INFORMATION REPORT

TO: Chair and Members
Public Works Committee

WARD(S) AFFECTED: CITY WIDE

COMMITTEE DATE: November 21, 2011

SUBJECT/REPORT NO:
Dust Fall Outs Resulting from Unpaved Parking Lots and Roads Within Industrial Properties - (PW11091) - (City Wide) (Outstanding Business List Item)

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Council Direction:
City Council at its meeting of May 14, 2008, approved the following:

“That Staff be directed to bring a report to the Public Works Committee as soon as possible outlining the possibility of implementing new control measures to stop dust fall outs that occur as a result of unpaved roads and parking lots on industrial properties, as these fallouts bring added property maintenance costs to residents and as it is difficult to regulate those who are causing these fallouts.”

This report provides the results of the investigation regarding the various control measures found to be in place by the City and industry stakeholders.

Information:

Impacts of Dust from Unpaved Roads and Parking Lots

Dust emissions from unpaved roads are a nuisance for those living nearby as it settles in and on homes, laundry and vehicles; it can impair the vision of drivers, creating a potential safety hazard. A best practices report supported by the Federation of Canadian Municipalities in October 2005, concerning Dust Control for Unpaved Roads, concludes that inhaling fine dust particles can be a health hazard to road users and residents. There is also evidence that crop yields are reduced by stress on vegetation and that sediment levels impact on aquatic plants and fish. The loss of fine particles from unpaved roads may also reduce surface longevity and increase maintenance costs.

Clean Air Hamilton attributes fugitive dust, including road dusts as a significant source of airborne particulate matter in Hamilton. Studies conducted around the world indicate
consistent exposure to these airborne particulates increase the risk of acute health impacts.

Over the last twelve years the City of Hamilton has undertaken a number of initiatives to identify best practices regarding dust control measures. In 1999, a street cleaning study by the Ontario Ministry of Environment, McMaster University and Clean Air Hamilton examined the impact of street cleaning on air particulate levels in industrial areas of Hamilton. The results of the six week study concluded that when mechanical sweeping, vacuuming and road flushing were used in combination, particulate levels were immediately reduced.

In 2005, a further study in Toronto established the capabilities of regenerative-air street sweepers and their abilities to remove particulate matter from roads efficiently.

In recent years, the City of Hamilton has purchased fifteen regenerative-air street sweepers that are PM10 compliant.

**City of Hamilton Control Measures**

**Planning and Economic Development**

**The Urban Official Plan**

The Urban Official Plan contains policies about dust control requirements for new developments and redevelopment of lands under its Urban Design Policies (Section 3.3) and its Health and Public Safety Policies (Section 3.6). Specifically the Official Plan states:

“3.3.7.4 Outside storage and loading areas shall be paved with a hard surface to reduce dust and promote improved air quality.

3.3.10.8 Parking lots shall be paved with hard surfaces to reduce dust and promote improved air quality.

3.6.3.18 The City shall ensure that all development or redevelopment with the potential to create conflicts between sensitive land uses and point source or fugitive air emissions such as noise, vibration, odour, dust, and other emissions complies with all applicable provincial legislation, provincial and municipal standards, and provincial guidelines, and shall have regard to municipal guidelines. The City may require proponents of such proposals to submit studies prior to or at the time of application submission, including the following: noise feasibility study; detailed noise study; air quality study; odour, dust and light assessment; and any other information and materials identified in Section F.1.19 - Complete Application Requirements and Formal Consultation.”

Implementation of these new policies have effectively put into place control measures to stop dust fall outs within industrial properties, however it is noted that the policies apply to new development and redevelopment. Since established industries are not subject to the new Official Plan or site plan control, dust control practices on private property rely on the industries being proactive and responsible.
Zoning By-law

From a development perspective, the following provision has been adopted within the new Comprehensive Zoning By-law which now includes new industrial zoning for all the employment lands within the City:

5.2 **Design Standards**

e) Parking spaces, driveways and any widening(s) thereof shall be provided and maintained with stable surfaces such as asphalt, concrete or other hard surfaced material, crushed stone or gravel, and shall be maintained in a dust free condition. Parking lots shall be designed and maintained with stable surfaces such as asphalt, concrete or other hard-surfaced material;

Where "Parking lots" are defined as follows:

Parking Lot: Shall mean an area located on a lot which contains five or more parking spaces."

Similar to the Official Plan the provisions of the Comprehensive Zoning By-law would apply to new development and redevelopment.

