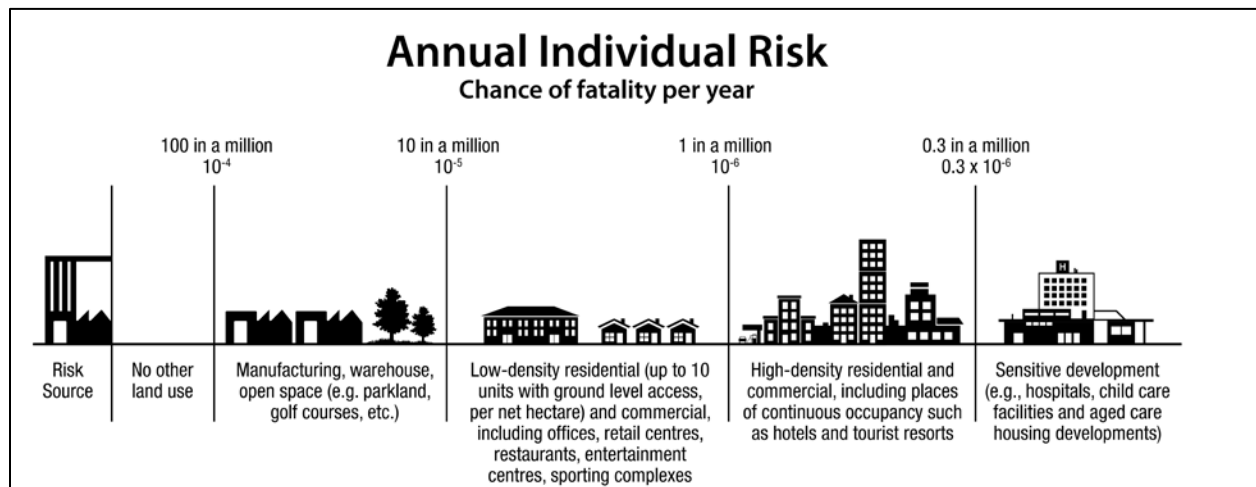


Basis and History of the Heavy Industrial Transition Overlay

The Heavy Industrial Transition Overlay implements an area of transition between the heavy industrial operations and the non-industrial land uses within the Urban Service Area. The Overlay prohibits or limits the land uses and associated regulations of underlying zoning districts within a 3.0 kilometer distance of heavy industry which enables industry and Strathcona County to reciprocally mitigate and manage risk. The following outlines the basis and history of the Overlay.

Major Industrial Accidents Council of Canada (MIACC)

The Major Industrial Accidents Council of Canada (MIACC) refers to an organization that published a *Risk Assessment Guide for Municipalities and Industry* to guide land-use planning and siting decisions. The guidelines are based on a globally established acceptance that the annual risk of one chance in a million (1×10^{-6}) of a fatality created by an industrial source would be considered as an acceptable level of risk for industry and communities to use in terms of design. The following figure provides an illustration of the current allowable land uses established by the MIACC criterion:



The MIACC guidelines are considered Canada's best practice for measuring industrial risk and the benchmark for land use planning decisions. The Edmonton Metropolitan Regional Board recognized this best practice and specifically incorporated it into the policy of the Growth Plan for industrial risk sources, which includes heavy industry in Strathcona County.

Evolution of Strathcona County Heavy Industrial Separation

Historically Campbelltown (soon after renamed to Sherwood Park) was established as a satellite community to house employees of the petrochemical industries that began in 1948. Since that time, these petrochemical industries have helped define the community through its continued growth. Today, the County is known within the region, Province, and Country as being a leader in oil and gas and related industrial development. These industries have played an integral role in the formation of Sherwood Park, including the relationship and interface between heavy industry and other land uses. Strathcona County values both industry and residents and has recognized the need to mitigate any negative impact on the safety and wellbeing of both.

