MUSCATINE

City Hall, 215 Sycamore St.
Muscatine, IA 52761-3840
(563) 262-4141
Fax (563) 262-4142

COMMUNITY DEVELOPMENT

Planning,
Zoning,
Building Safety,
Construction Inspection Services,
Public Health,
Housing Inspections,
Code Enforcement

MEMORANDUM

To: Mayor and City Council Members

Cc: Gregg Mandsager, City Administrator

From: Andrew Fangman, Assistant Community Development Director

Date: August 15, 2019

Re: Ordinance Amending Title 10, Chapter 27, Section 8, of the City Code, Standards for All Parking Lots, Garages, Drive Lanes, and Driveways

At the November 15th City Council meeting Councilman Saucedo made a request to initiate a change in City Code to exempt Light Industrial (M-1), General Industrial (M-2), and General Commercial (C-1) zoned parcels from the present requirement for the hard surfacing of parking lots used for the storage, maintenance, and/or repair of any semi-truck trailer or other heavy industrial equipment. The intent of this request is an attempt to stay consistent and have all comparable businesses have the same requirements for hard surfacing, regardless of when their parking lots were constructed. Under this proposal vehicle parking lot still have to comply with hard surfacing requirements currently contained within City Code.

The Planning and Zoning Commission extensively discussed this its December, February, March, and April meetings. At the February meeting the Commission directed staff to prepare code language, in line with best practices, that would permit the storage of vehicles, trailers, and other equipment in non-hard surfaced areas in the M-2 zoning districts, so that they might give it consideration. With further direction that such an allowance for non-hard surfaced storage areas be done in a manner that minimizes adverse impacts on nearby properties and on the community as a whole. The Commission reviewed this initial draft code changes at the March 12th Planning and Zoning Commission meeting, and directed staff to make a number of changes.

Based on Planning and Zoning Commission feedback prepared the attached code language. If adopted this code language would permit the storage of trailers, vehicles, and other equipment on areas surfaced with crushed stone, chip seal, oil or other such surfacing material, subject to all of the following conditions being met:

- Only be allowed in areas zoned General Industrial (M-2).
- Not be allowed in a front yard or within 100 feet of a parcel containing a residence.
- Be required to be screened from a public street by being located behind a building or a landscaped buffer yard.
- The installation of such a storage area would require prior review and approval by the City.

- That such storage areas would need to be maintained free of weeds and standing water.
- The use of slag would not be permitted.
- The use of non-hard surfaced outdoor vehicles storages areas for customer parking, employee parking, loading or unloading of vehicles, or vehicle maintenance, would be prohibited.

At the April 9th meeting the Planning and Zoning, after review the proposed draft langue which is attached to this memo, voted 4 to 2 to recommend that the City Council not change the current parking lot surfacing standards. The four Commission member voting to leave the current parking lot surfacing standards as they are, offered the following rational for this recommendation. Hard surfacing all parking lots and driveways is desirable for environmental quality and community aesthetic reasons. Concerns over the fairness that only giving an exemptions in certain circumstances in industrial areas when it similar cases could be made other areas For example, the storage of R.V's in backyard of a home, long residential driveways, etc.

The two dissenting Commissioners offered the following rational for their vote recommend approval of the attached proposed revives parking lot surfacing standards. Improvements to air quality since the adoption of the hard surfacing standard removes a big part the rational for its existence these regulations. That the idea of only allowing non-hard surfaced parking lots in areas more than 100' from any street or home should be adequate to mitigate their negative effects.

Staff concurs with the Planning and Zoning Commission that this ordinance not be approved.

Attached to this memo are

- Memo to the Planning Zoning Commission on this topic.
- Minutes containing the Planning and Zoning Commission Discussion on this issue.
- The parking lot surfacing requirements of approximately 30 communities in Eastern Iowa and Western Illinois.
- Key excerpts from the 1980 State Implementation Plan for the Muscatine particulate non-attainment area. Muscatine's requirement for the hard surfacing of parking lots was adopted largely as response to this document in which the State found that the only way that Muscatine would achieve attainment with federal air quality standards for particulates would be with a major reduction in dust from unpaved roads and parking lots.
- A list of parking lots constructed in the City of Muscatine over the past five years or so.
- Partial list of grandfathered gravel parking lots, these are ones that has been generated over the years in response to questions over if a specific parking is grandfathered or not.
- Two items provided by Councilman Saucedo, the Planning and Zoning Commission in support of the proposed change to City Code.

When the Planning and Zoning Commission has voted against a proposed amendment to the Zoning Ordinance, as per City Code Section 10-31-6(B), said amendment to the zoning ordinance shall not be passed except by the favorable vote of three-fourths of all members of the Council, a total six affirmative votes.

Prepared by Andrew Fangman – City Hall - 215 Sycamore St. – Muscatine, IA 52761- (563) 262-4141

ORDINANCE NO. _____

AN ORDINANCE AMENDING TITLE 10, CHAPTER 27, SECTION 8, OF THE CITY CODE, STANDARDS FOR ALL PARKING LOTS, GARAGES, DRIVE LANES, AND DRIVEWAYS

WHEREAS, Surfacing requirements for parking lots, driveways, and other areas of vehicular activity are found in Section 10-27-8 of City Code; and

WHEREAS, Current regulations require that for parking lots, driveways, and other areas of vehicular activity to be surfaced with concrete, asphalt or an alternate durable dust free surface approved by the City Engineer; and

WHEREAS, The intent of proposed is an attempt to stay consistent and have all comparable businesses have the same requirements for hard surfacing, regardless of when their parking lots were constructed. Under this proposal vehicle parking lot still have to comply with hard surfacing requirements currently contained within City Code. Further that such an allowance for non-hard surfaced storage areas, as would be permitted under this proposed code change, have minimal adverse impacts on nearby properties and on the community as a whole; and

WHEREAS, The proposed code change would permit the storage of trailers, vehicles, and other equipment on areas surfaced with crushed stone, chip seal, oil or other such surfacing material, subject to all of the following conditions being met: only be allowed in areas zone General Industrial (M-2); would not be allowed in a front yard or within 100 feet of a parcel containing a residence; would be required to be screened from a public street by being located behind a building or a landscaped buffer yard; the installation of such a storage area would require prior review and approval by the City; that such storage areas would need to be maintained free of weeds and standing water; the use of slag for the surfacing of such areas would not be permitted; and would prohibit using non-hard surfaced outdoor vehicles storages areas for customer parking, employee parking, loading or unloading of vehicles, or vehicle maintenance.; and

WHEREAS, the Planning and Zoning Commission on April 9, 2019 voted to recommend the proposed ordinance not be adopted; and

WHEREAS, a public hearing, on August 1, 2019, was conducted by the City Council of Muscatine prior to the adoption this ordinance;

NOW, THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MUSCATINE, IOWA:

SECTION 1. Subsection E through though J, of Section 8, of Chapter 27, of Title 10 of the City Code of Muscatine, Iowa are hereby redesignated as Subsection F through K, with each Subsections designation being advanced one alphabetical position.

SECTION 2. The following is herby added as Subsection E, of Section 8, of Chapter 27, of Title 10 of the City Code of Muscatine, Iowa:

E. Expect for as provided for by this section outdoor areas used for the storage of vehicles, trailers, and other heavy equipment shall be surfaced in accordance with the standards set forth in Section 10-27-8(A, B, C, or D). Gravel, crushed stone, chip seal, oil or other such surfacing material may be used in other outdoor areas used for the storage of vehicles, trailers, and other heavy equipment if such areas conform to the following standards:

1. The use of gravel, crushed stone, chip seal, oil or other such surfacing material is permitted for use in outdoor areas used for the storage of vehicles, trailers, and other heavy equipment shall only be permissible in the M-2 zoning district.
2. The use of gravel, crushed stone, chip seal, oil or other such surfacing material may be used in other outdoor areas used for the storage of vehicles, trailers, and other heavy equipment shall only be permissible on the portions of a parcel that are:
3. Not located in the front yard, or
4. Located more than 100' from the nearest right of way line or any parcel containing a residence.
5. Outdoor areas used for the storage of vehicles, trailers, and other heavy equipment shall be screened from all public streets, or adjoining parcels that contain a residence, by either of the following methods:
    a. Being located behind a building, or
    b. Being located behind a landscaped buffer yard meeting the following standards is required:
    c. Be visually screened from all abutting public streets or adjoining parcels containing a residence by a landscaped buffer area of least 6 feet in width.
    d. A minimum of one tree and 6 shrubs shall be planted in the landscaped buffer per 25 linear feet of street frontage.
    e. All fractional amounts of required trees or shrubs shall be rounded up to the next whole number. For example, 2.15 trees rounds up to 3 trees.
6. All access drives leading to outdoor storage areas, meeting all criteria contained within this section to be used for the storage of vehicles, trailers, and other heavy equipment shall be surfaced in accordance with the standards set forth in Section 10-27-8 of City Code.

7. Gravel, crushed stone, chip seal, oil or other such surfacing material shall not be installed for the use in other outdoor areas used for the storage of vehicles, trailers, and other heavy equipment without prior approval from the City of Muscatine. The City of Muscatine shall approve such an installation upon making a determination that said installation complies with the standards set for in this Section of City Code. When requesting such an installation an applicant shall submit the following to the City of Muscatine:

    a. Detailed specification regarding the type of surfacing material proposed for use. In no circumstances shall slag be used for such a purpose.

    b. A diagram of the proposed storage area for outdoor vehicles, trailers, and other heavy equipment. the diagram must contain the following information:

        i. The location and dimensions of the proposed outdoor storage area;

        ii. How the screening requirements of Subsection 5 are to be met; and

        iii. Documentation that access drives leading to the outdoor storage are surfaced in accordance with the standards set forth in Section 10-27-8 of City Code.

    c. An application fee as set forth in Appendix D.

8. All outdoor storage areas shall be maintained so that they are free of weeds and standing water.

9. The use of any area approved, under the provisions of Section E, for surfacing with gravel, crushed stone, chip seal, oil or other such surfacing material, shall be limited to the storage of vehicles, trailers, and other heavy equipment or another use that does not require hard surfacing as per Section 10-27-8(A). The following activities are specifically prohibited:

    a. Employee parking

    b. Customer parking

    c. Loading or unloading of vehicles

    d. Vehicle maintenance

SECTION 3. Any Ordinance or part thereof in conflict or inconsistent with the provisions of this Ordinance is repealed.

SECTION 4. This ordinance shall be in effect from and after the passage and approval and publication of this ordnance, as provided by law

PASSED, APPROVED, AND ADOPTED by the City Council for the City of Muscatine, Iowa, on this, the 15th day of August 2019.

Diana L. Broderson, Mayor

ATTEST:

Gregg Mandsager, City Clerk

First Reading:
Second Reading:
Third Reading:
Publication:

MINUTES
April 9, 2019 – 5:30 p.m.
Planning and Zoning Commission
Muscatine City Hall
City Council Chambers

Present: Andrew Anderson, Rochelle Conway, Jodi Hansen, Wendi Ingram, Robert McFadden, and John Sayles

Excused: Steve Nienhaus

Staff: Andrew Fangman, City Planner, Community Development
Lindsay Whitson, Community Development Coordinator, Community Development

Chairperson Jodi Hansen opened the meeting at 5:30 p.m. and read the Mission Statement.

Minutes:

John Sayles stated that the minutes were incorrect when listing Curry's Transportation Services as 42 Highway 61 South. The correct address is 4200 Highway 61 South. Robert McFadden moved to approve the minutes with the necessary edit to Curry's address, and John Sayles seconded the motion. All ayes, motion carried.

Other:

Request from City Council for a recommendation from the Planning and Zoning Commission on a change to parking lot surfacing standards – continued discussion from the December 11, 2018 and February 12, 2019, and March 12, 2019 meetings

Andrew Fangman outlined the discussions that have taken place thus far on the ordinance request by City Council. Mr. Fangman stated that staff still recommends that no change is to be made to the ordinance, but that he had prepared a draft ordinance to consider if a change to the ordinance is desired by the Commission. Changes include;

1. Removing the requirement that non-hard surfaced outdoor vehicle storage areas be screened from public streets by a solid 6' fence and that the requirement be that such areas be screened from public streets by a landscaped buffer yard left in place.
2. Add a requirement that adjoining residential areas be screened from non-hard surfaced outdoor vehicle storage area with a landscaped buffer yard.
3. Change the portion of the proposed code language that is intended to limit the use of non-hard surfaced outdoor vehicle storage areas with minimal vehicle movements by removing the requirement that, "Any vehicle, trailer, or equipment storied in an outdoor storage area surfaced with gravel, crushed stone, chip seal, oil, or other such surfacing material shall not be moved more than a monthly average of four times. If a storage area contains vehicles, trailers, or heavy equipment that is moved more often, then the area shall be hard surfaced." This requirement has been replaced with a prohibition on using non-hard surfaced outdoor vehicle storage areas for customer parking, employee parking, loading or unloading of vehicles, or vehicle maintenance.

Discussion continued on the outlined draft ordinance. Andrew Anderson discussed that he believes eliminating the requirement of a solid 6' fence is not practical. The Commission decided that if an ordinance update were to take place, the change would only be permissible in M-2 and not M-1, as M-1 could affect a number of residential properties. Robert McFadden stated that if the Commission decides to adopt the changes to the ordinance, that enforcing compliance would be extremely difficult. He also believes slag to be toxic and that it would negatively impact the environment.

Ms. Hansen also reminded the Commission that if a business desires, they may request to take their case to the Zoning Board of Adjustment for a variance. Mr. Fangman stated that more than likely this type of case would not be a strong case for the Zoning Board of Adjustment, but that it is possible.

Mr. McFadden motioned to deny the request to update the ordinance in regards to changing the parking lot surfacing requirements in in the M-2 district. He recommended that the current language in City Code remains. Mr. Sayles seconded the motion. Ms. Conway and Ms. Hansen were also ayes, and Mr. Anderson and Ms. Ingram were opposed to the motion. The motion carried as a majority vote was in favor.

For purposes of providing Mr. Fangman with information to bring to City Council, Ms. Hansen asked Mr. Anderson and Ms. Ingram to discuss their opposition to keeping the ordinance in place as is in current City Code. Ms. Ingram stated that air quality was one of the reasons the ordinance was revisited, and that parking lots no longer play such a large role in the release of negative emissions resulting in poor air quality. Mr. Anderson stated that a business located in M-2 more than 100 feet or more from the public right away, may not negatively affect the environment by producing large amounts of dust that reach public areas.

Review of the proposed Fiscal Years 2020 through 2024 Capital Improvement Plan (CIP)

Ms. Whitson started by providing a follow-up response to the three projects that were discussed at the March Planning and Zoning Commission meeting. She stated that Brian Stineman with Public Works had indicated that Carver Corner is not included in the updated Capital Improvement Plan (CIP) because specifics of the project are not yet identified. The Second and Mulberry updates are included with the expenses listed in the Mississippi Drive project. Lastly, the widening of Park Avenue will begin construction in 2020 and is already being funded by the State. Mr. Anderson asked how the City Council handles the CIP once approved by the Planning & Zoning Commission. Mr. Fangman said that they provide modifications to the listed projects as desired, and add or delete projects as needed. Mr. Fangman clarified that the City Council and staff members use the CIP to assist with the development of the budget and that it allows for all documents to be listed and prioritized in one place. Ms. Ingram asked how the projects were scored in which Mr. Fangman replied that he and Ms. Whitson scored all of the projects.

The Commission agreed that more time was needed to review the document more thoroughly. It was agreed that members would review the document and provide comment to Ms. Whitson by Friday, April 19. If content related comments are received, Ms. Whitson will compile any comment and the Planning & Zoning Commission will hold a special meeting to make a recommendation for approval. If no comment is received, it has been noted that the Planning & Zoning Commission will approve the CIP update at the regularly scheduled May 14 Planning & Zoning Commission meeting. The document will be presented to City Council on May 9, so a recommendation for approval must be made prior to the date.

Meeting adjourned.

ATTEST:

Respectfully Submitted,

Jodi Hansen, Chairperson
Planning & Zoning Commission

Andrew Fangman, Secretary
City Planner

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MEMORANDUM

To: Planning and Zoning Commission

From: Andrew Fangman, Assistant Community Development Director

Date: April 9, 2019

Re: City Council Request for a Recommendation of a Potential Change to Parking Lot Surfacing Standards

At the November 15th City Council meeting Councilman Saucedo made a request to initiate a change in City Code to exempt Light Industrial (M-1), General Industrial (M-2), and General Commercial (C-1) zoned parcels from the present requirement for the hard surfacing of parking lots used for the storage, maintenance, and/or repair of any semi-truck trailer or other heavy industrial equipment. The intent of this request is an attempt to stay consistent and have all comparable businesses have the same requirements for hard surfacing, regardless of when their parking lots were constructed. Under this proposal vehicle parking lot still have to comply with hard surfacing requirements currently contained within City Code.

The Planning and Zoning Commission has extensively discussed this is at both its December and February meetings. At the February meeting the Commission directed staff to prepare code language, in line with best practices, that would permit the storage of vehicles, trailers, and other equipment in non-hard surfaced areas in the M-2 zoning districts, so that they might give it consideration. With further direction that such an allowance for non-hard surfaced storage areas be done in a manner that minimizes adverse impacts on nearby properties and on the community as a whole.

The Commission reviewed this draft code changes at the March 12th Planning and Zoning Commission meeting, and directed staff to make a number of changes. The attached draft code language incorporates these requested changes. The new revised draft code language differs from the March 12th draft in the following ways:

- Removed the requirement that non-hard surfaced outdoor vehicles storages areas be screened from public streets by a solid 6' fence. The requirements for such areas be screened from public streets by a landscaped buffer yard was left in place.
- Added a requirement that adjoining residential areas be screen from non-hard surfaced outdoor vehicles storages areas with a landscaped buffer yard.
- Changed the portion of the proposed code language that is intended to limit the use of non-hard surfaced outdoor vehicle storage areas to storage uses with minimal vehicle movements by removing the requirement that "Any vehicle, trailer or equipment stored in an outdoor storage area surfaced with gravel, crushed stone, chip seal, oil or other

such surfacing material shall not be moved more than a monthly average of four times. If a storage area contains vehicles, trailers, or heavy equipment that is moved more often, then the area shall be hard surfaced." This requirement has been replaced with a prohibition on using non-hard surfaced outdoor vehicles storages areas for customer parking, employee parking, loading or unloading of vehicles, or vehicle maintenance.

Staff recommends still that no changes to the hard-surfacing requirements be made, based on the rational set forth at December, February, and March meeting. However, should the Commission wish to recommend any change to current standards for hard surfacing it is staff's recommendation that it be on the attached proposed code language, it would allow for flexibility in the construction of outdoor storage areas for vehicle, trailers, and equipment in industrial areas, while minimizing as much as possible the impact on the surrounding areas and the community as a whole.

Open storage of vehicles, trailers, and other heavy equipment.

Expect for as provided for by this section outdoor areas used for the storage of vehicles, trailers, and other heavy equipment shall be surfaced in accordance with the standards set forth in Section 10-27-8 *(hard surfaced)*. Gravel, crushed stone, chip seal, oil or other such surfacing material may be used in other outdoor areas used for the storage of vehicles, trailers, and other heavy equipment if such areas conform to the following standards:

A. The use of gravel, crushed stone, chip seal, oil or other such surfacing material is permitted for use in outdoor areas used for the storage of vehicles, trailers, and other heavy equipment shall only be permissible in the M-2 zoning district.

