Risk Based Land Use Planning In Strathcona County - MIACC

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• Centre of Alberta’s energy and agricultural heartland,

• More than 98,000 residents,

• Home to 75 per cent of refining in Western Canada.
AIH Project
Strathcona Portion

1. Keyera Energy Limited
2. Williams (now Interpipeline)
3. Air Products
4. MEG Energy
5. Inter Pipeline Limited
6. ATCO Energy Solutions
7. ATCO Power
8. TransCanada Pipelines
9. Pembina Marketing Limited
10. Sasol (now Keyera)
11. Shell Canada
12. Kinder Morgan
13. Gibson Energy
14. Enbridge Pipelines
# Complaint Calls

Nuisance Reports (Strathcona Industrial Association)  
(Table - 3)

<table>
<thead>
<tr>
<th>Nuisance Concern</th>
<th>Number of Complaints</th>
<th>Percentages</th>
<th>Distance Range (distance from heavy industrial zone)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odour</td>
<td>74</td>
<td>66</td>
<td>90% within 3 km</td>
</tr>
<tr>
<td>Noise</td>
<td>14</td>
<td>12</td>
<td>70% within 3 km</td>
</tr>
<tr>
<td>Sight</td>
<td>6</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Alarms</td>
<td>8</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Explosions</td>
<td>6</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Flare</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>114</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Season</th>
<th>Number of Complaints</th>
<th>Percentages</th>
<th>Distance Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring</td>
<td>26</td>
<td>23</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Summer</td>
<td>16</td>
<td>14</td>
<td>&quot;</td>
</tr>
<tr>
<td>Fall</td>
<td>31</td>
<td>27</td>
<td>&quot;</td>
</tr>
<tr>
<td>Winter</td>
<td>41</td>
<td>36</td>
<td>&quot;</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>114</td>
<td>100</td>
<td>&quot;</td>
</tr>
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</table>
Safety & Risk Management Buffer

Safety & Risk Management Buffer Source*

* Buffer area to be determined by affected municipalities.
Edmonton Metropolitan Region Growth Plan

OBJECTIVE 4.7
Ensure compatible land use patterns to minimize risks to public safety and health

Policies

4.7.1 Safety and risk management shall be required for existing and future sites for airports, petrochemical clusters and previously planned locations for heavy industrial uses, refineries and ancillary facilities in the Region. Safety and risk management buffers are indicated on Schedule 9. Member municipalities shall:

a. ensure that a risk management assessment is completed and implemented in accordance with accepted leading practices, such as the standards established by the Major Industrial Accidents Council of Canada; and

b. identify the recommendations for risk assessment in municipal development plans and any other applicable statutory plan.

4.7.2 A transition of land uses will be required within the regional buffer areas to prevent or mitigate the adverse effects from odour, noise and other contaminants and minimize risk to public health and safety as identified on Schedule 9. This includes but is not limited to: the Edmonton International Airport and other regional airports; CFB Edmonton; the Transportation Utility Corridor (TUC); resource extraction areas; Alberta’s Industrial Heartland; coal power generation plants; and any future multi-use corridors. Transitional land uses may include passive open space, berms, light and medium industrial land uses, business and commercial land uses, and agricultural uses.
Policies  Strathcona County Will

General

Support viability in the long term by considering:
1. interim, extensive agricultural operations and limited outdoor storage, providing it will not preclude or infringe upon future industrial development.

Heavy Industrial

Ensure responsible management of risks associated with industrial development by requiring:
2. that Strathcona County maintain a cumulative risk assessment for the Heavy Industrial Policy Area which includes information on:

5. that heavy industrial developments:
   a. complete and implement a risk assessment in accordance with the standards established by the Major Industrial Accidents Council of Canada;
   b. provide emergency management plan(s) to reduce or mitigate the risk associated with heavy industrial development; and
   c. have risk contours identified within their risk assessment that are contained within the corresponding distances identified for the Heavy Industrial Transition Overlay as indicated on Map 3: Urban Service Area-Sherwood Park.
7.19 IHO – HEAVY INDUSTRIAL TRANSITION OVERLAY

7.19.1. Purpose
To protect heavy industrial development by avoiding conflicts from the
development of significant residential or assembly uses within 1.5 km of the
nearest boundary of the IH – Heavy Industrial Zoning District. Additional
restrictions on the most sensitive uses extend 3.0 km of the nearest boundary of
the IH – Heavy Industrial Zoning District. The application of use restrictions and
additional regulations is to reduce the risks to public safety and minimize
nuisance associated with heavy industry as well to facilitate emergency
management in the event of an industrial accident through the implementation
of buffers and transition zones.