As a result, the County has implemented risk-based land use planning and development principles to comprehensively and effectively manage all risks related to heavy industrial related activities. The purpose of which is to ensure that the safety and wellbeing of residents is maintained while allowing for industry to continue to expand their operations. The measures have been entrenched in County policies and regulations for a number of decades. The following is an overview of the historical evolution of the County's risk-based land use planning approach:

1986 Initial MDP Policy

Policy was formally incorporated into the County's General Municipal Plan in 1986 stating that "Future residential development shall not encroach within three kilometers of existing and potential heavy industrial uses."

1992 Initial TZ – Transition Overlay District

In 1992, Strathcona County worked with the Strathcona Industrial Association (SIA) to develop more specific regulation to guide the transition of land use. In 1995, Council amended the Land Use Bylaw to add the TZ - Transition Overlay District. This is the first instance where a land use overlay, to buffer the interface between industrial and non-industrial land uses, was formalized in the Land Use Bylaw. The TZ Overlay added an additional layer of land use regulation within a distance of approximately 1.5 km of existing heavy industrial development to the west.

2001 TZ District Replaced by Initial IH-O Heavy Industrial Transition Overlay

In July of 2001, Council adopted Land Use Bylaw 8-2001. As part of the newly adopted Land Use Bylaw 8-2001, the TZ Transition Overlay District was replaced by the IH-O – Heavy Industrial Transition Overlay. At the time of adoption of Bylaw 8-2001, the IH-O District included the fundamentals of the previous TZ District and added a 1.5 – 3.0 km portion to the overlay north of Baseline Road that extended the land use restrictions to a distance of 3.0 kilometers from the boundary of heavy industry for the most sensitive land uses.

2003 Overlay Confirmation

Strathcona County commissioned the report entitled: *Review of Land Use Policies and Regulations Affecting Heavy Industrial and Residential Separation and Transition Uses* that was completed in 2003. Utilizing the MIACC guidelines, the intent of the review was to confirm the suitability of the policies and regulations in place at the time and recommend any necessary changes. Two stakeholder roundtable sessions were conducted by the consultants as part of the development of the study.

2003 Proposed IRO – Industrial Risk Overlay

A proposed IRO - Industrial Risk Overlay was prepared with the intent of implementing the majority of the recommendations of the 2003 study and replace the IH-O District. The proposed IRO District was presented at a third roundtable session, followed by seven further stakeholder consultation meetings, and two public hearings between January 2003 and February 2004 where public input expressed concerns with the proposed IRO as it included complicated formulas to determine risk and increased restrictions for a larger amount of land uses. As a result of the concerns brought forward during the public hearings, Council defeated the IRO Bylaw and directed administration to:

bring back to Council for consideration and discussion the current IH-O as it relates to the transition zone between heavy industry and the community, with potential bylaw amendments that reflect information gathered and issues raised during the IRO debate.

2004 IH-O Revised in Land Use Bylaw 8-2001

Subsequent to an eighth stakeholder meeting, the IH-O district was revised in accordance with Council's direction and forwarded to Council for a public hearing. After completing further revisions as a result of comments received at the public hearing, Council ultimately adopted the revised IH-O District in July 2004, which remains in Land Use Bylaw 6-2015. In its current form, the IH-O includes regulations that restrict or prohibit uses within a 0 – 1.5 kilometer distance from heavy industrial boundaries and regulations that restrict or prohibit uses within a 1.5 – 3.0 kilometer distance from heavy industrial boundaries.

The purpose within the IH-O is:

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.

2010 Cumulative Risk Assessment

In 2010, the County retained Doug McCutcheon and Associates to prepare a detailed Cumulative Risk Assessment Study (CRA). The CRA was to provide an evaluation of the cumulative risk associated with the heavy industrial operations located between Strathcona County and the City of Edmonton and reconfirm that the IH-O was appropriately addressing industrial risk. The CRA was specific to identifying industrial hazards that could have an adverse impact beyond the individual company property lines. A CRA update was subsequently completed in 2017.