B. The use of gravel, crushed stone, chip seal, oil or other such surfacing material may be used in other outdoor areas used for the storage of vehicles, trailers, and other heavy equipment shall only be permissible on the portions of a parcel that are:

   1. Not located in the front yard, or
   2. Located more than 100' from the nearest right of way line or any parcel containing a residence.

C. Outdoor areas used for the storage of vehicles, trailers, and other heavy equipment shall be screened from all public streets, or adjoining parcels that contain a residence, by either of the following methods:

   1. Being located behind a building, or
   2. Being located behind a landscaped buffer yard meeting the following standards is required:

      a. Be visually screened from all abutting public streets or adjoining parcels containing a residence by a landscaped buffer area of least 6 feet in width.

      b. A minimum of one tree and 6 shrubs shall be planted in the landscaped buffer per 25 linear feet of street frontage.

      c. All fractional amounts of required trees or shrubs shall be rounded up to the next whole number. For example, 2.15 trees rounds up to 3 trees.

D. All access drives leading to outdoor storage areas, meeting all criteria contained within this section to be used for the storage of vehicles, trailers, and other heavy equipment shall be surfaced in accordance with the standards set forth in Section 10-27-8 of City Code.

E. Gravel, crushed stone, chip seal, oil or other such surfacing material shall not be installed for the use in other outdoor areas used for the storage of vehicles, trailers, and other heavy equipment without prior approval from the City of Muscatine. The City of Muscatine shall approve such an installation upon making a determination that said

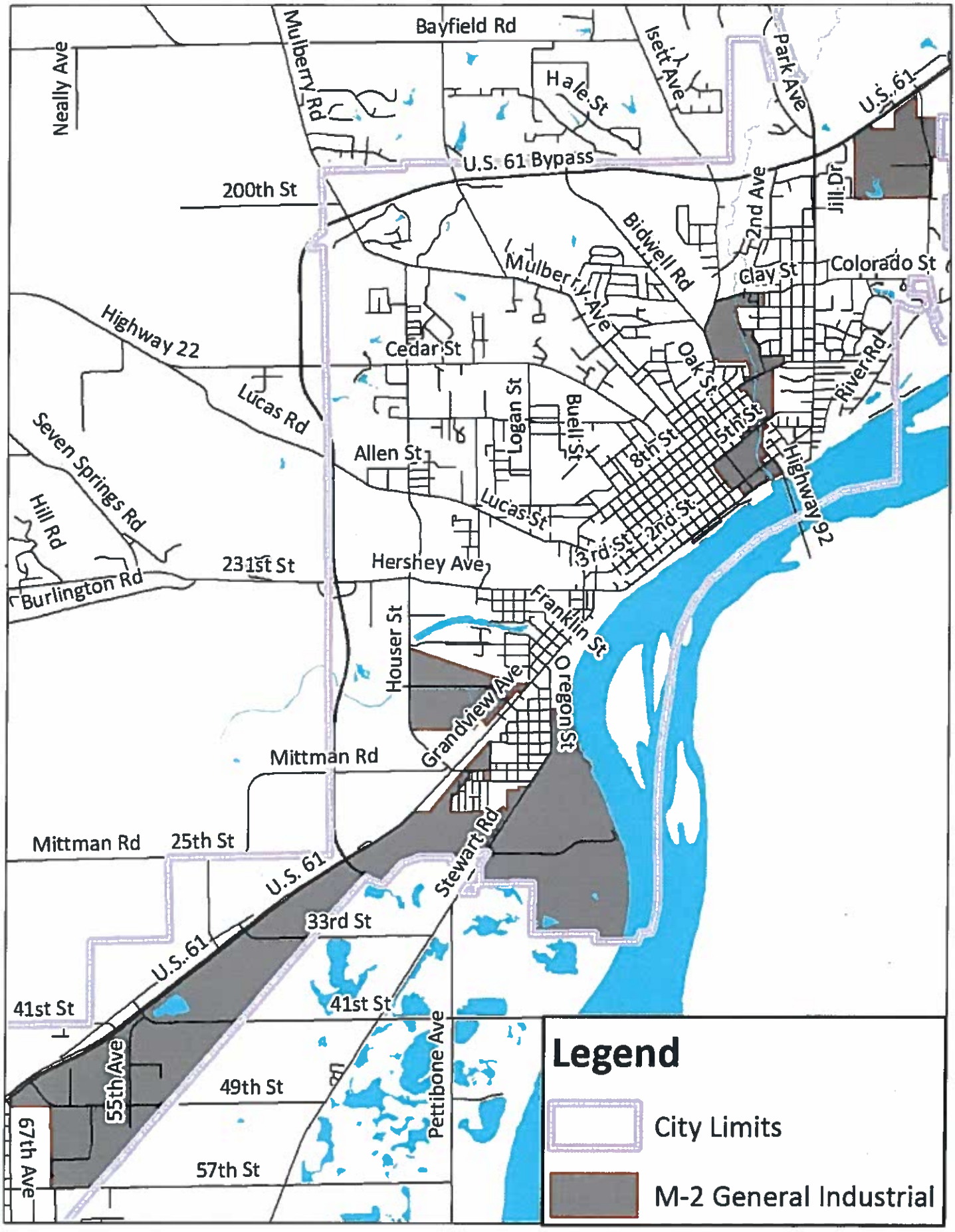
installation complies with the standards set for in this Section of City Code. When requesting such an installation an applicant shall submit the following to the City of Muscatine:

1. Detailed specification regarding the type of surfacing material proposed for use. In no circumstances shall slag be used for such a purpose.
2. A diagram of the proposed storage area for outdoor vehicles, trailers, and other heavy equipment. the diagram must contain the following information:
    a. The location and dimensions of the proposed outdoor storage area;
    b. How the screening requirements of Subsection (C) are to be met; and
    c. Documentation that access drives leading to the outdoor storage are surfaced in accordance with the standards set forth in Section 10-27-8 of City Code.
    d. An application fee as set forth in Appendix D.

F. All outdoor storage areas shall be maintained so that they are free of weeds and standing water.

G. The use of any area approved, under the provisions of Section E, for surfacing with gravel, crushed stone, chip seal, oil or other such surfacing material, shall be limited to the storage of vehicles, trailers, and other heavy equipment or another use that does not require hard surfacing as per Section 10-27-8(A). The following activities are specifically prohibited:

1. Employee parking
2. Customer parking
3. Loading or unloading of vehicles
4. Vehicle maintenance


Bayfield Rd
Neally Ave
Mulberry Rd
Hale St
Isett Ave
Park Ave
U.S. 61
U.S. 61 Bypass
200th St
Jill Dr
2nd Ave
Bidwell Rd
Mulberry Ave
Clay St
Colorado St
Highway 22
Cedar St
Oak St
River Rd
Lucas Rd
Logan St
Buell St
8th St
5th St
Seven Springs Rd
Allen St
Highway 92
Hill Rd
Lucas St
3rd St
2nd St
231st St
Hershey Ave
Burlington Rd
Franklin St
Houser St
Oregon St
Grandview Ave
Mittman Rd
Stewart Rd
Mittman Rd
25th St
U.S. 61
33rd St
U.S. 61
41st St
41st St
55th Ave
Pettibone Ave
49th St
67th Ave
57th St
Legend
City Limits
M-2 General Industrial

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MEMORANDUM

To: Planning and Zoning Commission

From: Andrew Fangman, City Planner

Date: March 12, 2019

Re: City Council Request for a Recommendation of a Potential Change to Parking Lot Surfacing Standards

At the November 15th City Council meeting Councilman Saucedo made a request to initiate a change in City Code to exempt Light Industrial (M-1), General Industrial (M-2), and General Commercial (C-1) zoned parcels from the present requirement for the hard surfacing of parking lots used for the storage, maintenance, and/or repair of any semi-truck trailer or other heavy industrial equipment. The intent of this request is an attempt to stay consistent and have all comparable businesses have the same requirements for hard surfacing, regardless of when their parking lots were constructed. Under this proposal vehicle parking lot still have to comply with hard surfacing requirements currently contained within City Code.

The Planning and Zoning Commission has extensively discussed this is at both its December and February meetings. At the February meeting the Commission directed staff to prepare code language, in line with best practices, that would permit the storage of vehicles, trailers, and other equipment in non-hard surfaced areas in the M-2 zoning districts, so that they might give it consideration. With further direction that such an allowance for non-hard surfaced storage areas be done in a manner that minimizes adverse impacts on nearby properties and on the community as a whole.

Staff has prepared the attached code language. If adopted this code language would permit the storage of trailers, vehicles, and other equipment on areas surfaced with crushed stone, chip seal, oil or other such surfacing material, subject to all of the following conditions being met:

- Only be allowed in areas zone General Industrial (M-2). Attached to this memo is map showing which locations within the City are zoned M-2.
- Not be allowed in a front yard or within 100 feet of a parcel containing a residence.
- Be required to be screened from a public street by being located behind a building or a solid 6 foot fence/wall.
- Access lanes/drives to and within the storage areas would have to be hard surfaced in accordance with currently adopted City standards.
- The installation of such a storage area would require prior review and approval by the City.

- Any vehicle, trailer or equipment stored in an outdoor storage area surfaced with gravel, crushed stone, chip seal, oil or other such surfacing material shall not be moved more than a monthly average of four times. If a storage area contains vehicles, trailers, or heavy equipment that is moved more often, then the area shall be hard surfaced
- That such storage areas would need to be maintained free of weeds and standing water
- The use of slag would not be permitted.

Staff recommends that no changes to the hard-surfacing requirements be made. However, should the Commission wish to recommend any change to current standards for hard surfacing it is staff's recommendation that it be on the attached proposed code language. This recommendation I s based on the following reasons.

The current hard surfacing standards are a critical component of the community's efforts to continue to comply with federal air quality standards, as has been discussed at the February and December Planning and Zoning Commission meetings.

The draft regulations are intended to only allow for non-hard surfaced storage of vehicles in situations where vehicles are moved infrequently. As such the proposed regulations restrict the movement of vehicles in such areas to average of four times a month. This standard or any other regulation on how often vehicles can be moved would likely prove to be a challenge to enforce.

If the commission chooses to recommend adoption of the attached draft regulations, it should articulate its reasoning for only relaxing the requirement for hard surfacing in these circumstances. For example, the storage of R.V's on a residential lot, long residential driveways, etc.

Open storage of vehicles, trailers, and other heavy equipment.

Expect for as provided for by this section outdoor areas used for the storage of vehicles, trailers, and other heavy equipment shall be surfaced in accordance with the standards set forth in Sections 10-28-8(A), (B), (C) and (D) of City Code *(hard surfaced).* Gravel, crushed stone, chip seal, oil or other such surfacing material may be used in other outdoor areas used for the storage of vehicles, trailers, and other heavy equipment if such areas conform to the following standards:

A. The use of gravel, crushed stone, chip seal, oil or other such surfacing material is permitted for use in outdoor areas used for the storage of vehicles, trailers, and other heavy equipment shall only be permissible in the M-2 zoning district. In no circumstances shall slag be used for such a purpose.

B. The use of gravel, crushed stone, chip seal, oil or other such surfacing material may be used in other outdoor areas used for the storage of vehicles, trailers, and other heavy equipment shall only be permissible on the portions of a parcel that are:

1. Not located in the front yard, or
2. Located more than 100' from the nearest right of way line or any parcel containing a residence.

C. Outdoor areas used for the storage of vehicles, trailers, and other heavy equipment shall be screened from all public streets by either of the following methods:

1. Being located behind a building, or
2. Being located behind a solid 6' fence/wall, when said fence wall is located adjacent to a public street a landscaped buffer yard meeting the following standards is required:

    a. Be visually screened from all abutting streets by a landscaped buffer area of least 6 feet in width.

    b. A minimum of one tree and 6 shrubs shall be planted in the landscaped buffer per 25 linear feet of street frontage.

    c. All fractional amounts of required trees or shrubs shall be rounded up to the next whole number. For example, 2.15 trees rounds up to 3 trees.

D. All access drives leading to outdoor storage areas, meeting all criteria contained within this section to be used for the storage of vehicles, trailers, and other heavy equipment shall be surfaced in accordance with the standards set forth in Sections 10-28-8(A), (B), (C) and (D) of City Code.

E. Gravel, crushed stone, chip seal, oil or other such surfacing material shall not be installed for the use in other outdoor areas used for the storage of vehicles, trailers, and other heavy equipment without prior approval from the City of Muscatine. The City of

Muscatine shall approve such an installation upon making a determination that said installation complies with all applicable standards. When requesting such an installation an applicant shall submit the following to the City of Muscatine:

1. Detailed specification regarding the type of surfacing material proposed for use.
2. A diagram of the proposed storage area for outdoor vehicles, trailers, and other heavy equipment. the diagram must contain the following information:
    a. The location and dimensions of the proposed outdoor storage area;
    b. How the screening requirements of Subsection (C) are to be met; and
    c. Documentation that access drives leading to the outdoor storage are surfaced in accordance with the standards set forth in Sections 10-28-8(A), (B), (C) and (D) of City Code.
    d. An application fee as set forth in Appendix D.

F. All outdoor storage areas shall be maintained so that they are free of weeds and standing water.

G. Any vehicle, trailer or equipment stored in an outdoor storage area surfaced with gravel, crushed stone, chip seal, oil or other such surfacing material shall not be moved more than a monthly average of four times. If a storage area contains vehicles, trailers, or heavy equipment that is moved more often than the area shall be surfaced in accordance with the standards set forth in Sections 10-28-8(A), (B), (C) and (D) of City Code.

Open storage of vehicles, trailers, and other heavy equipment.
Expect for as provided for by this section outdoor areas used for the storage of vehicles, trailers, and other heavy equipment shall be surfaced in accordance with the standards set forth in Sections 10-28-8(A), (B), (C) and (D) of City Code (hard surfaced). Gravel, crushed stone, chip seal, oil or other such surfacing material may be used in other outdoor areas used for the storage of vehicles, trailers, and other heavy equipment if such areas conform to the following standards:
A. The use of gravel, crushed stone, chip seal, oil or other such surfacing material is permitted for use in outdoor areas used for the storage of vehicles, trailers, and other heavy equipment shall only be permissible in the M-2 zoning district. In no circumstances shall slag be used for such a purpose.

B. The use of gravel, crushed stone, chip seal, oil or other such surfacing material may be used in other outdoor areas used for the storage of vehicles, trailers, and other heavy equipment shall only be permissible on the portions of a parcel that are:

1. Not located in the front yard, or

2. Located more than 100' from the nearest right of way line or any parcel containing a residence.
C. Outdoor areas used for the storage of vehicles, trailers, and other heavy equipment shall be screened from all public streets by either of the following methods:

1. Being located behind a building, or

2. Being located behind a solid 6' fence/wall, when said fence wall is located adjacent to a public street a landscaped buffer yard meeting the following standards is required:
a. Be visually screened from all abutting streets by a landscaped buffer area of least 6 feet in width.

b. A minimum of one tree and 6 shrubs shall be planted in the landscaped buffer per 25 linear feet of street frontage.

c. All fractional amounts of required trees or shrubs shall be rounded up to the next whole number. For example, 2.15 trees rounds up to 3 trees.

D. All access drives leading to outdoor storage areas, meeting all criteria contained within this section to be used for the storage of vehicles, trailers, and other heavy equipment shall be surfaced in accordance with the standards set forth in Sections 10-28-8(A), (B), (C) and (D) of City Code.

E. Gravel, crushed stone, chip seal, oil or other such surfacing material shall not be installed for the use in other outdoor areas used for the storage of vehicles, trailers, and other heavy equipment without prior approval from the City of Muscatine. The City of Muscatine shall approve such an installation upon making a determination that said installation complies with all applicable standards. When requesting such an installation an applicant shall submit the following to the City of Muscatine:

1. Detailed specification regarding the type of surfacing material proposed for use.

2. A diagram of the proposed storage area for outdoor vehicles, trailers, and other heavy equipment. the diagram must contain the following information:

a. The location and dimensions of the proposed outdoor storage area;

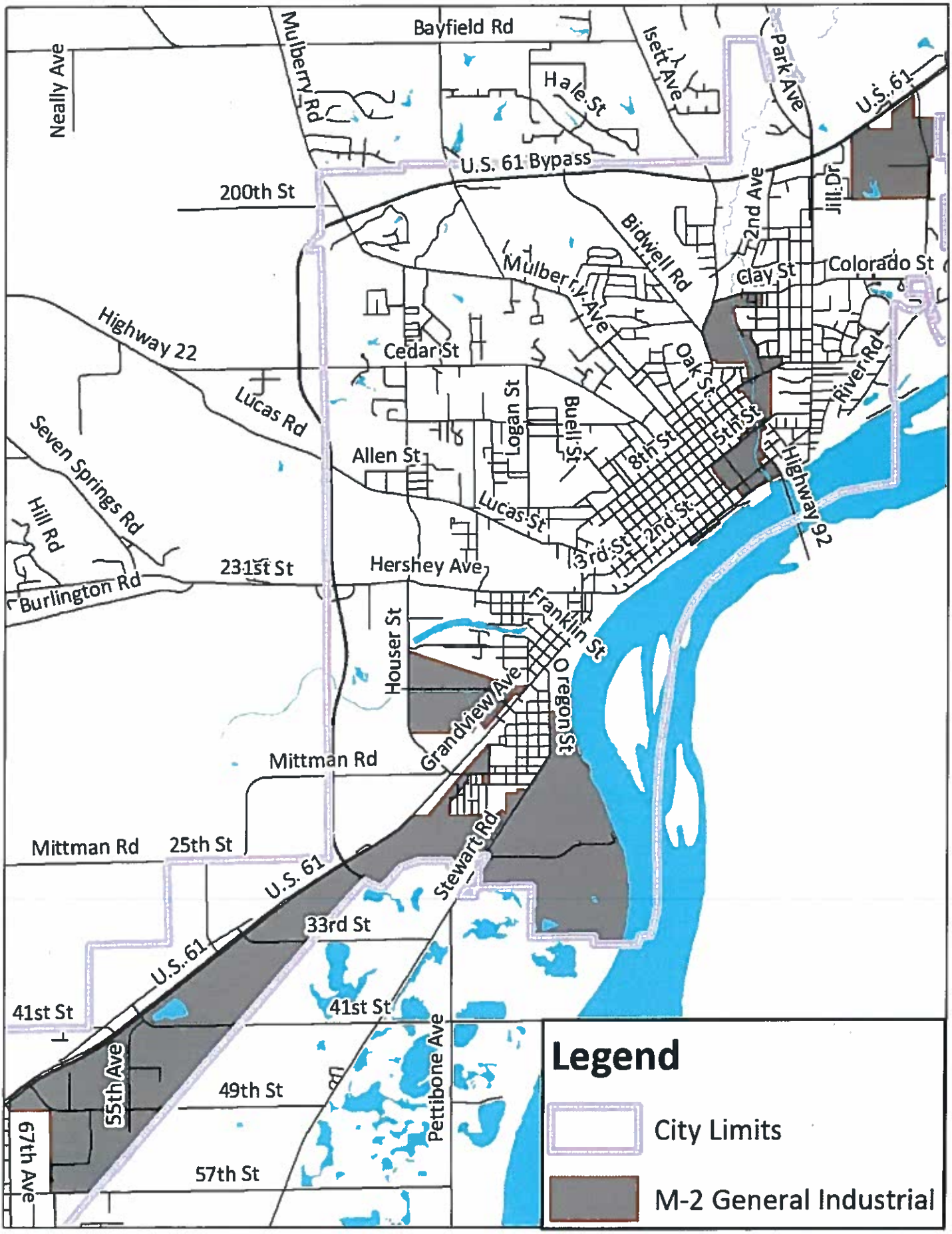
b. How the screening requirements of Subsection (C) are to be met; and

c. Documentation that access drives leading to the outdoor storage are surfaced in accordance with the standards set forth in Sections 10-28-8(A), (B), (C) and (D) of City Code.

d. An application fee as set forth in Appendix D.