7.19.2. Permitted Uses
a) Permitted uses are those permitted in the underlying Zoning District
unless they are prohibited by Sections 7.19.5, 7.19.6 or listed as a
discretionary use by Sections 7.19.3 or 7.19.4. (Bylaw 14-2018 – Mar 27, 2018)

7.19.3. Discretionary Uses (within 1.5 km of the nearest boundary of the IH –
Heavy Industrial Zoning District)
a) The following uses are discretionary within 1.5 km of the nearest
boundary of the IH – Heavy Industrial Zoning District as shown on
Schedule “B”, if they are permitted or discretionary uses in the
underlying Zoning District:

- Business support service
- Financial service
- Food service, drive-in
- Government service
- Office
- Personal service establishment
- Retail, alcohol
- Retail, cannabis*
- Retail, convenience
- Retail, general
- Retail, secondhand
- Warehouse sales

7.19.4. Discretionary Uses (between 1.5 and 3.0 km of the nearest boundary
of the IH – Heavy Industrial Zoning District)
a) The following uses are discretionary between 1.5 km and 3.0 km of
the nearest boundary of the IH – Heavy Industrial Zoning District as
shown on Schedule “B”, if they are permitted or discretionary uses in
the underlying Zoning district:

- Auctioneering establishments
- Bingo hall
- Care centre, intermediate
- Commercial school
- Education, private
- Education, public
- Entertainment spectator
- Exhibition & convention facility
- Flea market
- Health service, minor
- Hotel
- Library and exhibit
- Motel
- Recreation, community
- Recreation, indoor
- Recreation, outdoor
- Religious assembly
- Retail, general
- Retail, secondhand
- Temporary shelter service
- Tourist Campsite
- Warehouse sales
7.19.5. **Prohibited Uses (within 1.5 km of the nearest boundary of the IH – Heavy Industrial Zoning District)**

a) The following uses are prohibited within 1.5 km of the nearest boundary of the IH – Heavy Industrial Zoning District as shown on Schedule “B”, regardless if they are permitted or discretionary in the underlying Zoning District:

- All residential uses
- Amusement centre
- Apartment hotel
- Auctioneering establishment
- Bed and breakfast
- Bingo hall
- Boarding and lodging house
- Campground
- Care centre, intermediate
- Care centre, major
- Care centre, minor
- Commercial school
- Congregate housing
- Correction service
- Dormitory, associated with education, private or public
- Education, private
- Education, public
- Emergency service
- Entertainment, spectator
- Exhibition and convention facility
- Flea market
- Food service, restaurant
- Food service, specialty
- Funeral service
- Group home, major
- Group home, minor
- Health service, major
- Health service, minor
- Hotel
- Industrial, general (at which dangerous goods are produced, processed, handled, stored, used or disposed, and where a quantitative risk assessment determines the potential increased risk of an industrial accident)
- Industrial, heavy
- Library and exhibit
- Motel
- Neighbourhood pub
- Nightclub
- Office, call centre
- Private camp
- Private club
- Recreation, community
- Recreation, indoor
- Religious assembly
- Residential security/operator unit
- Spectator sports
- Temporary shelter service
Acceptable Levels of Public Location Risk for Land Use Around Hazardous Facilities (Current)

Annual Location Risk (chance of fatality per year)

- 100 in a million ($10^{-4}$)
- 10 in a million ($10^{-5}$)
- 1 in a million ($10^{-6}$)
- 0.3 in a million ($0.3 \times 10^{-6}$)

Risk source
- Manufacturing, warehouses, open space (parkland, golf courses, etc.)
- Low-density residential (up to 10 units with ground level access, per net hectare) and commercial (including offices, retail centers, restaurants, entertainment centers, sporting complexes)
- High-density residential and commercial, including places of continuous occupancy such as hotels and tourist resorts
- Sensitive institutions (e.g., hospitals, child and aged care facilities, schools)

Proposed in 2007 by the CSChE PSM Division, modified from the 1994 MIACC (Major Industrial Accidents Council of Canada) Guidelines
Practice Acknowledged by MIACC

- Source: Risk based land use planning guidelines, p 28
- Zone 1: 1.5 km
- Zone 2: 3.0 km
10^{-5} Risk Contours - 2010
Risk Contours - 2015

Ref: Doug McCutcheon and Associates for Strathcona County

Blue represents the risk contour of $1 \times 10^{-6}$
Role of Emergency Services

Industrial Engagement Program
Starting Jan 2019
Program in place and going through improvements

Municipal Requirements
MIACC

PREVENTION

Risk-based Land Use Planning Guidelines
MBC SIM

Program Development in Progress

Program in Place
(Development Permits)
## Timelines

<table>
<thead>
<tr>
<th>Phase 1 (Jan 2019)</th>
<th>Documenting Release Incidents</th>
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<tbody>
<tr>
<td></td>
<td>Completing Community Emergency</td>
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<tr>
<td></td>
<td>Response Plans called Industrial</td>
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<tr>
<td></td>
<td>Response Worksheets (IRW)</td>
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<tr>
<td></td>
<td>Fire Inspections</td>
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<tr>
<td>Phase 2</td>
<td>Industrial Engagement to verify site hazards for Cumulative Risk Assessments</td>
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<tr>
<td>(in the planning phase)</td>
<td>PSM Education Program to encourage businesses to incorporate PSM in Safety Management Systems</td>
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<tr>
<td>Phase 3</td>
<td>Complete a review of PSM Elements and risk reduction programs</td>
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<tr>
<td>(to be determined)</td>
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</tbody>
</table>

8/21/2019
Focus Areas

1. Identify and minimize the risk of accidents from hazardous substances and prevent recurrences of incidents

2. Collect incident notifications, investigation reports, do trend analysis of incidents, and maintain an accessible database for monitoring and controlling of risk reduction programs.

3. Make arrangements to improve the accountability gap by making follow up policies on industrial developments

4. Enhance Fire Code Inspections to include industrial occupancies, Emergency Preparedness and Response Planning, and continuous governance of safety programs maintaining industrial partner support and departmental resources

5. Develop initiatives for Process Safety Management education

Information for Industry

THANKS