The CRA followed the MIACC criteria and identified the location of the cumulative industrial risk contours representing where individual and specific industrial risks overlapped adding up to a cumulative extent of total risk (Attachment 1). The CRA and update both concluded that the risk associated with heavy industry is appropriately contained within the County's IH-O and therefore development within Sherwood Park is in accordance with the MIACC criteria.

2011 - 2014 Risk Contour relative to 3.0 kilometer IH-O extent

Following the completion of the CRA discussions occurred regarding the distance between the location of the 1×10^{-6} cumulative risk contour illustrated within the CRA and the corresponding location of the IH-O. Discussions were instigated by an application to remove an individual property from the edge of the 1.5 - 3.0 kilometer portion of the IH-O to enable the development of a seniors housing facility. Council concluded that given the potential impact on industry, removing one property from the IH-O was not prudent without a holistic examination of the relationship of the actual 1×10^{-6} risk contour and the location of the IH-O.

As part of Council's decision administration was directed to review the location of the IH-O with the Strathcona Industrial Association (SIA) and other stakeholders with a view to reconcile the 3.0 kilometer line to the location of the associated 1×10^{-6} cumulative risk contour. Heavy industry requires a level of certainty for their locational situation and future investment choices. As part of the review it was confirmed that the distance between the 1×10^{-6} risk contour and the furthest extent of the IH-O provides industry with a necessary degree of certainty to potentially add more development to their parcels as well as absorb any industrial regulation changes that may impact existing industrial without increasing risk.

or requiring additional risk mitigation measures. A letter submitted by SIA (Attachment 2) during this time reinforces the importance current heavy industrial operators place on the current application of the IH-O.

Municipal Development Plan Bylaw 20-2017

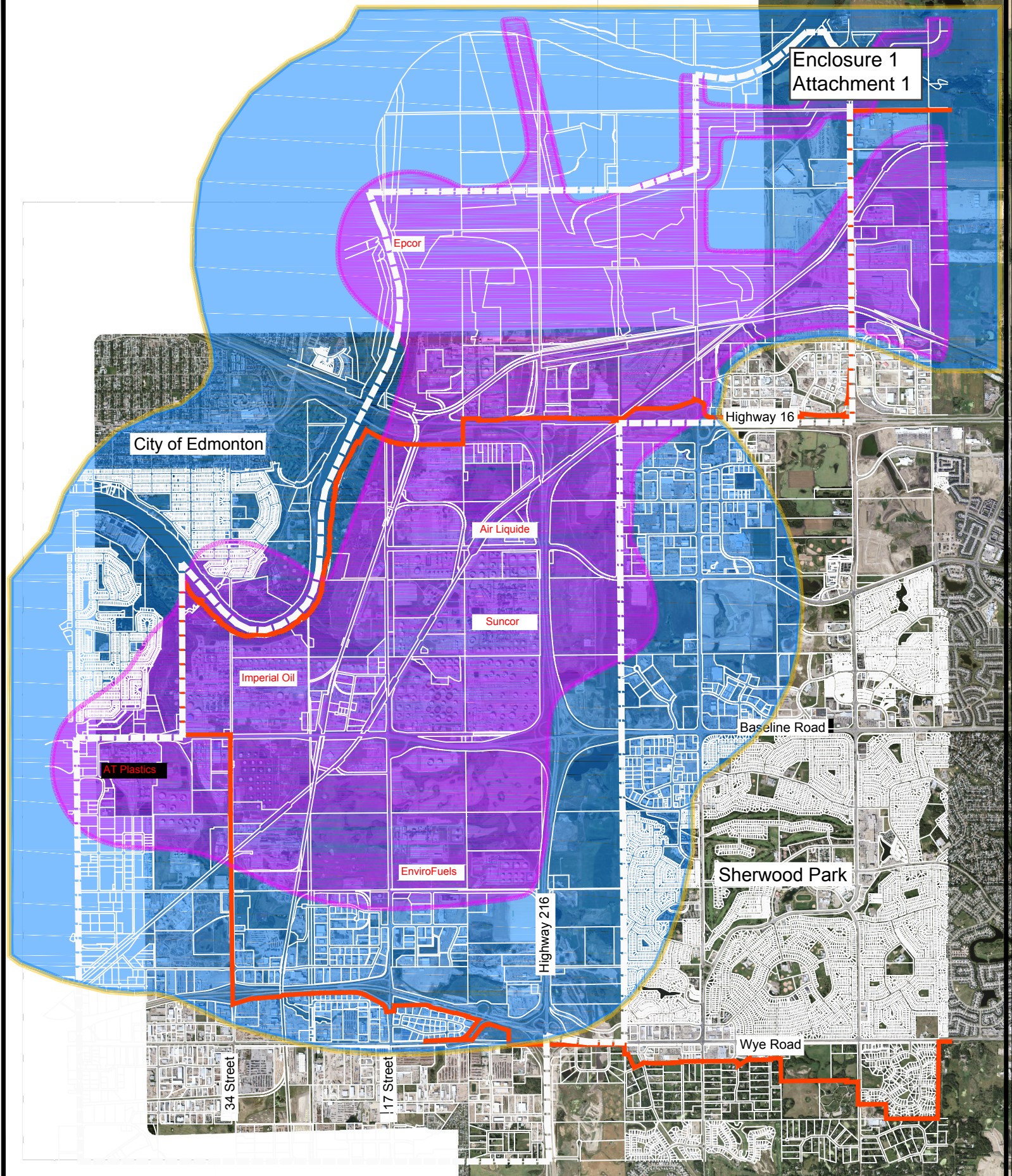
The implementation and maintenance of the Heavy Industrial Transition Overlay continues to be guided by the current Municipal Development Plan (MDP). In this regard, the most pertinent policies currently in the MDP are as follows:

Section 4.1 - Strathcona County will ensure viability in the long term by requiring:

- 4.1.5. that rezoning for new development of the following uses shall be directed outside of the Heavy Industrial Transition Overlay:
 - a. residential;
 - b. large indoor/outdoor assembly (e.g. stadiums, arenas or theatres);
 - c. uses which cater to temporarily or permanently confined, disabled or incapacitated people (e.g. hospitals, extended care or emergency response organizations);
 - d. uses which cater to small children or the elderly (e.g. child care or senior centres);
 - e. buildings which present difficulties in the event of evacuations (e.g. hotels or high rise office buildings); and
 - f. uses which create the potential for large numbers of people to remain on site for long periods of time (e.g. schools, recreation facilities and shopping centres).
- 4.1.6. that the Land Use Bylaw incorporate regulations within the Heavy Industrial Transition Overlay that direct development to develop at a scale which:
 - a. reduces the risk to public safety; and
 - b. enables emergency management to be implemented in event of an industrial accident.

Section 4.3.8 - Strathcona County will ensure responsible management of risks associated with industrial development by requiring:

- 4.3.8.2. that Strathcona County maintain a cumulative risk assessment for the Heavy Industrial Policy Area which includes information on:
 - a. risk identification;
 - b. probability of an industrial accident;
 - c. consequence of an industrial accident; and
 - d. risk management.
- 4.3.8.3. a Heavy Industrial Transition Overlay based on the County's cumulative risk assessment be incorporated into the Land Use Bylaw in the location identified on Map 3: Urban Service Area-Sherwood Park. (Attachment 3)
- 4.3.8.4. the location of the Heavy Industrial Transition Overlay, as indicated on Map 3: Urban Service Area-Sherwood Park, remain unchanged.