F. All outdoor storage areas shall be maintained so that they are free of weeds and standing water.

G. Any vehicle, trailer or equipment stored in an outdoor storage area surfaced with gravel, crushed stone, chip seal, oil or other such surfacing material shall not be moved more than a monthly average of four times. If a storage area contains vehicles, trailers, or heavy equipment that is moved more often than the area shall be surfaced in accordance with the standards set forth in Sections 10-28-8(A), (B), (C) and (D) of City Code.


Bayfield Rd
Neally Ave
Mulberry Rd
Hale St
Isett Ave
Park Ave
U.S. 61
U.S. 61 Bypass
200th St
Jill Dr
2nd Ave
Bidwell Rd
Mulberry Ave
Clay St
Colorado St
Highway 22
Cedar St
Oak St
River Rd
Lucas Rd
Logan St
Buell St
8th St
5th St
Allen St
Seven Springs Rd
Hill Rd
Lucas St
3rd St
2nd St
Highway 92
231st St
Hershey Ave
Burlington Rd
Franklin St
Houser St
Oregon St
Grandview Ave
Mittman Rd
Mittman Rd
25th St
U.S. 61
Stewart Rd
33rd St
U.S. 61
41st St
41st St
55th Ave
49th St
Pettibone Ave
67th Ave
57th St
Legend
City Limits
M-2 General Industrial

MINUTES
March 12, 2019 – 5:30 p.m.
Planning and Zoning Commission
Muscatine City Hall
City Council Chambers

Present: Rochelle Conway, Jodi Hansen, Wendi Ingram, Robert McFadden, and John Sayles

Excused: Andrew Anderson and Steve Nienhaus

Staff: Andrew Fangman, City Planner, Community Development
Lindsay Whitson, Community Development Coordinator, Community Development

Chairperson Jodi Hansen opened the meeting at 5:30 p.m. and read the Mission Statement.

Minutes:

Robert McFadden moved to approve the minutes submitted for the February 12, 2019 meeting; seconded by Rochelle Conway. All ayes, motion carried.

Subdivision:

Subdivision Case PZS#15 – Blessing Point Subdivision – Debbie and Don Reiner – 1 lot – 1.16 acres – N. Isett Avenue (Unincorporated Muscatine)

Debbie Reiner, 810 XXXX Street, spoke to the Commission about the case. Her and Don Reiner have filed a combined preliminary/final plat for Blessings Point Subdivision on N. Isett Avenue. The subject area is zoned R-1 Residential and is 1.16 acres. The purpose is to create a residential lot for the construction of a new home. Staff recommended approval.

Robert McFadden moved to approve the subdivision case; seconded by John Sayles. All ayes, motion carried

Utility Easement Vacation – Darrell and Brenda Goff – Lots 45, & Outlot A – Riverbend Second Addition – 3435 Clermont Drive

A representative was not present to discuss the case. Darrell and Brenda Goff had submitted a utility easement vacation plat to vacate a ten foot wide utility easement, composed of two adjoining 5' utility easements located on Lots 25 and Outlot A of the Riverbend Second Addition Subdivision (3435 Clermont Drive). The intent is to combine the two parcels, making the discussed utility easements unnecessary as the resulting parcel will already have all of the necessary utility easements located along the perimeter. Staff recommended approval.

Wendi Ingram moved to approve the utility easement vacation; seconded by Rochelle Conway. All ayes, motioned carried.

Other:

Request from City Council for a recommendation from the Planning and Zoning Commission on a change to parking lot surfacing standards – continued discussion from the December 11, 2018 and February 12, 2019 meetings

Andrew Fangman outlined the discussions that have taken place thus far on the ordinance request and reviewed the items that were included in the agenda packet, including a draft proposal of the ordinance. Santos Saucedo, 3 Nelson Drive, stated that he had invited a local business to speak and to address how the hard surfacing requirements negatively affect their business. Jason Curry of Curry's Transportation Services, 42 Highway 61 South, discussed how hard surfacing the businesses entire parking lot is not conducive. He stated that dust control initiatives are in effect for the property and that allowing slag can serve as a good alternative on private property. Mr. McFadden stated he is against the use of slag for belief that it has remains of lead in it, resulting in dust from slag being toxic.

Ms. Hansen recognized that the current City Code does allow businesses the opportunity to apply for the use of alternative hard surfacing products, and that another business has taken advantage of the option. The City would then approve or disapprove of the alternative based on the business' site plan and request.

Mr. Fangman stated that if the City allows businesses to store equipment on gravel, that residents may question why they cannot also store items such as boats, trailers, etc. on gravel on a residential property. In addition, administratively it would be extremely difficult to enforce the number of times a business moves their trailers and heavy equipment per month. Mr. Curry stated that only moving a trailer four times a month (as outlined in the draft proposal) is not doable, and that at least once daily would be more feasible. Mr. Fangman also mentioned that Muscatine Power & Water are conducting further research to see if putting the requested material over this area would affect what is called the Wellhead Protection Area, which prevents contamination from affecting a well or well-field supplying a public water district.

Mr. Sayles claimed that he recalled that the proposal was to include M-1 in addition to M-2. He also recommended removing vehicles from the proposal. Mr. Fangman said that both of these edits would be fine to implement.

Ms. Ingram stated that she spoke to a representative from the Environmental Protection Agency (EPA) and shared that the amount of emissions released will not release the high levels recognized in the 1980's letter received from EPA.

Mr. McFadden suggested requiring businesses to pave a certain percentage of their property in accordance with City Code. This would include property that is frequently used, rather than used primarily for storage. A percentage would allow for businesses of all different sizes in the eligible zoning districts to benefit from the flexibility in the updated City Code.

Jerry Platt of Curry's Transportation Services, 42 Highway 61 South, shared that as long as the surfacing materials are encapsulated, they should not cause dust issues. He recommended viewing a project completed in Louisa County where a sealer/protectant is used over slag. Mr. Platt believes that slag is an acceptable material if encapsulated, and that it stays together unlike rock/gravel once laid.

Following this discussion, Ms. Hansen proposed that Mr. Fangman draft another proposal with suggested updates to present at the next Planning & Zoning Commission meeting (April 9, 2019). Mr. Fangman reviewed some of the major edits recommended for the draft proposal to ensure that all items are addressed. Recommended changes to the current draft proposal include the following;

1. M-1 will be included in addition to M-2
2. Buffers only include landscape requirements rather than the requirement of a fence and/or wall
3. Identify what materials the Commission does not want to see used
4. Implement a percentage of the property that is required to be hard surfaced in accordance with the standards set forth in Sections 10-28-8 (A), (B), (C), and (D) of City Code.
5. Mr. Saucedo requested prior approval not be required (Andrew – You will have to help me out here...I was kind of confused what he requesting. This is in regards to Item E at the bottom of the *Open storage of vehicles, trailers, and other heavy equipment)*

Review of the proposed Fiscal Years 2020 through 2024 Capital Improvement Plan (CIP)

Ms. Whitson asked the Commission if they had any questions in regards to the CIP update that had been distributed approximately five weeks prior to the meeting. Mr. Sayles stated that he had provided updates via hard copy but did inquire about why a few of the City's upcoming projects may be missing from the CIP update. This includes Carver Corner and 2nd and Mulberry. Devin XXXX, 618 Walnut Street, asked why the three-lane conversion of Park Avenue is not included in the plan. Ms. Whitson stated that she would reach out to Public Works for a definitive answer as to why the three projects were not included in the CIP update. The Commission requested that Ms. Whitson send any updates that have been/will be made to the CIP prior to the next meeting, where they will provide further comment if needed.

Meeting adjourned.

ATTEST: Respectfully Submitted,

_____ _____

Jodi Hansen, Chairperson
Planning & Zoning Commission

Andrew Fangman, Secretary
City Planner

MINUTES
February 12, 2019 – 5:30 p.m.
Planning and Zoning Commission
Muscatine City Hall
City Council Chambers

Present: Andrew Anderson, Jodi Hansen, Wendi Ingram, Robert McFadden, Steve Nienhaus, and John Sayles

Excused: Rochelle Conway

Staff: Andrew Fangman, City Planner, Community Development
Lindsay Whitson, Community Development Coordinator, Community Development

Chairperson Jodi Hansen opened the meeting at 5:30 p.m. and read the Mission Statement.

Minutes:

Andrew Anderson motioned to approve the minutes submitted for the January 8, 2019 meeting; seconded by Wendi Ingram. All ayes, motion carried.

Other:

Request from City Council for a recommendation from the Planning and Zoning Commission on a change to parking lot surfacing standards, continued discussion from the December 11, 2018 meeting

Andrew Fangman explained the request from City Council is in reference to City Code Section 10-27-8, which states the standards for all parking lots, garages, drive lines, and driveways is to be hard surfaced with materials such as cement or asphalt. The section lists surfacing materials that are not permitted including gravel and also states that other types of hard surfacing, that are not specifically prohibited, may be permitted with approval by the City Engineer. Fangman explained the current code was largely adopted in order to help the area comply with federal air quality standards. Fangman shared what information was included in the Commission member's packets including;

1. The hard surfacing code for approximately 30 other communities in eastern Iowa and western Illinois
2. A list of grandfathered graveled parking lots in Muscatine
3. A list of parking lots constructed in the last six years in Muscatine and the material used
4. A letter from the Iowa Department of Natural Resources (DNR) addressing Muscatine's status on non-attainment in the 1980's

Santos Saucedo, 3 Nelson Dr, was present to discuss the request. Saucedo explained that the proposed change is an attempt to stay consistent and have all comparable businesses have the same requirements for hard surfacing, regardless of when their parking lots were constructed. Saucedo is requesting that gravel be allowed for only areas that are utilized for semi-trailer and industrial equipment storage in M-1 and M-2 zoned districts. Saucedo expressed concerns that grandfathered businesses are allowed to get away with expanding the lots with gravel even though they are not supposed too, but new businesses are held to the code standards. As a result, some businesses have and may decide to not locate in the City of Muscatine. Saucedo stated that he is open to a discussion about alternative ideas. He noted that he liked the ordinance implemented by the City of Oskaloosa with reference to an Industrial District.

John Sayles noted that no permits are needed for the construction of parking lots but inquired about the site plan protocol. Mr. Fangman said that when a site plan is required, documentation of what hard surface materials will be use is required. This led to discussion about whether more stringent site plan review guidelines should be adopted by the City and that all businesses should be required to complete the site plan review process.

Robert McFadden stated that he believes allowing gravel parking lots in town will lead to dust in the air, requiring residents in town to keep their windows closed. McFadden asked Saucedo what the city and its residents gain by changing the hard surfacing requirements. Saucedo stated that a new business can buy land in Muscatine and spend more money for hard surfacing or they can move a few miles away where there are no hard surfacing requirements. He knows of at least one business that has moved elsewhere due to the hard surfacing requirements in Muscatine. Saucedo stated that yes there are rules in regards to water and dust for grandfathered properties, but that they are not regulated.

John Sayles mentioned that if we allowed gravel for storage areas, we would then need to identify what is considered storage. Fangman agreed that the City would need to identify how many days would be allowed keep a truck trailer and/or equipment, and how many days and beyond would be considered storing the equipment.

The Commission then discussed the idea of having requests sent to the Zoning Board of Adjustments on a case-by-case basis. This would allow the Zoning Board of Adjustment to issue a conditional use permit if deemed reasonable and appropriate conditions. Fangman noted that taking this action is a possibility.

Andrew Anderson asked if City staff could provide hard surfacing codes for cities nationwide, rather than just regionally. Fangman said that City staff could provide such information at the next Planning and Zoning Commission meeting.

To conclude, the Commission requested that for the next meeting City staff provide the following;

1. Nation-wide hard-surfacing code samples, especially some that do allow gravel in industrial areas
2. A sample proposal outlining what the hard surfacing code would look like with gravel allowed in M-1 and M-2 districts and different alternatives if any

Review of the proposed Fiscal Years 2020 through 2024 Capital Improvement Plan. The Commission will make any desired changes and then act on a recommendation to City Council

Ms. Whitson provided a presentation with a brief overview of what a Capital Improvement Plan (CIP) is, the benefits of having a CIP, and scoring criteria utilized to score each project. Ms. Whitson requested that the Commission review the CIP prior to next month's meeting and come with any edits and/or questions. A draft copy of the CIP was distributed to the Commission electronically one week prior to the meeting.

Meeting adjourned.

ATTEST:

Respectfully Submitted,

Jodi Hansen, Chairperson
Planning & Zoning Commission

Andrew Fangman, Secretary
City Planner

MUSCATINE

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Muscatine, IA 52761-3840
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Fax (563) 262-4142

COMMUNITY DEVELOPMENT

Planning,
Zoning,
Building Safety,
Construction Inspection Services,
Public Health,
Housing Inspections,
Code Enforcement

MEMORANDUM

To: Planning and Zoning Commission

From: Andrew Fangman, City Planner

Date: December 12, 2018

Re: City Council Request for a Recommendation of a Potential Change to Parking Lot Surfacing Standards

At the November 15th City Council meeting Councilman Saucedo made a request to initiate a change in City Code to exempt Light Industrial (M-1), General Industrial (M-2), and General Commercial (C-1) zoned parcels from the present requirement for the hard surfacing of parking lots used for the storage, maintenance, and/or repair of any semi-truck trailer or other heavy industrial equipment. This intent of this request is an attempt to stay consistent and have all comparable businesses have the same requirements for hard surfacing, regardless of when their parking lots were constructed. Under this proposal vehicle parking lots would stay the same with hard surfacing required as it currently stands.

Surfacing requirements for parking lots, driveways, and other areas of vehicular activity are found in Section 10-27-8 of City Code, and are as follows:

10-27-8 Standards for All Parking Lots, Garages, Drive Lanes, and Driveways

All areas intended for vehicular use, including but not limited to parking lots, garages, drive lanes, and driveways shall conform to the following improvement and maintenance standards:

A. All parking areas, drives, lanes, aisles, loading spaces and any other outdoor spaces that accommodate vehicles shall be hard surfaced with materials such as Portland Concrete Cement or Asphaltic concrete (Asphalt), and shall be maintained so as to provide a durable pavement surface free of dust, weeds, and standing water.

B. Portland Concrete Cement or Asphaltic concrete (Asphalt) hard surfacing shall meet all the following standards and shall be constructed to have the minimum pavement structural number as follows:

1. Areas subjected to only automobile loading: 2.5
2. Areas subjected to truck loading: 3.0.

C. Gravel, crushed stone, dirt, chip seal, oil, sand or other such surfacing materials shall not be permitted.

D. Other type of types of hard surfacing, that are not specifically prohibited, which create a durable pavement surface free of dust, weeds, and standing water, may be permitted if the material and specifications are approved in advance by the City of Muscatine.

These standards for parking lot surfacing were adopted as part of the update to the Zoning ordinance which become effective in April of 2017. The parking lot surfacing standards were changed to add specificity to the type of paving that is required for parking lots, and added Section 10-27-8(D) to give property owners more flexibility in meeting surfacing requirements. Previous regulations stated parking lots, driveways, and other areas of vehicular activity "*shall be surfaced with asphalt or concrete for all weather parking*." The original hard surfacing standards were largely adopted in order to help the area comply with federal air quality standards.

The Clean Air Act Amendments requires the Environmental Protection Agency to set National Ambient Air Quality Standards for six wide-spread pollutants. One of which is "Particulate matter," also known as particle pollution or PM. Particulate matter is a complex mixture of extremely small particles and liquid droplets. The Muscatine area has a history of nonattainment with federal PM standards, and as such there is a long history of the City of Muscatine and local industry in taking action to bring the area back into compliance with federal particulate matter air quality standards. The requirement for the hard surfacing of parking lots was originally adopted by the City in order to help the area attain compliance with federal particulate matter air quality standards. During this period of time the City also prohibited open burning, including at the compost site, in order reduce particulate matter pollution.

On July 14, 2011, the U.S. Environmental Protection Agency found that the Iowa State Implementation Plan (SIP) was substantially inadequate to maintain the 2006 24-hour National Air Quality Standard for fine particulate matter in Muscatine County, Iowa. The Iowa Department of Natural Resources determined that three major sources of air pollution in the Muscatine area significantly contribute to predicted (modeled) PM2.5 exceedances of the standard in the vicinity of the Garfield School monitor. In response The Iowa Department of Natural Resources collaborated with these facilities to develop air pollution control measures to bring Muscatine back into compliance with air quality standards for fine particulate matter. In 2014 the EPA signed off on these measures when it approved a new State Implementation Plan for fine particulate matter.

Measures taken under the new SIP at these facilities generally included various combinations of the following: installation of new particulate controls or improvements to existing particulate controls on a number of sources; cessation of operation of various existing equipment; replacement of several existing operations with new, more efficient equipment; **regular sweeping and watering of road surfaces**; Increasing select stack heights; and restricting operation of certain processes. At the time this amendment to the SIP was adopted the requirement for all new roads and parking areas to be hard surfaced was in place, however the specific requirement for mandatory regular sweeping and water of road surfaces at these three facilities highlights the significance of road and parking lot surfaces to air quality.

A number of parking lots within the City do not meet current surfacing standards. The vast majority of these non-paved parking lots qualify as legal non-conforming structures (grandfathered) under City Code. All these parking lots were constructed prior to the City

adoption of a requirement for the hard surfacing of parking lots, and such so they are allowed to remain unpaved so long as they remain in use as parking lots.

Regulations regarding "grandfathering" as it relates to the Zoning Ordinance, are contained within Chapter 24 of Title 10. This chapter does not directly mention parking lots or driveways; however it does cover the nonconforming use of "structures", a term which as defined in zoning ordinance, does include parking lots and driveways. The key portion of Chapter 24 as it relates to existing non-paved parking lots is Section 5, which states: *"If a nonconforming building, structure, or use is abandoned for one year after the adoption of this Ordinance, it shall not return to its nonconforming state, but must be brought into conformity with the regulations of the district in which it is located.* It should be noted that non-conforming parking lots cannot be expanded, that if they are expanded all new parking and vehicle operations areas must be constructed in accordance with current City hard surfacing regulations.

It is the recomendation of Councilman Saucedo that the hard-surfacing regulations as currently written creates an inequitable situation where business that operate in location containing legal non-conforming non-paved parking lots have an advantage over businesses which have had to hard surface all parking lots since they first opened. It was the consensus of the City Council that recommendation of Planning and Zoning Commission on this request be obtained prior to any additional City Council discussion or action on this request.