Municipal By-Law Enforcement

Municipal Law Enforcement does not specifically track complaints about dust. The following number of complaints are related to mud and includes dust. These numbers are City-wide.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of complaints</th>
</tr>
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<tbody>
<tr>
<td>2004</td>
<td>178</td>
</tr>
<tr>
<td>2005</td>
<td>171</td>
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<tr>
<td>2006</td>
<td>202</td>
</tr>
<tr>
<td>2007</td>
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<td>2008</td>
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<td>2009</td>
<td>113</td>
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<tr>
<td>2010</td>
<td>171</td>
</tr>
</tbody>
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Public Works

Environment and Sustainable Infrastructure - Construction Services

Control measures for dust mitigation are identified within the contractual provisions for projects, tenders and contracts that are issued.

Red Hill Valley Project

As part of the Environmental Management Plan for the Red Hill Valley Project, the City developed project-specific plans for use during construction which included:

- Noise, Dust, and Odour Control Plan
- Dust Control Plan
- Passive mitigation measures
Active Mitigation Measures

These plans provided for a proactive approach to minimizing the impacts of the construction activity in the surrounding areas.

Operations and Waste Management Division

To protect the health and safety of the public by controlling airborne dust on gravelled roads and to protect the riding surface by consolidating the granular material, an approved dust suppressant (typically liquid calcium chloride) is applied each year in the late spring and as required. Dust suppressants are applied to areas of high residential density, in front of homes that are situated in close proximity to the road, at intersections and on steep grades.

Additionally the Road Operations section has a gravel-paved road conversion program in place, subject to budget consideration and road asset condition.

A Mechanical Street Sweeping Program (MSSP) is primarily delivered by Roads staff and a current fleet of eighteen mechanical sweepers are supplemented with contracted forces as required. The MSSP operates on a schedule throughout the year depending on the severity of winter, however moves to a higher intensity during the spring, as staff deal with spring clean up issues. The program operates in accordance with the approved program service levels and Minimum Maintenance Standards to comply with Ontario Reg. 239/02.

Street sweeping in the City industrial area occurs nightly, with flushing as required. This practice has been increased in recent years to reduce and control dust on roadways.

Industry Stakeholders

Hamilton Industrial Environmental Association (HIEA)

This non-profit association, incorporated in 1998, includes representation from Air Liquide, ArcelorMittal, Bitumar, Bunge, Columbian, Lafarge, Sanimaz, Triple M Metal LP, U.S. Steel Canada, Rutgers and Westway, all located in the Burlington Street Industrial corridor.

Some industries have comprehensive dust mitigation plans in place for unpaved roads and parking lots and for material handling and storage piles. The best practices for unpaved roads in these plans typically focus on the following control measures:

Monitoring weather conditions and dust, fugitive dust events
- Monitoring of wind conditions and wind speed
- Suspension of material handling under adverse weather conditions

Preventative and reduction techniques
- Reducing the speed of vehicles
- Reducing transport distances

Wind protection
- Applying protective plantings, wind break fences or upwind mounds to lower the wind velocity
Suppression
- Water spraying/water curtains and jet spraying of roads
- Moistening the surfaces of roads using durable dust-binding substances (calcium chloride and recovered oil)
- Moistening the surfaces of roads with water (above freezing temperatures)

Suggested Dust Suppression Best Practices

At a Fugitive Emissions Workshop - hosted by the City of Hamilton, Ministry of the Environment (West Central), Hamilton Port Authority and Clean Air Hamilton in December 2006, the following best practices were recommended:

Unpaved Surface Controls
- Apply oil or a chemical stabilizer in sufficient quantity and frequency
- Pave surfaces with asphalt, recycled asphalt or concrete

Paved Surface Controls
- Sweep and water flush or vacuum paved roads and parking areas to remove particulate matter that has the potential to be re-suspended
- Use PM10 compliant sweepers or water sweepers that reclaim the water

Track-Out Area Control
- Traffic controlled to low speeds
- Track-out minimized by wheel, or even truck, washing
- Wet and/or vacuum sweeping on paved roads/areas

Ministry of Environment recommendations
- Unpaved roadways should be watered, oiled, or chemically sealed at frequent intervals, or better yet paved
- Plant peripheral areas of roadways as vegetation traps dust and larger plants can also act as windbreaks
- Paved surfaces need to be cleaned as often as necessary
- Use PM10 compliant sweepers

Concluding Comments

In recent years, comprehensive municipal and private sector policy and practices have been established in an effort to reduce and mitigate dust not only in industrial areas, but across the City. Some of these measures are recent, or incremental such as the City’s street sweeping program. These programs are appropriate and adequate to control dust on roads and parking lots in industrial areas. If and as redevelopment of older industrial areas takes place, the new policies and practices would be implemented.