Enclosure 1
Attachment 1

City of Edmonton

Epcor

Air Liquide

Suncor

Imperial Oil

AT Plastics

EnviroFuels

Highway 16

Baseline Road

Sherwood Park

Wye Road

34 Street

17 Street

Highway 216

2015 Cumulative Risk Assessment Risk Contours

- Cumulative Risk Contour 1×10^{-5}
- Cumulative Risk Contour 1×10^{-6}
- Cumulative Risk Contour 0.3×10^{-6}
- Strathcona County Boundary
- Study Area

Strathcona County

2015 Cumulative Risk Assessment



Date: Nov 10, 2015

Figure 6

HEAVY INDUSTRIAL SETBACKS AND SEPARATIONS IN STRATHCONA COUNTY



Heavy Industrial Setbacks and Separations in Strathcona County

EXECUTIVE SUMMARY

The Strathcona Industrial Association has had a long history of working with Strathcona County to establish and maintain a safe separation distance between heavy industry located in the “Refinery Row” area and the growing community of Sherwood Park. This transition of land use has provided heavy industry with the assurance and certainty that there is a safe separation distance to off-site impacts and risks of heavy industrial operations to other land uses, including more sensitive uses such as residential, care facilities, institutional and emergency service uses. The purpose of this document is to provide a perspective on how the heavy industrial separation setbacks today were established and the importance of maintaining this setback for both industry and the community.

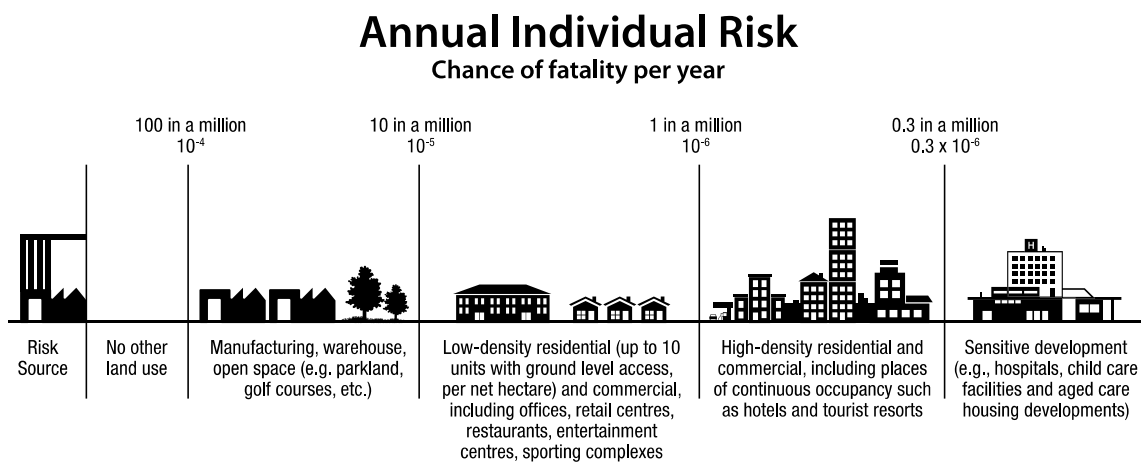
HISTORICAL CONTEXT

When the Imperial Oil Refinery was established in Strathcona’s Refinery Row and Celanese Chemical Plant in Edmonton’s Clover Bar area, both plants were located between 2.0 and 2.9 kilometres from residential development in Edmonton and significantly further from what would later become Sherwood Park. The separation distance provided heavy industry with the security that should there be an industrial fire, explosion, or toxic release industry and the community would have time to respond to an incident. The separation distance also provided the communities greater quality of life away from noise, emissions, and industrial activity in proximity to residents’ homes. Over the years however, development in the City of Edmonton has tested the bounds of this separation distance, causing collective safety concerns among Strathcona County industry. Strathcona County on the other hand, has maintained and enhanced the separation distance to heavy industry. The result has been that heavy industry in Strathcona County has continued to reinvest and expand their operations. In the past decade alone, our member companies such as Suncor, Kinder Morgan and Enbridge have spent over 5 billion dollars on plant expansions, new storage facilities, and modernization.