The Planning and Zoning Commission can recommend one of the following actions in response to this request:

- Take action to recommend approval or denial of this request to change in City Code to exempt M-1, M-2, and C-1 zoned parcels from the present requirement for the hard surfacing of parking lots used for the storage, maintenance, and or repair of any semi-truck trailer or other heavy industrial equipment.
- Make an alternate recommended change to hard surfacing regulations
- Request additional background information and continue this discussion to the January meeting
- Continue this discussion to a future meeting

Staff recommends that no changes to the hard-surfacing requirements be made as they are a critical component of the community's efforts to comply with federal quality standards. Additionally, many land owners have already made significant investments in complying with these standards. However, should the Commission wish to recommend any change to current standards for hard surfacing that following additional issues be considered in addition to the suggested change that was referred to the Commission by City Council.

1. **What is the end of objective of parking surface regulations?**
   Currently City Code mandates a hard surface that provides a durable pavement surface free of dust, weeds, and standing water. *City Code Section (10-27-8(A))*

2. Should all areas upon which vehicles operate be subject to the same standards?
Currently City Code mandates that area subject to automobile loading be built in a manner that have structural number of 2.5, and those subject to truck loading have a structural number of 3. *City Code Section (10-27-8(B)).* Is there a desire to treat different land uses and zoning classifications differently? Should areas being used for vehicle storage and very intermittent use have different standards? Should residential driveways be held to the same, higher, or lower standards?

3. Should certain types of surfacing materials and methods be prohibited?
Currently City Code prohibits gravel, crushed stone, chip seal, oil, and sand. *City Code Section (10-27-8(C)).*

4. What should the approval process be for non-concrete or asphalt surfaces.
Currently City Code states "Other type of types of hard surfacing, that are not specifically prohibited, which create a durable pavement surface free of dust, weeds, and standing water, may be permitted if the material and specifications are approved in advance by the City of Muscatine." *City Code Section (10-27-8(D)).*

5. Should permits be required for the construction of a parking lot
Currently City Code does not require a permit to be pulled for the construction of a parking lot. However, City Code does require that parking lots, aside from those qualified as grandfather, meet all the standards contained in City Code Section 10-27-8. Parking lot design is reviewed as part of the site plan review process; however, the site plan review process is only triggered by the construction or expansion by 50% or a non-residential or multi-family residential building. City staff dose only a regular basis do courtesy reviews for compliance with City of parking lot plans for projects not triggering the requirement for a formal site plan review

6. Should permits be required for the resurfacing of an existing parking lot?
Currently City Code does not require a permit to be pulled for the resurfacing of a parking lot. However, City Code does require that parking lots, aside from those qualified as grandfather, meet all the standards contained in City Code Section 10-27-8.

7. How should parking lots built prior to requirements (grandfathering) for hard surfacing be regulated?
Currently City Code allows for parking lots built prior to the effective date of the hard-surfacing requirement to lawfully be continued to use and maintain as originally built, so long as the use of them for parking has not been abandoned for a period time longer than a year. While they can be maintained repaired as is, they cannot be expanded. City Code Section 10-24-5.

8. Should there be certain operational standards for grandfathered non-hard surfaced parking lots.

City Code is currently silent on this issue. Is the desire for some standards to dust control, a requirement to be weed/vegetation free, etc?. Other portions of City Code already do prohibit standing water on all parking lots, regardless of the date of construction.

MINUTES
December 11, 2018 – 5:30 p.m.
Planning and Zoning Commission
Muscatine City Hall
City Council Chambers

Present: Jodi Hansen, Rochelle Conway, Andrew Anderson, John Sayles, Wendi Ingram, and Steve Nienhaus

Excused: Robert McFadden

Staff: Andrew Fangman, City Planner, Community Development
Dave Gobin, Community Development Director, Community Development
Christa Bailey, Office Coordinator, Community Development

Chairperson Jodi Hansen opened the meeting at 5:30 p.m and read the Mission Statement.

Minutes:

Steve Nienhaus motioned to approve the minutes submitted for the November 13, 2018 meeting; seconded by John Sayles. All ayes, motion carried.

Subdivision:

Subdivision Case PZS #13 – Gander Ridge Phase II Subdivision – Otis L. and Shawne A. Hindbaugh – 3 lots – 8.76 acres – 3802 Tipton Road

Bob DeKock, 102 Sterling Woods Ct, an attorney in Muscatine was present to discuss the proposed subdivision which would relocate the parcel lines of the 3 lots in a more logical manner. It would create a lot containing the Hindbaugh residence, a new lot to the north, and an outlot along the U.S. 61 Bypass. John Sayles questioned whether the owners are aware that the lot next to U.S. 61 Bypass is landlocked and not buildable because there is no frontage. Andrew Fangman corrected the statement explaining that there is frontage along the U.S. 61 Bypass. Bob DeKock stated that the land is currently used for farming and will probably continue to be used as such. However, if they were ever to change the use of the land, they may get an easement over lot 2 to get to the property.

Wendi Ingram motioned to approve the subdivision case; seconded by Andrew Anderson. All ayes, motion carried.

Other:

Request from City Council for a recommendation from the Planning and Zoning Commission on a change to parking lot surfacing standards

Andrew Fangman explained the request from City Council is in reference to City Code Section 10-27-8 which states the standards for all parking lots, garages, drive lines, and driveways is to be hard surfaced with materials such as cement or asphalt. The section lists surfacing materials that are not permitted including gravel and also states that other types of hard surfacing, that are not specifically prohibited, may be permitted with approval by the City Engineer. Fangman explained the current code was largely adopted in order to help the area comply with federal air quality standards.

Santos Saucedo, 3 Nelson Dr, was present to discuss the request. Saucedo explained that the proposed change is an attempt to stay consistent and have all comparable businesses have the same requirements for hard surfacing, regardless of when their parking lots were constructed. Saucedo provided a handout with examples of businesses that currently used gravel for expansions to their parking lots. Saucedo expressed concerns that grandfathered businesses are allowed to get away with expanding the lots with gravel even though they are not supposed to but new businesses are held to the code standards which is causing some businesses to move out of town. Saucedo then explained that he is looking for a recommendation pertaining particularly to trailer storage lots not the typical day-to-day parking lots and with a code change more businesses would be allowed to grow within the City of Muscatine. Saucedo also listed several alternatives that could be considered including calcium chloride, magnesium chloride, and tree sap alternatives.

Wendi Ingram questioned how many businesses have left Muscatine due to the constrictions for hard surfacing. Saucedo stated that he knows of at least 3 but he is not comfortable with stating the business names. Jodi Hansen stated

she would be interested in knowing the locations the businesses moved to instead and what their ordinances are. Saucedo said he would request the locations from the businesses. Hansen suggested then the staff could get the ordinance information from those locations.

John Sayles expressed his concerns about how current businesses were allowed to expand the lots using gravel but is not sure what the city can do now to enforce it. Sayles also questioned whether the request is for trailer storage because some people may be able to take advantage of the code if it is not clearly stated. Saucedo explained the request is for storage of semi-trailers and heavy industrial equipment and he is also wanting to try and cover everything so the city can stay consistent.

Jodi Hansen requested more information on grandfathering. Andrew Fangman explained that if the parking lot was not hard surfaced prior to the code change, that exact lot can remain as is as long as the use is not abandoned for over a year. Any expansions to the lot or new lots must be up to the code hard surfacing requirements. Fangman stated that there is no current permit required to expand parking lots so it can be done without the city's knowledge. Businesses will slowly add gravel to expand the current lot so that it is not particularly noticeable.

Steve Nienhaus questioned whether there any rules about water and dust pertaining to the grandfathered properties. Fangman answered yes, there are. Saucedo stated that yes there are rules but they are not regulated, no fines are given out and it is hard to maintain the regulation. Fangman said that the code was changed to the hard-surfacing requirements because it was too difficult to regulate.

Saucedo asked the commission to look at the request from a business owner's point of view, they can buy land in Muscatine and spend more money for hard surfacing or they can move a few miles away where there are no hard-surfacing requirements. Saucedo stated he wants the code change to allow businesses to expand with more surfacing options and to get rid of a code that is not even enforced. John Sayles asked when Saucedo would like a recommendation by because he felt like more information and research is needed before providing one. Saucedo stated that if it takes longer that is fine as he just wants to be able to allow an alternative.

Andrew Fangman stated the he wanted to point out that several businesses have gone through the process of having an alternative hard surface approved by the City Engineer which is allowed per City Code. Saucedo asked for an example and Fangman explained that Mike Steele with Plaza Storage was approved for an alternative hard surface for the storage units on Grandview.

Andrew Anderson agreed with John Sayles that more time and information is needed before giving a recommendation. Dave Gobin reminded the commission that SIP federal requirements need to be considered in this decision. Jodi Hansen then asked the commission to list the questions they need answered by staff and/or Saucedo to further the discussion. The questions were as follows:

Who has previously been affected by this code?
What future people will be affected?
What would be the ramifications of the code change?
What effect would the code change have on SIP federal requirements?
How many companies moved outside of town due to the code?
How many companies are currently grandfathered in?
How many companies are currently looking to expand and will be forced to move if the code remains the same?
How many companies in Muscatine are currently out of compliance?
How many of the non-compliant companies are grandfathered?
How many companies have recently paid to pave lots?
How many companies are currently complaining about the code and threatening to move?
The companies threatening to move, are they eligible for TIF if they were to expand or apply for a variance?
What are the alternative materials? Pros and cons
What would the dust control measures be if the code were to change?
What type of material would be required for the access to the trailer storage?
What are the zoning ordinances in surrounding communities pertaining to trailer storage?

The commission discussed the need for a special meeting to review all the information that will be gathered pertaining to the questions prior to providing a recommendation. The commission came to a consensus that a special meeting is necessary and decided to schedule it for the fifth Tuesday of January 2019.

John Sayles motioned to approve the request for a special meeting to be scheduled on the fifth Tuesday of January; Steve Nienhaus seconded. All ayes, motion carried.

Santos Saucedo stated that he also is open to reducing the requested code changes to only M-1 and M-2 zoned parcels at this time and revisiting the C-2 code in the future.

Meeting adjourned.

ATTEST:

Jodi Hansen, Chairperson
Planning & Zoning Commission

Respectfully Submitted,

Andrew Fangman, Secretary
City Planner

Davenport (17.56.030(4))

All areas designed for vehicular use shall be paved with either an asphaltic concrete mat, portland cement concrete pavement, bricks or paving stones or other equivalent all weather, dust free hard surface pavement certified by a licensed engineer. The paving surface must be so designed as to allow prompt and effective drainage of storm water unless designed as a part of detention system.

Bettendorf (11-14A-6 (C))

Off street parking areas shall be provided with an asphaltic concrete, portland cement concrete, or brick surfacing maintained at all times in such a manner as to prevent the release of dust and to be free of dust, trash and debris. If such surfacing would be detrimental because of the excessive runoff of stormwater, the board of adjustment may direct such area to be left unpaved and designed to remain dust free and attractive. All required parking spaces shall be delineated by permanent striping of parking surface.

Burlington (17.30.508)

The following requirements for roadway, surfacing, parking areas, and travel way widths shall be provided at the time any building is erected or structurally altered, the property use is changed, or an existing unpaved area is to be used for the parking of vehicles or equipment, unless otherwise stated in this chapter.

1. Service drives and parking lot travel ways shall be paved with a dust-free, all weather driving surface material that is hard and reasonably smooth, such as concrete, asphalt or brick. Single family uses may be allowed a gravel drive off of an unpaved alley directly from the alley to a detached garage, not to exceed the width of the garage and not to exceed 10- feet in length from the alley. Such garage shall be located entirely to the rear of the house. Any additional parking area shall be required to be paved, including to any attached garage.

2. Parking areas in all districts shall be maintained in a sound capacity during periods of use, covered with a dust-free surface that is hard and reasonably smooth, such as concrete, asphalt or bricks, and clearly designated for parking use.

3. Parking areas associated with public parks, schools, or major event entertainment purposes shall be allowed to remain natural grass and unpaved (gravel not allowed), provided such parking is seasonal or limited in timeframe. Parking on such surface shall not be daily or regular in use. Drives or primary travel ways may be required to be paved if the travel levels necessitate such paving.

4. The entire portion of parked vehicles, including any associated equipment required to be licensed or tagged by the State of Iowa or Des Moines County, shall be located upon a required parking area. No vehicles shall be parked within any yard that is covered by grass, soil, or other natural vegetative materials, unless otherwise specified or allowed by code. Properties utilized for industrial uses and located in industrial districts shall be allowed the storage of trailers and/or production equipment (as allowed by code) on unpaved (gravel) surface, provided the primary travel drives are paved and the area is located a minimum of 25-feet off of the property lines. The portion adjacent to the public right-of-way and adjacent to separate properties shall be landscaped a minimum of 5-feet in width along the length

of the unpaved surface. Such unpaved surface shall be kept in smooth condition; free of dust, potholes and weeds. All other requirements of this code shall be met, including any requirements for indoor storage of material and screening.

5. A paving plan will be required for any property not meeting these specifications during any development application process.

6. Parking areas and driveways shall be maintained appropriately, such that the paved surface shall remain in good repair. Parking areas and driveways shall be patched or resurfaced to eliminate potholes or breakup in the material and parking lot striping shall remain solid in color and shall be repainted as needed.

Clinton

Off-street parking spaces may be located within a front yard in a C or M District if it is located on a hard surfaced lot and is reserved for patrons and employees of a business located on the property. Off-street parking is allowed in the front yard of an R District if located on an approved driveway providing access to a garage, carport or side yard parking area for a dwelling.

The requirements of this division (B) shall apply to all building construction/reconstruction, renovation and use of land within the Liberty Square Overlay. Where the requirements of the LSO and underlying base zone are different, the more restrictive requirements shall apply. The following are exempt from the requirements of this division (B)All parking areas will be constructed with an asphalt or concrete surface. Flexible pavement design must be a minimum three-inch on a six-inch crushed rock base. Rigid pavement design must be six inches of concrete on stabilized subgrade.

Wilton (19.52.010)

Off-street accessory parking areas shall be of usable shape, and shall be improved with a durable and dustless surface and so graded and drained as to dispose of all surface water accumulation within the area. Any lighting used to illuminate such parking areas shall be arranged as to reflect light away from adjoining premises in any "R" district.

West Liberty

No hard surfacing requirements

Iowa City (14-5A-5(B)

B. Paving Materials: All parking and stacking spaces, drives and aisles must be constructed of asphaltic cement concrete, portland cement concrete or manufactured paving materials, such as brick, except in the following situations:

1. Drives and aisles serving single-family dwellings or duplexes that abut and access historic Woodlawn Avenue or a nonhard surfaced alley are exempt from this standard.

2. The city building official may permit materials other than those listed, but excluding crushed rock or chip seal surfaces, for parking spaces, aisles, and drives if the use of such material provides a durable, permanent surface deemed suitable for the intended purpose and intensity of use.

3. Prior to the issuance of a certificate of occupancy, all parking and stacking spaces, drives and aisles must be paved with an approved surface as specified above; except, that the building official may issue a temporary certificate of occupancy in those instances where the building official finds that the paving cannot reasonably be completed due to adverse weather conditions or settling of land on the site after demolition or filling. A temporary certificate of occupancy will be effective only to a date specific. Prior to the issuance of a temporary certificate, the property owner must place in an escrow account established with the City an amount equal to one hundred ten percent (110%) of the estimated cost of paving.

Coralville (165.35(7))

7. Surfacing. All parking areas, drives, lanes, aisles, loading spaces and any other spaces to accommodate vehicles shall be hard surfaced with materials such as Portland Concrete Cement or bituminous asphalt. Gravel, crushed stone, dirt, chip seal, oil, sand or other such surfacing materials shall not be permitted.

West Burlington (165.35(7))

D. Performance Standards.

(1) Materials and Grading. Off-street accessory parking areas and driveways shall be of usable shape, and shall be improved in accordance with the requirements of *Chapter 140* of this Code of Ordinances, with a durable, dust-free surface, and so graded and drained as to dispose of all surface water accumulation within the area.

(2) Permeable Pavers. A permeable paving surface may be used for private driveways and parking areas, as a substitute for traditional concrete or asphalt paving. In this situation, the owner or developer shall produce advanced documentation, showing the precise form of permeable paving to be used, to ensure its conformance with all applicable industry standards.

West Liberty

No hard surfacing requirements

Cedar Rapids (32.05.020(F))

e. Surfacing

i. All unenclosed open, off-street parking and storage areas including all drives and aisles and all turnarounds and loading areas shall be hard surfaced and maintained so as to provide a durable pavement surface free of dust, weeds, and standing water, except as specified in the following Subsections ii. and iii. Acceptable surfacing methods shall include paving with concrete, hot mix asphalt, brick, bituminous bound macadam, or such other method approved as being equivalent by the City Engineer installed in accordance with the current version of the Cedar Rapids Metropolitan Area Standard Specifications and Standard Details. ii. In the residential districts, all required parking for single-family detached, single-family attached, two-family, and row house dwellings may be surfaced with porous pavement or porous pavers approved by the City Engineer. iii. In the commercial and industrial zone districts, up to twenty-five percent (25%) of required parking, plus one hundred percent (100%) of any off-street parking s paces provided in addition to the required minimum amount may be surfaced with porous pavement or porous pavers approved by the City Engineer. All areas surfaced with porous pavement or porous pavers shall be reasonably located a greater distance from the primary structure than other paved surfaces and shall be maintained to prevent nuisance conditions from weed growth. For each one (1) percent of required parking areas surfaced with porous pavers, the amount of live landscaping material required to be installed pursuant to Sec. 32.05.030.A shall be reduced by one (1) percent.

Waterloo (10-25-2 (C))

2. Surfacing and access: All off-street vehicular use and parking areas, except for those uses listed in Subsection 4 below, shall be surfaced with a minimum of a four-inch Hot Mix Asphalt (HMA) on a six-inch rock base or five inches of Portland Cement Concrete (PCC), or other pavement design approved by the City Engineer as long as it is similar to HMA or PCC. Rock treated with oil or emulsion, an oil or emulsion treated surface, or seal coat shall not be approved. This shall include any and all access to the site.
[Ordinance 3947, 6/7/93]

4. Exceptions to hard surfacing: Off street parking areas and vehicular use areas for the following uses shall not be required to be hard surfaced as provided in Subsection 2 above:
a. Off-street parking areas and vehicular use areas in other than the front yard of any single family or two-family residence. After July 1, 2015 no single family or two family dwelling shall be constructed or moved onto a property without a properly hard surfaced driveway and off-street parking areas when located in the front yard, and no existing one or two family dwelling shall add or reconstruct a driveway or off-street parking area when located in the front yard without proper hard surfacing. No existing dwelling (single or other) shall be converted to add additional units without all required off-street parking and vehicular use areas being properly hard surfaced. [Ordinance 5288,
06/15/15]

b. Any Principal Permitted Use in an "A-1" Agricultural District or for an agricultural use in other than the "A-1" District c. Temporary accesses in compliance with Subsection 2 above
d. Access to a wireless communications tower.

Cedar Falls (29-177 (e))

(3) Parking lots shall be hard surfaced. Their design shall be based on the amount, type and weight (axle loads) of anticipated traffic, the quality of the surfacing to be used and the supporting strength and character of the subgrade, all applied to a parking lot layout as selected by the designer and approved by the city engineering division.

