board concludes it is financially unable to both implement and monitor the afore-mentioned effects of silica sand mining. Houston County has limited financial resources and does not believe it would be able to recoup these costs from silica sand mine operators.

5. Minnesota Statute 145A.04 Subd,1a (iv), requires the Board to protect [the citizens of Houston County] from environmental health hazards by addressing aspects of the environment that pose risks to human health, such as monitoring air and water quality, developing policies and programs to reduce exposure to environmental health risks and promote healthy environments, and identifying and mitigating environmental risks such as food and waterborne diseases, radiation, occupational health hazards, and public health nuisances.

6. Minnesota Statutes §394.25 specifically authorizes the adoption of zoning ordinances. Subdivision two of this section indicates a county may, in its zoning ordinance, identify land uses that are "...encouraged, regulated, and/or prohibited..." The Board concludes

this is the unique situation wherein a zoning ordinance that prohibits a certain use is necessary to protect the health, safety, and general welfare of Houston County citizens.

7. The Board concludes, given the possible life-threatening effects of silica sand mining on the citizens of Houston County, combined with the limited scientific study of the health effects of such activity, Minnesota Statute 145A.04 Subd,1a (iv), requires the Board to protect the citizens of Houston County from this environmental health hazard by not allowing this economic activity in Houston County.

ORDER

Houston County Zoning Ordinance *Section 27 – Mineral Extraction* is hereby amended and replaced by the revised *Section 27- Mineral and Extraction and Mining Ordinance* adopted by the Houston County Board of Commissioners on February 24, 2015.

Date: _____

By: _____
Board Chair