ADOPTING A SCIENCE-BASED APPROACH

Strathcona County has maintained a heavy industrial separation from heavy industrial uses both from Edmonton and Strathcona industries for well over 40 years. Historically this was achieved through general land-use planning in the 1960’s and 70’s. The County first introduced a 3.0 kilometre separation distance in the General Municipal Plan in the 1980’s. The principle behind the policy was to provide

sufficient separation from heavy industry and thereby minimize the nuisance impacts from industry. In 1993, Strathcona County introduced the first science-based approach to their Land Use Bylaw. The bylaw introduced a Transition Overlay where no residential or sensitive institutional uses would be permitted within 1.5 kilometres from the fence line of heavy industry. This science-based approach was born from the Bhopal, India accident in 1984 where many lives were lost due to a catastrophic event in that country. In Canada, the Major Industrial Accidents Council of Canada (MIACC) began to establish guidelines using a risk-based management approach. The concept of risk involves determining the probability of an incident happening along with the possible consequences. The global consensus of many industrialized countries used in 2001 defined acceptable risk from industry as one chance in a million of a fatality.



In

2001, Strathcona County initiated a more detailed study on Heavy Industrial Separation for the newly developing lands north of Baseline Road. The study involved extensive public consultation and workshops with the Strathcona Industrial Association members, the public, Sherwood Park Chamber of Commerce, the land development industry, and the City of Edmonton. The study not only applied the MIACC science-based approach for industrial separation, but also the cumulative effects from all the Strathcona Industrial Association heavy industries. The study also examined the social impacts from such factors as noise, air quality, and resident complaints to industry. The study confirmed the 1.5 kilometre setback for commercial uses with large gatherings and further recommended a 3.0 kilometre setback for residential and sensitive institutional uses. Strathcona County Council adopted and implemented the MIACC standards in 2004. Strathcona Industrial Association supported and continues to support the County's heavy industrial policies, standards, and bylaws.

RISK MANAGEMENT A SHARED RESPONSIBILITY AND PARTNERSHIP

The adoption of this science-based risk management approach has provided a reciprocal setback for both the County and heavy industry. The County's heavy industrial partners have been provided with the assurance from the municipality that non-compatible uses such as seniors homes and residences will not be permitted to encroach towards heavy industry, and industry can provide the County with assurance that the risk from a serious event can be managed. This spirit of cooperation, based on community safety, benefits both industry and the community.

Over time, both Strathcona Industrial Association and Strathcona County have continued to partner in the updating of information from the original 2001 study.

In 2010, a Cumulative Risk Assessment Study confirmed that the risk posed by heavy industry was within the established setbacks. The gap between risk and the outer limits of the land use bylaw setbacks was favourable to continued certainty for all stakeholders - industry, municipal planners and developers - and it reinforced the need to maintain the 1.5 kilometre and 3.0 kilometre setbacks. It should be noted that this study was a snapshot in time and that since that time, there has been significant growth in the industrial sector. Periodic assessments should be conducted by the County and the Association every five years.

The study was part of a joint land-use planning initiative between Strathcona County and the City of Edmonton. The study also updated the Major Industrial Accidents Council of Canada risk based planning approach to identify new international refinements, as reflected in the figure on page 3. Many western industrialized countries have begun adopting more stringent risk requirements in proximity to sensitive land uses. The updates require the existing 3.0 kilometre setback to be increased to 3.5 kilometres for "sensitive developments" (per the modified 2008 MIACC guidelines, introducing the 0.3×10^{-6} individual risk limit for sensitive receptors), based on reducing the level of acceptable risk for individuals needing assistance from a probability of $1 / 1,000,000$, to $3 / 10,000,000$. It is important to emphasize that while some non-industrial land owners would like municipalities to reduce their standards for risk management and land use separation, society in general and most industrialized countries are moving to increase heavy industrial setbacks.

The leadership that Strathcona County has taken in adopting a science-based approach to risk management planning has also been adopted by others in the Capital Region. In 2009 the Capital Region Board approved requiring the MIACC standards as part of the Capital Region Growth Management Plan. Communities such as Edmonton have now begun to prepare studies based on this approach. The Alberta Industrial Heartland area has also evaluated existing and future industrial expansion using the MIACC criteria for those lands in Strathcona County and the City of Fort Saskatchewan and has worked hand-in-hand with heavy industry to acquire residential properties in the Heartland area where those properties

were located in areas of unacceptable risk based on the MIACC criteria. Strathcona County invested 10 million dollars in the late 1990's to acquire residential properties in the Heartland, as well as provided seed money with other Heartland municipalities to help establish the AIHA Land Trust for future acquisitions.