(4) Any portion of property that is graded or improved in any fashion to accommodate vehicular parking or is intended or commonly used for vehicular parking shall meet parking lot design standards as specified herein. Any existing parking lot or parking area that does not meet existing standards as specified herein shall not be enlarged or expanded unless the entire parking lot area or parking area meets parking lot design standards as specified herein.

(5) All accessways or driveways to parking areas or parking lots shall be hard surfaced. Unimproved driveways or accessways in existence at the time of enactment of this article shall be hard surfaced only in the event that the on-site parking lot is expanded, hard surfaced or otherwise upgraded.

Fort Madison (10-19-2(G)(2))

2. Surfacing: All off street parking areas installed for business, industrial and multi-family dwelling uses as required by this code shall be an all weather surface: meaning asphalt, portland cement concrete, turf blocks, or brick pavers of sufficient thickness to adequately support motor vehicles. (Ord. D-24, 1-20-2015)

Ottumwa (38-941)

(b) Surface. All multifamily, commercial and industrial parking lots must be paved with either concrete or asphalt, to city's specifications. Gravel parking lots for these uses are not permitted.

d. In any R district, expansions of off-street parking areas in street yards shall be of a hard surface, i.e., paved concrete, asphalt, or brick pavers. For single-family and duplex properties only, expansion areas may be a minimum of four inches depth of rock and comply with the 2015 SUDAS standards. Driveways are to be located beside the house or in the rear yard and shall connect to a street or alley.

Dubuque (16-13-3-5(A))

A. All parking lots and driveways shall be hard surfaced. Parking on gravel, dirt or unreinforced turf is prohibited.

Scott County (Unincorporated Areas) (6-27(A)(4))

(4) Construction and design standards: Parking and circulation areas shall be designed and constructed in accordance with the Iowa Statewide Urban Design and Specifications (SUDAS) Chapter 12 Parking Lots Sections 1-6. *See below*

Any off-street parking area should be surfaced with a flexible or rigid pavement. Check with the local jurisdiction to determine the requirements for paving parking lots. If no local requirements are stipulated, the pavement thickness for parking areas occupied by cars and small trucks for rigid and flexible pavements (see Chapter 5 - Roadway Design for mix designs) should be designed according to the following tables. It should be noted that the layer of aggregate used as the subbase needs to be drainable. Parking lots should be designed for a minimum 20 year design life. If a design life of greater or less than 20 years is desired, see Chapter 5 - Roadway Design for pavement thickness determination. In addition, for pavements less than the recommended thickness, a pavement thickness determination should be completed to match the pavement structure with the needs of the project.

The subgrade should be designed according to Section 6E-1. If soils tests are not available to determine the CBR value and uniformity of the soil (before and after construction), a CBR value of 3 and a non-uniform subgrade should be assumed.

The portions of the parking facility serving truck traffic such as entrances, perimeter travel lanes, trash dumpster sites, and delivery truck routes must be designed to accommodate heavier loads. The number, type, and weight of delivery vehicles can usually be predicted with a fair level of accuracy. With this information, ESAL values and pavement thicknesses can be determined using the methodology described in Chapter 5 - Roadway Design. If the parking lot is to service an industrial area, such as a truck stop or manufacturing facility, the volume of truck traffic and the associated ESALs should be determined and an independent pavement thickness determination completed to ensure meeting the 20 year design life needs of the project.

Muscatine County (Unincorporated Areas)

No hard surfacing requirements.

Johnson County (Unincorporated Areas)(8:1.24(B)(1)(b)

b. All parking areas and interior roads shall be constructed of a permanent dust-free surface of chip seal, asphalt or concrete. All parking areas shall be constructed in accordance with the approved development plan prior to the commencement of an approved use.

Wilton (19.52.010(e))

Development Standards. Off-street accessory parking areas shall be of usable shape, and shall be improved with a durable and dustless surface and so graded and drained as to dispose of all surface water accumulation within the area. Any lighting used to illuminate such parking areas shall be arranged as to reflect light away from adjoining premises in any "R" district.

Decorah (17.08.510)

"Off-street parking space" means a permanently surfaced area of not less than one hundred eighty square feet plus necessary maneuvering space for the parking of a motor vehicle. Space for maneuvering, incidental to parking or unparking, shall not encroach upon any public right-of-way. (See Attachment E, at the end of this title, for parking illustration.)

Linn County (Unincorporated Areas)(107-93(5)(5)(e))

e. Surfacing, grading, drainage. In the urban service area, all commercial drives and parking areas are to be paved with an asphaltic or Portland cement binder pavement, or such other hard but permeable surfaces or engineered grass surfaces. In all other land use areas, dust-controlled gravel parking areas shall be permitted. In those instances where the access is onto a hard surfaced road, the driveway shall be hard surfaced at a minimum to the required setback. In all cases where handicapped parking is required, the handicapped space shall be paved, along with the most direct route to public areas. Parking areas and drives shall be so graded and drained as to dispose of or infiltrate all surface water accumulation within the area; and shall be so arranged as to provide for orderly and safe loading or unloading and parking and storage of motor vehicles

Mount Pleasant (19.06.040(c))

(c) The minimum thickness of pavement of the parking areas shall be as follows:
(1) Driveways:
a. Multiple family, commercial and industrial: Six (6) inch PCC or seven (7) inch HMA.
b. Truck routes: Seven (7) inch PCC or eight (8) inch HMA.
(2) Parking areas: Five (5) inch PCC or six (6) inch HMA.

Oskaloosa (17.28.060(c))

B. Pavement and Drainage.
1. Off-street parking facilities shall be surfaced with concrete, asphalt, asphaltic concrete, bricks, sealcoat, gravel, or crushed stone, and shall be maintained with materials sufficient to prevent mud, dust, or loose material except as provided below:
a. Sites within the AG and RR districts are exempt from this requirement.
b. In residential areas, all parking spaces and driveways used for parking shall be on a surface consisting of concrete, asphalt, asphaltic concrete, bricks, sealcoat, gravel, or crushed stone; however, this requirement does not extend to driveways not used under any conditions for parking.
c. In GI districts, the paving requirement for certain parking and loading areas more than one hundred feet back from any public right-of-way may be waived, following review and approval of a specific site plan by the zoning administrator.

Cedar County (14(G))

G. Surface: All required off-street parking spaces shall be surfaced in a manner approved by the County Engineer, so as to provide a durable and dustless surface. All commercial or more intensive land uses will have a paved parking space with material similar to the adjacent County road surface and constructed to meet the expected traffic. They shall be graded and drained to dispose of all surface water accumulated within the area, and shall be arranged and marked to provide for orderly and safe loading or unloading and parking and storage of self-propelled vehicles. All additional storm water runoff created because of the parking lot will be detained on premises in a manner acceptable to the County Engineer.

Louisa County (130.5)

Off-street accessory parking areas shall be of usable shape, and shall be improved, in accordance with requirements of the County Engineer, with a durable and dustless surface and so graded and drained as to dispose of all surface water accumulation with the area. Any lighting used to illuminate such parking areas shall be so arranged as to reflect the light away from adjoining premises in any "R" District.

Moline, IL SEC. 35-5100 (g)(1)

Surface and Marking. All open off-street parking areas shall be improved with a compacted aggregate base, not less than 4 inches thick, surfaced with not less than 1.5 inches of asphalt, thick concrete or some other comparable all-weather dustless material, extending at full width along a path of access from the parking area to an alley, street, or paved driveway; except as follows: a. In parking areas accessory to single family dwellings, gravel or paving units may be used in lieu of the above base and surfacing requirements. b. In parking areas of less than 2,000 square feet, bituminous oil seal coating, as per specifications supplied by the City engineer, may be substituted for 1.5 inches of asphalt concrete surfacing. c. In industrial zoning districts where parking areas are not adjacent to residential zoning districts, the surface requirements of this subsection shall not apply. All parking areas shall be treated for reasonable control of dust. (Ord. No. 3033-2008; Sec. 35-5100(g)(1) repealed; new Sec. 35-5100(g)(1) enacted; 05/13/08)

East Moline, IL SEC. 10-16-1 (E)

Development Standards: Off-street accessory parking areas shall be of usable shape, and shall be improved, in accordance with requirements of the City Engineer, with a durable and dustless surface and so graded and drained as to dispose of all surface water accumulation within the area. Any lighting used to illuminate such parking areas shall be so arranged as to reflect the light away from adjoining premises in any R District.

Sterling, IL 9-9-4 (C)

Any off street parking area shall be surfaced with asphaltic or concrete pavement at least four inches (4") thick, except for the following:

1. Vehicle display lots where ten (10) or less units are displayed. Vehicle display lots which are not required to be surfaced with asphaltic or concrete pavement shall be surfaced with six inches (6") of gravel.

2. Parking areas in the rear yard for recreational vehicles, travel trailers, boats, snowmobiles, and other such recreational vehicles may occur on grass.

3. Temporary parking including, but not limited to, such circumstances as for weekend visitors; persons attending a party or other similar event at one's residence; special parking for recreational, sporting events, concerts, conventions or other large gatherings of temporary nature; not to exceed two (2) weeks of parking; and washing and waxing and minor maintenance of one's car not to exceed one week. The intent is to allow temporary parking, not permanent parking, unless paved.

4. Temporary parking and maneuvering areas for semitrailers when used as part of a trucking terminal company. All other areas shall be paved.

Cordova, IL 150-04.5

Development Standards. Off-Street accessory parking areas shall be of usable shape, and shall be improved with a durable and dustless surface and so graded and drained as to dispose of all surface water accumulation within the area. Any lighting used to illuminate such parking areas shall be so arranged as to reflect the light away from adjoining premises in any "R" District

Galesburg, IL 152.152

Surfacing. All open off-street parking areas and driveways shall be improved with a compacted macadam base, not less than six inches thick, surfaced with asphalt, concrete, brick or some comparable all-weather dustless material. Construction of the surfacing shall be completed within one year of the issuance of a building permit. (See § 152.111(B)(8)(a)

East Peoria, IL 5-7-7

Surfacing. *All off-street loading berths shall be surfaced according to the requirements listed below:*

*(1)*Bituminous concrete surface. *A compacted aggregate base (CA-6 gradation) at least eight (8) inches thick with a bituminous concrete surface not less than two and one-half (2½) inches thick.*

*(2)*Portland cement concrete pavement. *A pavement not less than six (6) inches thick.*

Urbana, IL Section VIII-3 (2)

All off-street parking lots, access drives, off-street loading areas, and parking spaces shall be paved with a hard surface, including oil-and-chip, concrete, asphalt, brick, permeable asphalt, permeable pavers or other suitable surface including new environmentally friendly technologies, as approved by the Zoning Administrator so that the environment created is dust free and conforms to the following criteria:

a) The pavement design shall be such that any material composing the pavement and the soil underneath is not displaced by traffic movement in a manner that generates pollution in the air due to flying particles and causes damage, injury, or nuisance to the people/vehicles which use the facility.

b) The design and construction of the pavement shall be such that the physical appearance, characteristics, performance, and rigidity of the surface that comes into direct contact with vehicles does not change with varying weather conditions. The form and texture of the surface shall be conducive to safe flow of traffic.

c) Notwithstanding normal wear and tear, the surface and appearance of the parking lot shall be maintained to perform as originally designed.

Danville, IL 150.064(5)

(5) All off-street parking areas, including areas used to sell vehicles which require State of Illinois licensing, and access ways shall be paved with a hard surface, including oil and chip, concrete, asphalt, or brick with the work completed in accordance with specifications provided in the most recent version of the "Standard Specifications for Road and Bridge Construction" adopted by the Illinois Department of Transportation.

Champaign, IL 37-350

(a) Any off-street motor vehicle parking lots and loading areas shall be graded and surfaced with bituminous concrete a thickness of at least three (3) inches over a base of at least four (4) inches of compacted stone or crushed rock; or Portland cement concrete to a thickness of not less that five (5) inches or equivalent. Gravel multifamily and commercial parking lots shall be brought into conformance with this section within two (2) years of the adoption of the ordinance.

(b)

(b) For head-in parking spaces, where the surface area is within six (6) feet of the property line, wheelstops of precast concrete or other manufactured material shall be placed two (2) feet from the end of the parking space. Wheelstops shall be at least four (4) inches, but no more than six (6) inches above the grade of the adjoining parking spaces.

iowa department of environmental quality
reply to: James R. Woll and Michael R. Durham
phone: 515/281-8900 515/281-8905

February 1, 1980

Honorable Evelyn L. Schauland
Mayor of Muscatine
City Hall
Muscatine, IA 52761

Dear Mayor Schauland:

Enclosed for your information and review are copies of draft revisions to the Iowa State Implementation Plans for your city. The plans have been prepared for all of the Iowa nonattainment areas as required by the Clean Air Act. A public hearing on the plans has been scheduled for February 26, 1980 for the Main Floor Auditorium of the Henry A. Wallace Building, 900 E. Grand Ave., Des Moines. The hearing is scheduled to begin at 10:00 o'clock A.M.

In summary, the plans provide for meeting the air quality standards for particulates (dust) by implementing an industrial fugitive dust regulation and by committing to conduct additional studies intended to define other sources of dust as well as reasonable means to control these sources. Industrial expansion is provided for in the plan through an offset rule. The rule requires that emissions from major new sources be offset with reductions in emissions from existing sources of pollution. The offset rule incorporates a recent EPA decision regarding offsets in nonattainment areas. In all or a portion of the Iowa nonattainment areas, offsets will not be required if they are not reasonably available.

Please review the plan. If you have any questions, please do not hesitate to concact Michael Durham or James Woll at this office.

Sincerely,

AIR AND LAND QUALITY DIVISION

Charles C. Miller

Charles C. Miller
Director

CCM:JRW:mla
Enclosures

TO: Kevin Whittaker, Planning Administrator

FROM: Soren Wolff, City Administrator

SUBJECT: Air Quality Standards Hearing

DATE: February 7, 1980

Attached hereto is a draft of the Air Pollution Standards for Muscatine. Also, the attached notice indicates that a hearing will be held at 10:00 a.m. on February 26, 1980. The meeting is to be held in the Henry A. Wallace Building in Des Moines.

It is my understanding you have been working with a local committee on the Air Pollution matter. Please review the attached information and plan to attend the hearing in Des Moines.

Prior to attending the hearing, please plan to meet with me to give me a summary on the impact of the attached proposed regulations. Also, if you are aware of industries or other organizations which have an interest in this matter, please notify them of the hearing and make the attached information available to them.

If there are any questions concerning the above or attached information, please contact my office.

Iowa State Implementation Plan Revisions To Control Air Pollution

MUSCATINE
PARTICULATE

Department of Environmental Quality
Henry A. Wallace Building
Des Moines, Iowa 50319

Introduction

The Clean Air Act Amendments of 1977 (CAA) required that each state evaluate the air quality of each area of that state and designate whether those areas were attaining the national standards, were exceeding the national standards or were unclassifiable because of insufficient data. In those areas that were designated as not attaining the standards the CAA required that states revise the State Implementation Plans (SIP), which are the plans to control air pollution and its sources within that state. The CAA required that the SIP demonstrate attainment of the secondary standards by a reasonable date. In addition, the CAA allowed the states up to eighteen additional months, beyond the January 1, 1979, deadline to submit a plan to show attainment of the secondary standards. On September 7, 1979, EPA proposed to grant conditional approval of the Iowa SIP for secondary particulate nonattainment areas, subject to the condition that the state submit a commitment to develop plan revision by July 1, 1980. The Iowa Air Quality Commission committed to submission of the plans in a letter to EPA dated November 16, 1979.

Consistent with the CAA, the Iowa Department of Environmental Quality (DEQ) recommended a designation for every part of the state as either attainment, nonattainment, or unclassifiable for each of the criteria pollutants: suspended particulate, sulfur dioxide, carbon monoxide, ozone, and nitrogen dioxide. The desinations are listed in Table I-1. These recommended designations were reviewed by EPA and officially approved by publication in the Federal Register on March 3, 1978[1].

In preparing the SIP revisions for primary standards, which were submitted June 26, 1979, for Cedar Rapids, Des Moines, Mason City, and the Quad Cities, DEQ proposed revisions to the original designations approved March 3, 1978. The

revisions, conditionally approved February , 1980, are listed in Table I-2.

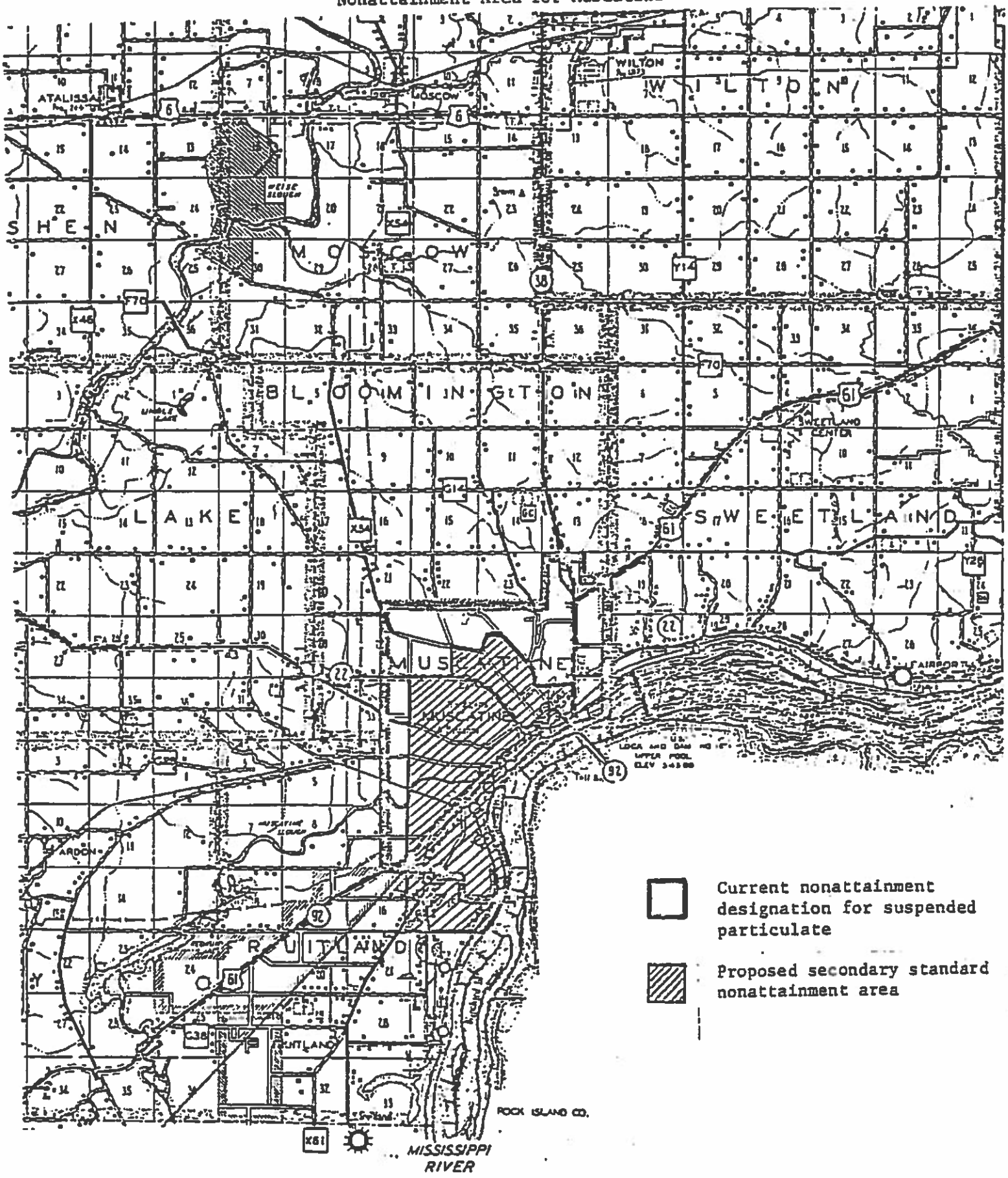
Specifically for Muscatine county, the air quality levels of sulfur dioxide, nitrogen dioxide, ozone and carbon monoxide were acceptable and the county was classified attainment for these pollutants. However, monitored suspended particulate levels were exceeding the national secondary standards in Muscatine.

Therefore, the portion of Muscatine projected by modeling to be in excess of the secondary particulate standards was designated secondary standard nonattainment. The remainder of the county was classified attainment. Figure I-3 shows nonattainment area for suspended particulates.

To comply with the CAA requirements relative to nonattainment areas the Iowa Department of Environmental Quality with assistance from the EPA contracted consultants has attempted to quantify the problems and develop appropriate control strategies to attain the national standards for suspended particulates. Those studies and the strategy approved by the Iowa Air Quality Commission are contained in this plan.

The plan has been prepared consistent with EPA's "Checklist for Approval/Disapproval of the 1979 SIP Revisions for Nonattainment Areas" and is organized in a format that follows the checklist.

Figure I-3 Current State-Recommended
Nonattainment Area for Muscatine



SIP REVISIONS FOR MUSCATINE

1. Emission Inventory

An emission inventory for Muscatine County was developed by the Iowa Department of Environmental Quality (DEQ) for suspended particulates. Both point source and area source emissions were calculated for the base year of 1977 and were projected for 1982. This section summarizes the methods used to develop the inventory and the results obtained. The emission inventory section identifies all sources having a potential, prior to the application of pollution control equipment, to emit more than 100 tons of pollutants per year and identifies all area sources with a calculable impact. Because of the inventory methods, DEQ did not classify each source inventoried into a particulate source category. Any known growth and associated emissions changes were estimated for the projection year of 1982.

1.1 Source of Suspended Particulate (Point)

All point source totals were acquired from DEQ's current emission inventory. Stack emissions, diameters, emission velocities and temperatures were taken from values supplied by the plant operators on emission inventory forms, permit applications, or stack tests performed at the plant. Emissions for the modeled year were taken from the 1975 emission inventory and updated by permit applications, compliance schedules, or stack tests. All plant emission controls were assumed to be working during the entire year unless breakdown or maintenance reports were submitted to the DEQ. In that case the emissions during periods of emission control device breakdown or maintenance were added to the plant totals. All industrial point source estimates calculated were verified by the appropriate plant officials. Because fugitive dust sources do not

have stack parameters, most fugitive dust point sources were assigned plume heights of 6.0 meters. All source emissions were calculated in tons per year for consistency. No consideration could be given to seasonal operation or weekend shutdowns because of restrictions in the inventory technique. All sources that are located in or are adjacent to the designated nonattainment area are included in the inventory.

A listing of all sources having a potential to emit 100 tons of particulate per year and their location in Muscatine County are shown in Figure 1-1. A complete listing of the point sources with actual emissions greater than 10 tons per year including type of process, location, quantity of emissions for the base and projected years, and stack parameters is given in Appendix A. The hours of operation and maximum hourly emissions were not available for all sources. In modeling each industrial source, operation was assumed to be constant for each day, which in most cases, is valid. In addition, only actual emissions were calculated and are shown in the inventory, no accurate calculations were made of allowable emissions.

1.2 Source of Suspended Particulate (Area)

Area source totals for Muscatine County were obtained from the National Emissions Data System (NEDS) estimates of area source emissions supplied by EPA. Estimates for certain emission categories were updated using current emission factors. Total county emissions were estimated for residential fuel use and solid waste disposal, construction, and transportation emissions from motor vehicles, railroads, off-highway vehicles, and aircraft. County totals for these area sources are shown in Table 1-2.

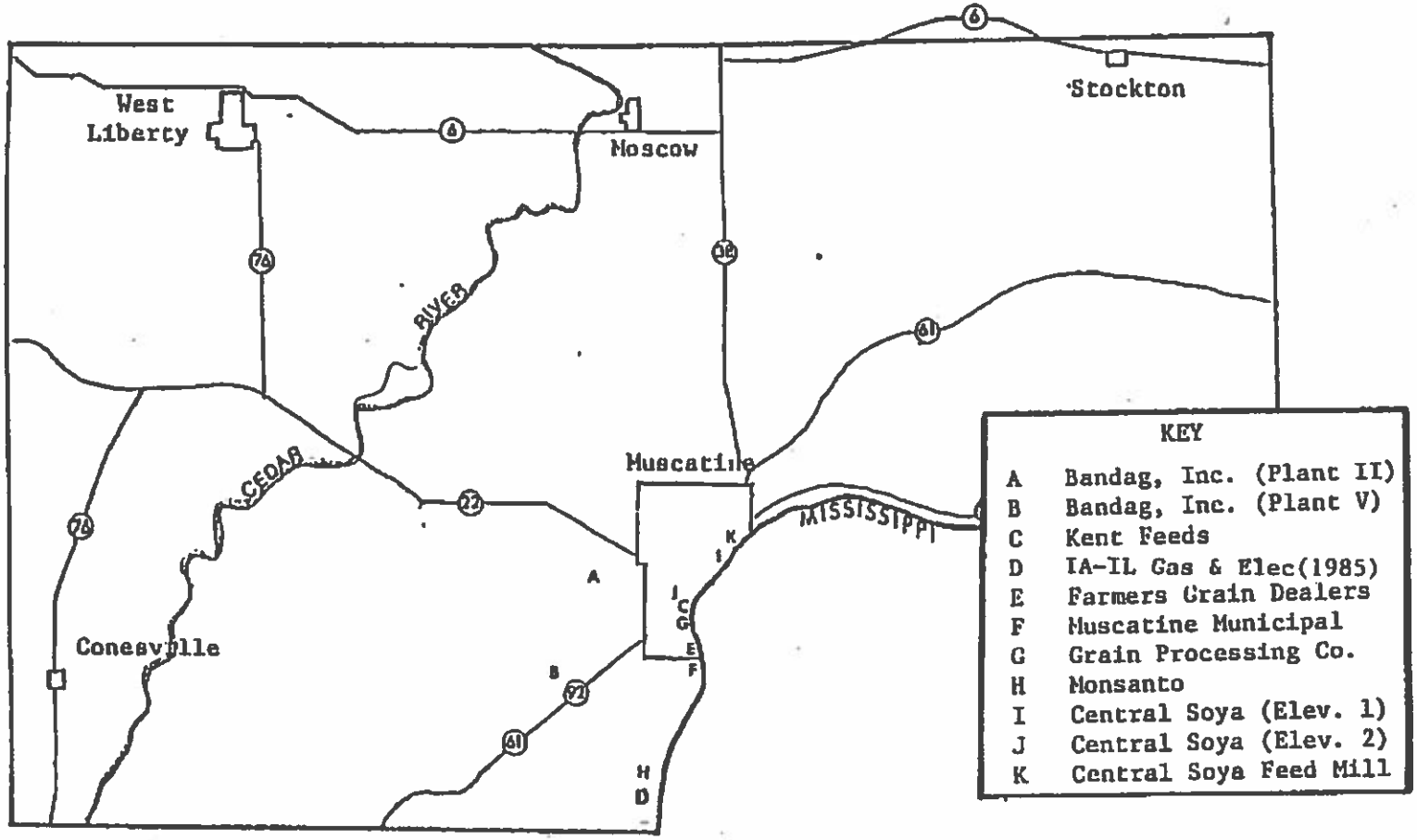


Figure 1-1
Location of point sources in Muscatine with the potential to emit more than 100 tons of particulate per year

TABLE 1-2

Suspended Particulate Area Source Totals for Muscatine County

(Totals are in tons per year)

	1977	1982
Residential		
Fuel Use	22	23
Solid Waste Disposal	62	64
Commercial Institutional		
Fuel Use	44	46
Solid Waste Disposal	27	28
Transportation		
Motor Vehicle	161	167
Rail	7	7
Off-Highway	20	21
Aircraft	8	8
Fugitive		
Paved Road	2,530	2,631
Unpaved Road	15,090	15,694
Miscellaneous		
Structural Fire	8	8
Construction	32	*
TOTAL	18,011	18,697

* Contribution from construction projects for 1982 is unknown.

3.2 Empirical Model

As described earlier, PEDCo Environmental was contracted by EPA to conduct a microinventory analysis of the monitoring locations in Muscatine. The microinventory technique utilizes an empirical model recently developed by EPA[9] to relate ambient air quality to particulate emissions in surrounding areas. The model accesses data obtained from a survey technique known as a microinventory, which locates sources within a one mile radius of the monitoring site. The empirical model then calculates source contributions at the monitoring sites and surrounding areas. A summary of the results for Muscatine from the PEDCo report is provided in Appendix D. Table 3-2 lists the breakdown of particulate contributions to predicted air quality levels by source category for the base year monitoring locations using estimates obtained from the AQDM model and the microinventory analysis.

3.3 Attainment and Maintenance Demonstration for Suspended Particulates

In an effort to demonstrate the attainment and maintenance of the Ambient Air Quality Standards the emissions from traditional and nontraditional sources were reviewed. Since secondary particulate standards are short-term twenty-four-hour standards, the AQDM and empirical models could not be directly used to demonstrate attainment. Instead, the results of these models were used to support a rollback method to demonstrate attainment. A description of the process used is given in Appendix H. The control strategy is based on implementing a fugitive dust regulation on traditional sources and exploring a regulation for controlling nontraditional sources. EPA requires that the plan

revisions include all legally enforceable emission limitations for traditional sources. It is the opinion of the State that the currently approved SIP includes the legally enforceable emission limitations for particulate stack emissions from traditional sources and that these requirements mandate the use of all Reasonably Available Control Technology (RACT) to control particulate emissions from stacks under normal operating conditions. The currently approved SIP does not, however, require the use of RACT to reduce fugitive emissions from all all traditional sources. To require the use of RACT the Air Quality Commission approved a modified fugitive dust rule as provided in Appendix G. The modeled control strategy assumes a fifty percent reduction in current fugitive emissions resulting from the enforcement of the modified fugitive dust regulation.

For Muscatine, this rule is projected to decrease concentrations 5 to 17 percent in certain areas. Since a total reduction of the twenty-four-hour average needed is 31 percent at the City Hall monitoring site, additional control on non-industrial sources will be necessary.

Completion of construction and implementation of a new maintenance and breakdown rule is expected to reduce the 24-hour concentrations by an additional 2 percent.

A fugitive dust rule to control the emissions from nonindustrial or nontraditional sources will be designed to reduce ambient levels the remaining 24 percent. Nontraditional sources include operations such as construction, and transportation on paved and unpaved roads

and parking areas. Table 3-3 lists the total reductions expected from implementing the proposed control strategies. Additional studies will be conducted in the next two years to further quantify the effect of nontraditional sources by filter analysis, statistical calculations, and additional monitoring.

During that time, additional regulations will be developed so attainment of the standards can be demonstrated. Currently, DEQ has requested and received approval for additional funds to conduct these studies.[10,11] A schedule to examine these nontraditional sources and develop appropriate strategies is shown in Table 3-4. Since the particulate studies will not be completed until 1981, and an adequate strategy will not be implemented until 1982, attainment of the secondary standards is not expected until 1985.

Maintenance of the air quality standards will be accomplished through the construction permit program and an accomodation for future growth. The current SIP requires that a permit to construct or modify a new air pollutant source will not be issued if emissions from the source would jeopardize the attainment status of an area. The construction permit requirement applies to all particulate air pollutant sources with the exception of several minor source categories. These minor sources will be accomodated in the SIP by the proposed nontraditional regulation that will be developed upon completion of the further studies.

3.4 Maintenance and Breakdown of Air Pollution Control Equipment

Chapter Five of the Air Quality Commission's Rules and Regulations relates to excess emissions. EPA has indicated that several of the

Figure 3-2

Breakdown of Particulate Contributions to Two Monitoring Sites

MODELING

Source Type	Estimated Suspended Particulate Concentrations for selected receptors (geometric equivalents in ug/m^3)		
	Emperical Model[6] (Microinventory)	AQDM[7]	
	City Hall	City Hall	Receptor 130 (central Muscatine)
Point Sources			
Stack Emissions	1.3	6.7	22.6
Fugitive Emissions	0.0	5.6	34.8
Area Sources			
Fuel Combustion[a]	0.3	0.6	0.2
Solid Waste Disposal[b]	0.6	1.2	0.6
Auto Exhaust[c]	0.7	0.8	0.9
Reintrained Dust[d]	10.6	6.5	5.7
Unpaved Roads/Alleys	0.9	0.8	3.4
Construction	0.1	1.4	0.0
Other[e]	0.2	0.2	0.1
Local or Visible Dust[f]	0.0	-	-
Background[g]	57.2	36.7	36.7
Total	72.0	60.5	105.0

[a] Both residential and commercial fuel combustion not included as a point source.

[b] Both residential and commercial solid waste disposal including incineration not included as a point source.

[c] Particulate emitted from an automobile, truck, or motorcycle.

[d] Particulate generated from automobile, truck or motorcycle movement on paved or surfaced roads.

[e] Particulate generated from structural fire, railroads, airplanes, storage and cleared areas, or other sources of a relatively small size.

[f] The emperical model defines a local and visible particulate dust loading based on observations performed in the immediate area.

[g] The emperical model uses a background constant of 57.2 ug/m^3 with an estimated undefined source impact ranging from 10-20 ug/m^3. The AQDM attempts to estimate the particulate concentration entering the modeled area, this background concentration has attempted to be quantified.

[6] Emperical Model is PEDCO Environmentals microinventory techniques that was conducted on 14 sites in Iowa for EPA.

[7] Air Quality Display Model, computer diffusion modeling results conducted by DEQ but have not been statistically calibrated with monitoring sites.

TABLE 3-3

Expected Reductions from
Proposed Control Strategies

	City Hall	Garfield School
Design Value	190.7	159.0
Percent Exceeding Standard	27.1	6.0
Expected Growth in Emissions (percent)	3.3	3.3
Total Reduction Necessary	30.4%	9.3%
Estimated Reductions Resulting from Control Strategies (in percent)		
Fugitive dust policy for industrial sources	4.5	16.5
Maintenance and breakdown	1.0	2.0
Completion of construction	1.0	1.0
Nontraditional fugitive dust policy	23.9	3.0
Total Reduction Expected	30.4%	22.5%

Table 3-4

Schedule to Examine Nontraditional Sources

and Develop Appropriate Control Strategies

The following schedule has been adopted by the Iowa Air Quality Commission for future examination of nontraditional sources and development of any appropriate control strategies.

May 1979 to January 1981	Further studies to assess source impacts and develop control strategies.
March 1981	Propose control strategies.
July 1981	Approve control strategies.
January 1982	Control stategy effective.
January 1982 to December 1984	Control stategy implemented.
January 1985	Attainment demonstrated.

rules require revision. The Iowa Air Quality Commission proposed a rule for public hearing that, except for the exemption of excess opacity during periods of start-up and shutdown, received positive comment from EPA.

The proposed rule did, however, receive negative comments from most other commentors mainly because under the proposal all malfunctions, regardless of cause, were considered violations of the emission standards. The DEQ staff is of the opinion that a revision to Chapter Five, that is both consistent with EPA requirements and consistent with other comments, can be prepared and proposed for public hearing. At this time the intent of the Air Quality Commission is to review a modified Chapter Five rule and to propose that rule for public hearing.

3.5 Reasonably Available Control Technology (RACT)

The Clean Air Act requires that nonattainment SIP's employ the use of all reasonably available control measures. The Environmental Protection Agency requires that all necessary emission limitations be imposed on traditional sources. To obtain these limitations, reasonably available control technology must be required. For particulate sources, RACT, as discussed earlier, will be required by the current or revised Iowa SIP.

The State is currently conducting a case-by-case RACT analysis of the fossil fuel burning facilities located in the Iowa particulate nonattainment areas. The analysis will consider the cost and environmental effectiveness of more stringent emission limitations. The analysis will be submitted to EPA for review by July 1, 1980.

Controlling to a reasonable extent only traditional suspended particulate sources in Muscatine will not result in attainment of the secondary particulate standards. As seen in Appendix F and Table 3-2, nonindustrial sources contribute a substantial amount to the ground level particulate concentrations. To control these emissions, a regulation will be studied and ultimately adopted to control fugitive dust particulate emissions from nontraditional sources.

3.6 Reasonable Further Progress

The SIP must demonstrate the attainment of the ambient air quality standards as expeditiously as practicable. The plan must also demonstrate that Reasonable Further Progress (RFP) will be made toward the attainment of the standards. The RFP schedule is provided in Figure 3-5. The figure shows base year 1977 emissions and the estimated progress in emission reductions that will occur as a result of the implementation of these SIP revisons. The schedule also presents the monitoring data summary. The values provided in the monitoring data summary show air quality trends and represent the highest of all particulate monitoring sites. The summary will be used to relate recorded monitoring progress with emission reduction progress. The plot of emission reductions expected shows that sufficient reductions in particulate emissions will occur to demonstrate the attainment of the secondary air quality standards by 1985. The projected emission reductions accomodate major and minor source growth in the RFP schedule.

3.7 Growth of Emissions

The estimates for growth were based upon the maximum allowed under prevention of significant deterioration guidelines. A maximum growth of

5 micrograms per cubic meter to the twenty-four-hour average, or 3.3% of the standard, will be allowed in this area. This will account for all available growth in the future.

Major particulate source growth will be provided for through the implementation of an emissions offset regulation unless offsets are not reasonably available as discussed in the letter from David G. Hawkins to Senator John C. Culver, November 7, 1979, (See Appendix I) and further clarified by Kathleen Q. Camin in a letter of November 30, 1979, to Larry E. Crane. (See Appendix J). The offset regulation that will be required is contained in Appendix L. The regulation requires that a greater than one-to-one offset be obtained. The amount of offset in excess of one-to-one will be used to demonstrate reasonable further progress and could also provide a margin for increased population or minor source growth. In addition, the implementation of a fugitive dust regulation for nontraditional sources should provide an accomodation for any growth in areas of ~~Marshalltown~~ not affected by the offset policy. Consequently, new source growth should not jeopardize reasonable futher progress or the attainment date. Any increased particulate emissions resulting from new source growth will be tracked through the new source review program of DEQ and will be reported annually as detailed in Section Six.

11/19/08

Word: Newcomb List. . .

Newcomb List of properties with gravel in Muscatine City Limits

3610 Park Avenue – Muscatine County Highway Department
Staff Response: This property was the former Plow & Pedal property used as an implement dealership and pre-dates the ordinance requiring hard surfacing. Graveled areas that were used for display were allowed to remain when the County acquired the property. However, hard surfacing was required and installed for the County Engineers/Zoning Office and Sheriff's Office when they were constructed.

1302 Washington Street – Muscatine County Jail
Staff response: This was the former Melon City Auction location and was gravel at the time the hard surfacing ordinance was adopted. The County acquired the building to use as a "temporary jail" when the old jail was closed and during construction of the new jail. Hard surfaced parking was installed for patrol vehicles and in accordance with the proposed use. Otherwise, the site remains graveled. Ultimately, this "temporary" occupancy is intended to be closed.

Washington Street - Muscatine City Property (4 acres)
Staff response: This reference must be to the "lower lot" which the City has owned for many years that pre-dates the hard surfacing ordinance. However, hard surfacing was installed when the new Public Works campus was developed and fully complies with the Ordinance.

3800 Park Avenue - Frye Builders
Staff response: This is the former Fuhlman Siding business. The property pre-dates the hard surfacing ordinance.

2417 Grandview Avenue - ESI
Staff response: This property has been used for multiple uses over many years. The property pre-dates the hard surfacing ordinance. A prior occupant installed approximately 7,000 square feet of asphalt. The driveway entering the site was developed by the IDOT as a part of the ByPass construction. When the project was completed, the State provided several quit claim deeds to the City…this is one of them. A request for the city to hard surface this drive in accordance with the hard surfacing ordinance was previously considered by City Council and determined not to be a priority matter. The driveway remains graveled as originally constructed by the IDOT.

1415 Grandview Avenue – Rumors
Staff response: This property (formerly Herkey's Tap) has been used, and continues to be used, as a tavern. As a result, it pre-dates the Ordinance.

2405 Grandview Avenue – Van Meter
Staff response: This property pre-dates the Ordinance. However, there is approximately 5,600 square feet of asphalt on the site. The driveway serving the site is the same drive that serves ESI as stated above.

1701 Grandview Avenue – Old Furniture Mart
Staff response: This property pre-dates the Ordinance. However, there is approximately 4,000 square feet of asphalt parking available.

1414 Grandview Avenue – JC Auto Sales
Staff response: This is the site of the former Big A Auto Parts and pre-dates the Ordinance. However, the entire vehicle display area on Grandview Avenue is concrete.

1200 Grandview Avenue – B&K Cycle
Staff response: This is the site of the former Trucks Unlimited and Bank Trucking and pre-dates the Ordinance. However, there has been 4,000 square feet of concrete added since that time. .

1225 Grandview Avenue – Gridco (Old CAM II Building)
Staff response: This has been a warehouse for over 30 years and pre-dates the Ordinance. It is one of the properties recently purchased by Gridco (Musco Lighting) and has approximately 900 square feet of concrete in place. Also, the gravel located in the area is actually a part of an old alley that was vacated by the city and sold to Gridco within the last few years. This site will be developed (as part of a 75 acre acquisition by Musco) in the future.

1201 Grandview Avenue – Pearl City Tattoo
Staff response: This property was the site of the former Earls Pit Stop. The use pre-dates the Ordinance. The small building was constructed as a "model" for a garage dealer and has undergone several transitions since that time…including a delivery only restaurant.

3503 Grandview Avenue – C.R. McDowell Crane
Staff response: This is the site of the former Waggoner's Trucking and pre-dates the Ordinance. However, there is over 5,000 square feet of concrete on the site.

3131 Grandview Avenue – V. H. Willis
Staff response: This is an existing business that pre-dates the Ordinance.

3323 Grandview Avenue – Iowa Carbonic Ice
Staff response: This is an existing business that pre-dates the Ordinance.

1700 Grandview Avenue – Builder's World
Staff response: This is the site of the former Limber Mart and remains a lumber outlet. The business pre-dates the Ordinance.

2719 Grandview Avenue – Jon Brauns Excavating
Staff response: This is the site of the former Brauns Excavating business that pre-dates the Ordinance. The site is currently used by the son of the former owner and the use remains the same. This site was heavily damaged by the 2007 tornado and has been restored. As a part of the rebuilding process, the owner added a new building which

required hard surfacing. Over 3,000 square feet of concrete has been installed and a new concrete drive leading into the property has been constructed.

2304 Sampson Street – Sprouse Distributing
Staff response: This is an existing business that pre-dates the Ordinance.

1115 Musser Street – Kokemueller Cabinet Shop
Staff response: This warehouse/light industrial building was constructed in 1979 and pre-dates the Ordinance.

5901 49th Street South – Peerless Supply
Staff response: This commercial building was constructed in 1974 and pre-dates annexation and the Ordinance. However, there has been approximately 2,000 square feet of concrete parking installed.

11/19/08
Wold, Newcomb LIST...

Newcomb List of Trucking Properties without concrete trailer parking

3802 Park Avenue – Ruan
Staff response: This property use pre-dates the Ordinance.

3000 University – H.N.I.
Staff response: This property has 25,000 square feet of parking installed in 1998 and an additional 180,000 square feet of asphalt installed later the same year. City staff worked with HNI to bring this property into compliance.

4200 South Highway 61 – Curry's
Staff response: This property was granted a 5-year extension by City Council earlier this year. The site has 45,575 square feet of concrete parking currently available that was installed in 2007.

1357 Isett Avenue – Heinz
Staff response: This use pre-dates the Ordinance. However, the Owners installed 328,000 square feet of asphalt in 1980. That same year they also installed 2,500 square feet of concrete parking. In addition, Heinz installed 106,000 square feet of asphalt in the parking lot located across Isett from the plant entrance.

5408 61st Avenue – Pretium Packaging
Staff response: The original use pre-dates the Ordinance. However, since the ordinance was adopted, the Owners have installed 60,000 square feet of asphalt parking.

1400 Houser Street – Cornbelt Express
Staff response: The use pre-dates the Ordinance but recent changes have resulted in the installation of 2,500 square feet of concrete paving.

1425 Houser Street – Robison Logistics
Staff response: This property was given extensions by City Council. There is currently in excess of 20,000 square feet of parking available with additional improvements scheduled each year.

6100 49th Street – CAM II
Staff response: This property has developed and expanded over many years. The original use pre-dates the Ordinance. However, since the hard surface requirement has been in place, the Owner's have installed over 73,000 square feet of asphalt and concrete.

4700 55th Avenue – Commercial Carriers
Staff response: This use is currently in non-compliance. The original use was built in 2005 and a letter agreeing to complete the hard surfacing is on file. However, the Owner has disregarded attempts to bring the property into compliance. In 2007, approximately 5,000 square feet of concrete parking was installed.

603 Clay – Daufeldt Transport
Staff response: This original pre-dates the Ordinance but was expanded in 1997. As a result 44,600 square feet of concrete was installed, as required.

6300 49th Street – Bandag
Staff response: This property pre-dates the Ordinance. However, as a part of the development, Bandag installed 117,000 square feet of asphalt in 1972.

2420 Stewart Road – Tantara
Staff response: This property is located in Muscatine County and therefore not subject to city regulations.

In short, I believe most of the Newcomb list can be adequately explained. However, it seems to me that where the few instances non-compliance are noted, they only reinforce the need to require a bond or similar financial instrument to make sure compliance is obtained, as requested and required.

2/24/09

SITE PLAN REVIEW
(ORD NO 82746)

POLICY REGARDING EXTENSION REQUESTS FOR HARD SURFACING

The Site Plan Review Ordinance (No.82746) adopted on August 7, 1986 shall be used to determine compliance with City Code prior to occupancy of any building or property subject to review. In addition to the requirements as set out in the Site Plan Review Ordinance, city staff is authorized to allow temporary occupancy and use of a building or property for up to one calendar year from the date the temporary occupancy permit is issued to allow reasonable time for the installation of all required hard surfaces (concrete or asphalt) if necessary due to weather or site conditions. Any request for a delay beyond the temporary occupancy time limitation as set out herein shall be reviewed on an individual basis and will be determined based on the intended use, surface area under consideration, timing of the request, impact on adjacent uses, overall effect on air quality, and other considerations as may be deemed appropriate to insure that the overall intent of the Ordinance is being met and the policy uniformly applied. If a request for an extension is granted, the improvements shall be covered by a legally binding financial instrument that insures the improvements will be installed within the period covered by the extension request.

ALTERNATIVES
TO
HARDSURFACING]

IS DOCUMENT INCLUDES INFORMATION REAGARDING
E PROS OF USING SLAG/GRAVEL VS ASPHALT/CONCRETE

Heinz Truck Parking Lot

Cam 2 Ware house

Daufeldt Trucking

Sprouse Distributing

Midtown Trucking

1. Pollution Problems with asphalt/concrete
2. Pros of Gravel Driveways
3. How does gravel driveway cost compare to concrete/asphalt
4. 3 benefits of gravel driveways
5. Permeable pavers vs. concrete asphalt
6. Chart of number of deaths caused by asphalt fumes while installing
7. Slag over asphalt or concrete
8. Duraberm company facts and information about slag
9. Links used to gather information for the proposal

http://www.harscocrushedrock.com/

http://duraberm.com/

www.sciencedirect.com

www.doityourself.com

www.allstakesupply.com

www.nearsay.com

www.truegridpaver.com

www.equusmagazine.com

10. Articles regarding how slag benefits the environment

Pollution Problems with asphalt/concrete

One of the greatest pollution problems in the world today is the threat to safe drinking water. Less than 1% of the water on earth is clean and available for potable drinking water. The sources of human drinking water are a mixture of groundwater aquifers and surface water reservoirs. It is vitally important to the sustainability and safety of society that these water sources be protected from pollutants. A significant source of pollution to drinking water supplies comes from the discharge of untreated or under treated storm water runoff. Storm water runoff occurs naturally during precipitation when the ground cannot absorb all of the rainfall. However, with the increase in man-made impervious surfaces, such as roads, rooftops, and parking lots, the volume of storm water runoff has drastically increased. As the runoff flows over the land or impervious surfaces, it accumulates debris, chemicals, sediment or other pollutants that can drastically impact water quality. One of the largest contributions of pollution to storm water runoff is from roadways.

There has been a great deal of scientific attention given to pollutant deposition on roadways from automobiles. Sources include vehicle exhaust, tire wear, accidents, lubricating 3 oils, and deicing operations. These contributing factors result in oils, heavy metals, salts, and other chemicals being put down on the road surface, which can then wash off during the first flush period of a storm. While there is an abundance of research into this phenomenon, there is relatively little concern given to pollution coming from the roadway material itself.

Overall, reclaimed asphalt pavement (RAP) runoff was shown to have higher concentrations of petroleum hydrocarbons and greater complexity than virgin asphalt. Fluorescence values from the field fluorimeter as well as absorbance value integrands from the HPLC and TPH concentrations done by a third party were universally higher in the RAP samples compared to the virgin asphalt samples. This shows that RAP has higher petroleum hydrocarbon 4 concentrations. The HPLC results show greater numbers of peaks in the RAP samples as compared to the Virgin samples showing that RAP contains a larger number of unique petroleum hydrocarbons and are therefore is more complex. From the HPLC results the most complex sample was a field sample from a high traffic road.

web.wpi.edu

Pros of Gravel Driveways

The Pros

1 - Affordability

Gravel is a whole lot cheaper than a concrete, asphalt, or other paved surface. It can cost less than 1/2 of paved driveways. Even though you will have to maintain the gravel, it is inexpensive to do so.

2 - Maintenance

Gravel is as easy to maintain as a paved driveway. You simply need to add more gravel and as it sinks due to weight and water. This is something you will need to do on a regular basis. Filling it in to even it out will usually need to be done twice a year, depending on the use and weather conditions.

3 - Installation

Installation is a snap when installing a gravel driveway. You will need to grade the driveway, and then add the gravel of your choice. Next, add a layer of pea gravel to fill in between the gravel. It will settle within a week, and will give you a smooth surface. Once it installed, you can use it immediately, as opposed to a paved surface, which has to cure before it can be used.

4 - Water Drainage

Water drainage is another plus with gravel. It allows the water to dissipate into the ground, and evaporate into the air, without having an effect on the driveway. With a paved driveway, water can become trapped and cause cracks and deterioration, which is also very expensive to repair.

Gravel Driveways are Eco-Friendly

Gravel driveways are definitely an eco-friendly option to consider, as opposed to traditional paved driveway surfaces. It allows for the surface below, grass and plants, to continue to hold their roots. There is an also healthy bacterium in the ground which is not disturbed by gravel driveways. Another reason to use gravel for your driveway, is that it allows water run off to carry dirt into the ground and not into the streets and gutters. In addition, gravel driveways are less expensive to maintain, making it eco-friendly and budget friendly.

How does gravel driveway cost compare to concrete?

Gravel driveway costs are very low compared to other surface options. A gravel driveway will cost approximately 50 cents per square foot; if you do it yourself, which is very easy to do, or around 3 dollars per square foot if you have someone else install it for you. Compare this to the most popular alternatives, which are asphalt and concrete. An asphalt driveway will have to be installed by a professional, and costs about 6 dollars per square foot. A concrete driveway, installed, will run you around 8 dollars per square foot.

www.doityourself.com

Driveway pavers combined with gravel can create a fantastic aesthetic for homes and also create a permeable surface reducing localized flooding. Driveway pavers contain the gravel which stops compaction whilst maintaining the permeability of the gravel driveway for decades to come. There are other benefits for installing a permeable paving solution too, so you can rest easy knowing it is a great choice for your property and the environment.

Lower your costs. Installing a gravel driveway with recycled plastic pavers, you are reducing water runoff because of its permeable surface. Alternatively, a concrete slap driveway increases storm water runoff, which by council legislation will require extra storm water drainage to be installed on your property, a cost that falls on the property owner.

Failed or clogged drains mean that water can pool up onto the concrete slab and put pressure on the waterproofing. The worst case scenario could lead to flooding of the property. If this happens again and again overtime, it can cause irreparable damage to the slab. By installing a gravel driveway supported by pavers instead of a sealed concrete driveway, you can reduce the risk of flooding and damage to the slab by directing water back into the earth.

www.allstakesupply.com

3 Benefits of Gravel Driveways

1. Ease of Installation
Gravel driveway installations take much less time and resources than solid asphalt or concrete. The contractors will dig out grass and topsoil, level the surface, compact the dirt, lay a weed barrier, install a border, and pour the gravel. Once smoothed, the driveway is ready for use, typically in less than one work day.

2. Inexpensive
Gravel driveways serve as the least costly option on the market, making them especially ideal for larger projects. In 2018, the average gravel driveway or road costs about $1,500, a mere fraction of the price of other options. Furthermore, regular gravel maintenance will cost less than repairs to solid surfaces. If you want to save money, consider installing gravel.

3. Longevity
Unlike concrete or asphalt driveways, gravel can last over a century with proper maintenance. Since gravel cannot sink or crack, water can easily flow through it without causing damage. Over the years, gravel simply needs to be filled in when it becomes patchy to maintain a clean, even appearance and improve function.

Permeable Pavers vs. Asphalt/Concrete

Commercial parking lots, roadways and driveways must be able to withstand heavy loads, large volumes of traffic, and a variety of weather conditions with a minimal amount of maintenance and a long lifespan. Traditionally, the most durable and cost-effective materials for commercial paving applications have been asphalt and concrete, but now there are a wide variety of alternatives, including permeable pavers.

Unlike typical asphalt and concrete surfaces, permeable pavers provide a surface that is porous to rainwater and other liquids, eliminating the costly and complex drainage and retention systems that are often necessary for concrete or asphalt installations. They are also easy to install, lightweight, and can be filled with locally available materials, simplifying their installation.

Asphalt

The most common commercial paving material used in the United States is asphalt, because it is inexpensive compared to concrete, readily available, faster to install and easier to repair. The finished surface has a reasonable degree of flexibility, allowing it to be used in areas where concrete would crack due to changing soil conditions, frost upheaval or erosion. It is very cost-effective, especially for larger applications, and is similar in price to permeable pavers.

Asphalt, however, does have some serious disadvantages. The material is technically a form of concrete, made by combining an aggregate such as gravel, with asphalt, a petroleum product that acts as a binder. The asphalt can be found naturally or synthesized from other petroleum products.

As a petroleum product, asphalt contains significant amounts of hydrocarbons and other chemicals that both make it difficult to recycle and potentially harmful to the environment. Additionally, asphalt is a non-renewable resource with a limited supply, and the environmental impact of extracting, processing and using the material can be significant.

Compared to concrete, asphalt is softer and much less durable, requiring frequent maintenance to fill potholes and to seal cracks, especially in areas with high sun exposure where the heat softens the asphalt and accelerates its degradation. The darker color of asphalt also absorbs more heat than concrete, contributing to the "heat island" effect in urban areas that increases cooling costs and energy usage.

Asphalt surfaces also require an extensive drainage system to collect storm water in order to prevent flooding problems during heavy rain, as well as erosion. It also requires expensive

equipment to heat and install the material, as well as a large labor force who must work in dangerous conditions with extreme temperatures and a high risk of injury.

Concrete

Concrete is an extremely durable and long-lasting commercial paving solution when installed at the proper thickness, with effective reinforcement and expansion systems to prevent cracking and other damage. It absorbs less heat than asphalt, it is typically made from natural materials like rock and sand, and it can easily be ground down at the end of its life cycle and used for other purposes, making it more environmentally-friendly than asphalt. It can also be stamped and colored easily to make a variety of attractive colors and patterns, such as realistic cobblestone patterns, and some formulations are even porous, like permeable pavers. Unfortunately, concrete is also extremely expensive compared to asphalt or permeable pavers, and it is prone to cracking, as well as damage from frost upheaval or erosion. Concrete is time-consuming and labor-intensive to install, requiring heavy machinery such as concrete trucks or pump trucks, a large team of experienced workers, special finishing equipment, and purpose-built forms to shape the material. Most commercial concrete applications also require an extensive drainage system, increasing the overall price and complexity of the installation.

Permeable Pavers/Gravel

Like concrete and asphalt, permeable pavers are an extremely long-lasting and durable paving solution. Before they are filled with gravel, limestone or any of the many other compatible materials, they offer strength of over 6800 PSI, allowing them to be driven on by heavy equipment during the installation process. Once filled, they offer compression strengths of over 8000 PSI, allowing them to handle even the heaviest commercial traffic, such as tractor trailers, forklifts or construction equipment, and standard automobile traffic at high volumes.
They require less maintenance than either concrete or asphalt, and are not vulnerable to cracking, sun exposure, frost, rain or erosion. Permeable pavers are far less labor-intensive to install, because they are lightweight and can cover a large area quickly. The grids can easily be moved into position by a single person, cut to fit, if necessary, and then interlocked with adjoining grids. Afterward, heavy equipment can be used to dump and spread the fill material, then compress it into the permeable pavers. No special finishing equipment is required, and no sealants need to be applied.

Permeable pavers are also more environmentally-friendly and sustainable than either concrete or asphalt. They are made from recycled materials and they can be filled with locally available products such as gravel, limestone, crushed glass or soil and grass seed. Due to their minimal weight, they are less expensive and carbon-intensive to ship. And because less heavy equipment is used during the installation, fewer emissions are produced. Finally, because permeable pavers are porous, they allow rainwater to drain naturally through the surface, refilling local aquifers and preventing erosion.

Permeable pavers do have a few disadvantages, however. The same amount of preparation is required for the subsurface as with other materials, and some heavy equipment is necessary for the installation. Additionally, though permeable pavers are far less expensive than concrete, they may cost about the same or slightly more than an asphalt surface, depending on the project requirements. Finally, permeable pavers are a relatively new solution for commercial paving, possibly making it more difficult to find experienced contractors for the installation.

Thanks to their many benefits, including reduced maintenance requirements, high durability and greater sustainability, permeable pavers make a great alternative to either concrete or asphalt for many commercial paving applications, and they are extremely cost-effective.

www.truegridpaver.com

Table 2.1 - Cancer in Asphalt Paving Industry

Author, country, and occupation	Number of study subjects	Dates of case ascertainment	Type or site of condition	Number of deaths or cases	Risk ratio	95% CI or *P* value
Hansen (1989a), Denmark, mastic asphalt workers[b]	679	1959–1986	All cancers	74	SIR 1.95[c]	1.53–2.44
			Lung cancer	27	SIR 3.44[d]	2.27–5.01
			Mouth	2	SIR 11.11[d]	1.35–40.14
			Oesophagus	3	SIR 6.98[d]	1.44–20.39
			Rectum	7	SIR 3.18[d]	1.28–6.56
Hansen (1991), Denmark, mastic asphalt workers[e]	679	1959–1986	All causes	148	SMR 1.57[d]	1.34–1.85
			All cancers	62	SMR 2.29[d]	1.75–2.93
			Lung cancer	25	SMR 2.90[d]	1.88–4.29
			Non-lung cancer	37	SMR 2.00[d]	1.41–2.76
			Bronchitis, emphysema, asthma	9	SMR 2.07[d]	0.95–3.93
Engholm et al. (1991), Sweden, pavers[f]	2572	1971–1985	All causes	96	SMR 0.69	NR
			All cancers	47	SIR 0.86	NR
			Stomach cancer	5	SMR 2.01	NR
			Stomach cancer	6	SIR 2.07	NR
			Lung cancer	7	SMR 1.10	NR
			Lung cancer	8	SIR 1.24	NR
Bender et al. (1989), USA, highway maintenance workers[g,h]	4849	1945–1984	All causes	1530	SMR 0.9	0.86–0.96
			All cancers	274	SMR 0.83	0.73–0.94
			Lung cancer	57	SMR 0.69	0.52–0.90
			Mouth, pharyngeal cancer	2[i]	SMR 11.10	1.30–40.10
			Gastrointestinal cancer	3[j]	SMR 5.82	1.20–17.00
			Prostate cancer	11[k]	SMR 2.98	$P < 0.01$
			Kidney, bladder, other urinary organ cancers	7[l]	SMR 2.92	1.17–6.02
			Leukaemia	8[m]	SMR 4.49	1.94–8.84
Partanen et al. (1997), Finland, road pavers (males only)			Lung cancer	NR	SMR 1.5	1.2–1.9
			Lung cancer	NR	SIR 1.4[n]	0.9–1.9

Table from National Institute for Occupational Safety and Health (Wess)

Slag over asphalt/concrete

For those of you who did not grow up in steel-making regions, as I did, slag is the leftover material after a desirable metal is separated (smelted) at high temperatures from its ore. Specifically, steel slag is a nonmetallic product developed simultaneously within steel furnaces. Around steel mills, small mountains of the stuff are a common sight.

So slag is a very hard, rock-like material that is in abundant supply---and thus relatively inexpensive---near steel and other metal refineries. Fortunately, there is a professional group of people well versed in how to repurpose slag for construction and agricultural uses: the National Slag Association (NSA). According to the NSA, slag has been used in road building for about 2,000 years. And that gives the first indication that this material has properties useful for improving a dry lot corral for horses.

I have heard of slag being used successfully as a base in riding arenas and cattle yards, because it compacts well and is durable. So considering using slag as a base for a dry lot paddock seems warranted.

Basically, building a dry lot paddock is like laying down a road for cars, in terms of the compaction of construction layers and drainage issues. The difference is that the paddock is topped with material suitable for equine hooves rather than asphalt or concrete. Road base mix is well suited for use in constructing the "base" of equine dry lots and riding arenas. This material is composed of a range of particle sizes that allow compaction by finer material filling gaps between larger particles to provide the stability needed in a base. For building or improving paddock dry lots, I recommend a solid, stable base of highly-compacted road base aggregate topped with a softer, fine material to fill any harsh surface characteristics.

Slag is used in several of ways due to the fact that it provides hard compacted layer that also helps with drainage issues. Slag is used in a lot of horse dry lots because it is drainable, hard compacted and easy to maintain. It can withstand hard forces and heavy use. It can withstand the hard compactions that concrete and asphalt cannot withstand.

On the Road stability of Slag

- Remove deep pavement cracks and allow for adjustments to the road profile.
- Conserve energy and preserve the environment.
- Equivalent to a traditionally reconstructed roadway in terms of life expectancy, wear and load bearing characteristics (Better Roads, 2001).
- Road can remain open to traffic until final pavement – fewer delays and interruptions to traffic.
- Reduced cost of construction.
- Increase stabilization of the road with chemical and mechanical binding properties already included in the slag aggregate

Benefits in use of Slag

- Provides a cost-effective alternative when compared to concrete or asphalt on low-volume roads
- Duraberm is 100% crushed, which makes harder, more durable unpaved roads
- Longer life cycle for roads with heavy traffic
- Duraberm is rough and angular – locks the aggregate together
- Can provide "cementitious" properties to help stabilize roads
- Sustainable manufactured aggregate is a greener alternative to crushed rock

On the Road to Sustainability

For a century, Edw. C. Levy Co. has been dedicated to reducing waste, minimizing CO2 emissions, and conserving and reusing energy wherever and whenever possible. Duraberm is the embodiment of this philosophy. Duraberm provides the same, if not more strength, while providing the same chemical constituency of other aggregates. It can be used on non-paved roads, for roadway stabilization, parking lot surfaces and driveways.

http://duraberm.com/

slag Successes
News and Information about the Iron and Steel Slag Industry

American agriculture gets growth spurt using EAF Slag as liming agent

HECKETT MULTISERV supplies EAF Slag to Tennessee Valley Resources, which supplies liming agents to much of the Southeast

America's farmlands enriched by steel slag.

It may be nearly a century since the first steel slag was used as a liming agent in the United States, but it's just two years that Heckett MultiServ has been supplying EAF (Electric Arc Furnace) slag to distributor Tennessee Valley Resources, Inc.

The Jefferson City, TN-based supplier of agricultural products reports many repeat customers.

"They're satisfied with EAF slag as a liming agent when it comes to adjusting the pH balance in the soil," commented H.J. (Jay) Moser, III, head of the 25-year-old family-owned business.

Accessibility and the high cost of shipping some liming agents is another reason Tennessee Valley Resources is selling slag more frequently.

"As a major marketer of limestone in the Southeast it matters greatly to us about the quality of the product and that it does a good job. When used as a liming agent,

Continued

NATIONAL SLAG ASSOCIATION
www.nationalslagassoc.org

slag better utilizes the fertilizer as all liming agents do," Moser added.

"But we're in a freight-sensitive business. Sometimes the cost to ship product is 2 or 3 times the cost of the product," Moser explained.

Steel slag as a liming agent is traditionally used for corn and soybeans, and more recently with sugar cane and rice.

"If slag can help us service our customers in 13 or 14 states, avoiding the excess shipping costs, while providing the right chemistry to do an excellent job as a liming agent, we'll continue supplying it."

H.J. "Jay" Moser, III
Tennessee Valley Resources

In addition to steel slag's value as a liming agent – reducing harmful acidic conditions by replacing the much needed calcium and magnesium – it is recognized for as many as fifteen other trace minerals, including iron, manganese, zinc and molybdenum.

EAF slag's concentration of such fertilizer constituents as silicate, calcium, magnesium, iron and boron, is higher than that of natural stone.

"Using steel slag as an agricultural co-product requires the proper crushing, sizing and metallic recovery before it can be sold to Tennessee Valley Resources and others. The preferred size is 1/8x0 with a calcium carbonate equivalent of 95% or greater," reported Gary Gibbs of Heckett MultiServ, Chicago, Illinois.

Finely ground steel slag in agriculture helps two ways: recycling industrial by-products and helping farmers produce better produce.

Today steel slag is being used as a liming agent in not just farming, but parks, golf courses, nurseries, greenhouses, even land reclamation projects.

As uses of slag continue to grow, the Earth continues to benefit.

This is another Slag Success Story brought to you by the National Slag Association.

0501

ANOTHER

SLAG SUCCESS STORY

THE ALL-PURPOSE CONSTRUCTION AGGREGATE

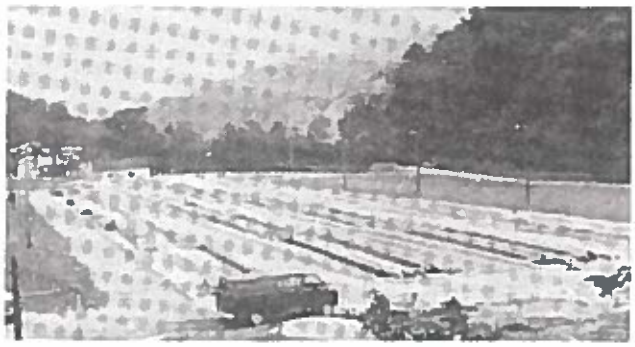
SLAG PURIFIES TROUT FARM WATER

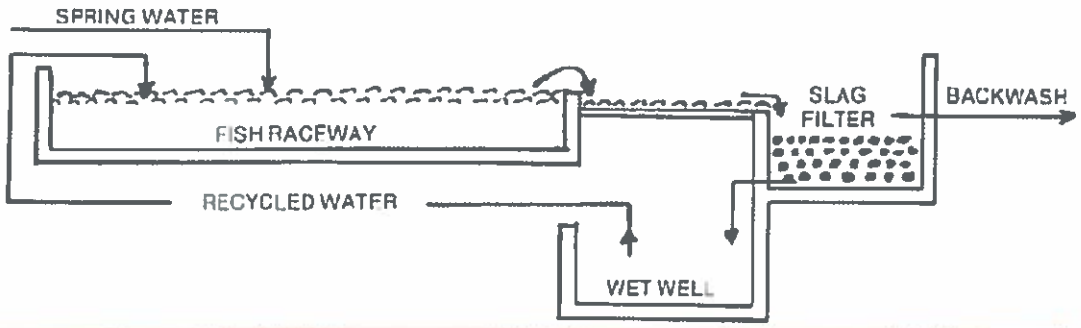
The West Virginia Department of Natural Resources, Division of Wildlife Resources, has used air-cooled blast-furnace slag as an ideal filter medium in the treatment and subsequent recycling of water from raceways containing 300,000 trout fingerlings.

Before specifying slag, the Wildlife Division had to prove the slag would not interfere with the successful raising of various species for its all-year-round trout fishing season. After performing laboratory leaching tests, the slag was chosen over limestone, oyster shells, and expanded shale for technological reasons.

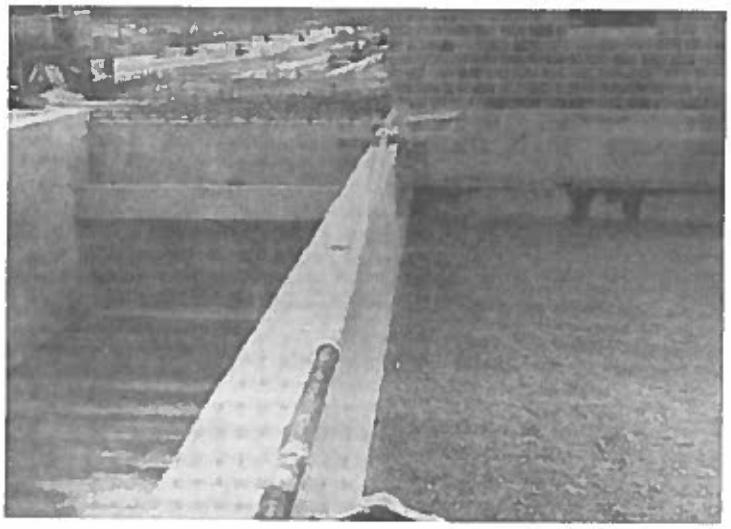
The performance of the slag filters has surpassed the expectations of the design engineers and fish biologists, particularly as to the back-flushing process and the control of ammonia in the recycled water.

The Reed's Creek Hatchery, shown at right, is located in the Potomac Highlands east of Elkins, W. Va., and is the site of $770,000 improvement doubling the number of raceways from 20 to 40. This 100% increase in capacity could only be accomplished by recycling the spring water as it flows through raceways. Before the water can be returned to the front end of the raceways, it must pass through the slag treatment system as shown in the diagram below:





The slag's function is to filter out solids and ensure retention of microorganisms which remove and metabolize toxic ammonia created by the fish that otherwise would prevent recycling the water. The Wildlife Division Management no longer has to worry about the frequent low flow of the spring water. The photo to the right shows two of the filters, one after it was filled with slag.



There are six filters containing a total of about 900 tons of air-cooled blast-furnace slag in AASHTO sizes #4 (1½"-¾"), #57 (1"-½") and #8 (3/8"-#8) from the Weirton Plant of The Standard Slag Company serving Weirton Steel, Div. of National Steel Corporation, in Weirton, West Virginia. Filters are on the left side of the adjacent photograph, the fish raceways on the right.

Besides its excellent structural and chemical qualities for this unique application, the slag was found to be a perfect habitat for the nitrogen-fixing microorganisms because of its alkalinity and its vesicular structure which prevents microorganisms being lost during back flushing. The photo to the right shows fingerlings in one of the raceways

Approved Materials for dust control combined with slag

The following materials are approved for use as a dust control palliative:

1. Lignosulfonate (Lignin or Tree Sap)*
2. Calcium Chloride
3. Magnesium Chloride

How calcium chloride controls dust

Calcium chloride helps control dust because it is a hygroscopic material. This means it attracts moisture from the atmosphere and environment. When calcium chloride is spread on an unpaved surface, it keeps it damp thus keeping dust down.

What's more, calcium chloride resists evaporation. This means it continues drawing moisture from its surroundings – and to keep dust down – for long periods – even on hot, dry days.

Dust Control

Blade and shape the surface to a straight line slope of ½" to 12" – a type "A" crown. This will permit water to drain off it properly and thereby eliminate ponding.

Apply a 38% solution of LIQUIDOW calcium chloride to the road surface in two passes so that the total rate applied to the road is 0.35 gallons per square yard. Or apply 2.20 pounds of DOWFLAKE XTRA or 1.71 pounds of PELADOW per square yard.

Dust control is usually maintained throughout the summer with minimal attention. However, for best results a second treatment is recommended in late summer or early fall.

Apply a 38% solution of LIQUIDOW calcium chloride to the road surface at the rate of 0.27 gallons per square yard. Or apply 1.69 pounds of DOWFLAKE XTRA or 1.32 pounds of PELADOW per square yard. Reblade, if necessary, according to Step 1.

Calcium chloride helps control dust because it is a hygroscopic material. This means it attracts moisture from the atmosphere and environment. When calcium chloride is spread on an unpaved surface, it keeps it damp thus keeping dust down. What's more, calcium chloride resists evaporation.

Lignosulfonate

Dust Control and Road Stabilization

Product Description

An alternative to road chlorides for dust control. **Lignosulfonates** are derived from lignin, a naturally occurring polymer found in wood that acts like glue holding the cellulose fibers of pulp together. During the pulping process, lignin is separated from the wood and undergoes an extensive process and eventually becomes an ammonium or sodium-based ligninsulfonate.

Lignosulfonates work by binding the road surface particles together. Water evaporates from the **lignosulfonate** as it dries, and the dust particles are trapped by the high-viscosity, naturally sticky material. In addition, over time some of the **lignosulfonates** become completely insoluble due to solar heating.

Uses or Application

- State, County and Township unpaved roads
- Federal/State Parks
- Mine haul roads
- Construction site haul roads
- Forest/timber haul roads
- Quarries/Mines
- Military roads
- Agricultural Roads
- Parking lot surfaces
- Tree/Flower/Shrub Nurseries
- Orchards
- Private and rural roads
- Industrial and federal project roads
- Construction staging areas
- Airfields and helicopter pads
- Feedlots

Generally **lignosulfonates** are associated with dust control and surface stabilization for roads. They are used as binders, dispersants, emulsifiers and sequestrates in a host of products such as gypsum board, animal feed pellets and micronutrient systems.

Typical Analysis

For a Ready-to-use formula

Chemical	Average Analysis
Water:	75%
Dry Solids:	25%
Lignin:	23.6%
pH:	4.5-6.0
Pounds per Gallon:	9.02 lbs
Color:	Light to Dark Brown

Features	Benefits
Fast acting product	• No need to close road • Results almost immediately apparent • Usable with almost all soil types
Non-hygroscopic	• Longer lasting results reduces reapplication costs • Reduces weather risks • Higher residual accumulation over time
Binder	• Safer roads and driving conditions • Longer lasting road stabilization • Fewer potholes/washboarding • Improves surface durability
Dust suppression	• Keeps fines on road • Cleaner air • Reduces dust to PM10 standard
Non-chloride product	• Better public relations • Environmentally safer • Safer for a variety of environmentally sensitive areas

Dust Control

Road Preparation

In preparation for applying ligninsulfonate as a dust suppressant, roads should first be re-crowned with a grader. Pre-wetting the road is recommended for best results. Lignin can also be applied without pre-wetting if water is not accessible, although results will vary depending on moisture content of the road base. Application rates for a topical application are 0.3 - 0.5 gallons per square yard.

Health, Toxicity & Environmental

Extensive studies have been conducted to evaluate the effects of **lignosulfonates** on the environment. Results show that they are not harmful to plants, animals or aquatic life when properly manufactured and applied. **Lignosulfonates** have been used as a treatment for dirt roads in Europe and the US since the 1920's.

The International Journal of Environmental Studies published a study in 1986 showing vegetation and growth of fir trees were not significantly affected at normal and above-normal application rates of **lignosulfonates**. Toxic levels of **lignosulfonates** in surface water have been established and confirm that concentrations must be relatively high before fish and other organisms are affected.

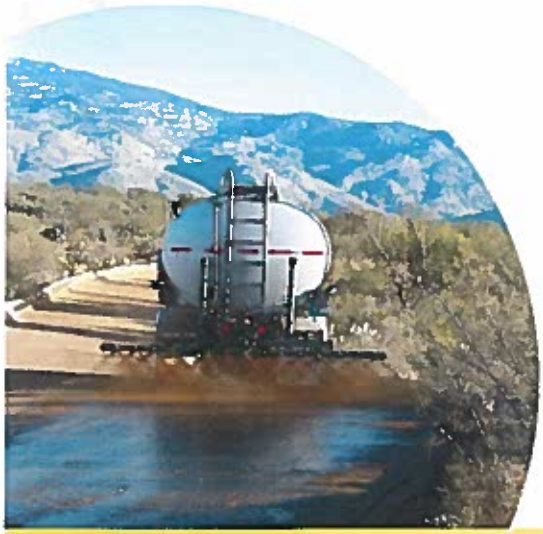
It is good practice to limit any dust control product application near water runoff into waterways.

Testimonials

EnviroTech has provided us with Tembec Lignin, which based on regular season use, has proven to perform better than other leading Lignins we have before used.

John Wood
Woody's Dust Control,
Rudd, IA

Lignosulfonate



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