Today, transition land use planning represents a shared responsibility and partnership between the Strathcona Industrial Association (SIA) and Strathcona County. Our partnership responsibilities include a number of programs put in place to ensure both the community and industry can respond in the event of an accident. Our programs include air quality monitoring, public awareness and engagement, transition zones, a community information system, and an emergency management mutual assistance program. While these programs cannot prevent catastrophic events, they can provide our organizations with the ability to respond more effectively. One of the findings from the West Texas Fertilizer Plant Explosion of 2013 was that there were hundreds of buildings such as homes, schools, businesses, and health care facilities within a one mile (1.6 km) radius, which were exposed to serious or life-threatening hazards when the explosion occurred.

MOVING FORWARD TOGETHER

The Strathcona Industrial Association is committed to working with the County on updating the cumulative risk assessment data for our area. We will continue to work with Strathcona County's Emergency Services and Planning and Development Services staff to ensure industry members work within the heavy industrial setbacks approved by County Council. Our association wishes to emphasize the importance of maintaining the current heavy industrial setback lines. The current setbacks have provided industry with a level of certainty that has allowed our members to invest over 5 billion dollars over the past decade. Reducing the line will create uncertainty for our members and subsequent uncertainty as to long-term investment and reinvestment in this area. Moving the setback lines will also have potential impacts in other parts of the County such as Alberta's Industrial Heartland, where the same setbacks criteria has been established to provide certainty to the Heartland industries. At a time when all municipal jurisdictions have placed emphasis on financial sustainability as one of the cornerstones for municipal sustainability, it is paramount to maintain an investment climate to support heavy industry.

Strathcona Industrial Association understands that municipalities are approached from time-to-time by land developers who wish to place incompatible uses inside the setback areas. It is for this reason that our Association is committed to updating the cumulative risk assessment data on a regular timeframe.

When individual non-industrial land developers are asked by the County to prepare risk assessments, those individuals do not have access to the cumulative risk assessment data from industry. The onus is therefore on industry to work with local government to establish the heavy industrial setbacks, and then to have both parties reciprocally enforce the setbacks.

We understand and support the expectations of the public and government regarding the safe handling, storage, refining and transportation of petroleum resources. It is also understood that expectations in these areas are increasing not decreasing. The public and government regulators at all levels want to ensure their communities are safe from potential major accidents such as fire, explosions, and toxic releases. They also want assurances for industrial nuisances such as noise, odours, traffic and environmental health concerns such as air and water quality. The current heavy industrial setbacks provide both Strathcona Industrial Association and Strathcona County with the ability to address public concerns for safety and a quality of life expected by county residents. Strathcona County has shown they are leaders in heavy industrial development, and our Association asks for your continued support to this end.

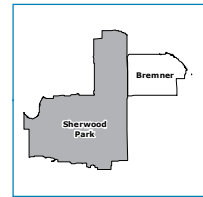
Any consideration toward reducing the current transition zone setbacks would contradict the latest internationally-accepted standards of risk-based land use planning as well as create significant economic risks to industry and Strathcona County. A gap between existing cumulative risk and setbacks (as identified in the 2010 McCutcheon review) is vital to allow for continued economic investment by industry in the community. Any absence of certainty will assuredly be a significant factor in future investment decisions by members of the SIA and other industry in the region.

The current regime of land use planning has worked well for all stakeholders. It has provided clarity and assurances so that Strathcona County could continue to grow as a vibrant, economic leader amongst municipalities in Canada. It has directly facilitated significant investment, and with that employment, supply services and contributions to community building initiatives, for the benefit of all. While it is not possible to estimate an exact financial impact, should the transition zone be receded, significant financial impacts would certainly be borne by heavy industry. Simply stated, doing business in Strathcona County would be less competitive and therefore less attractive for development by new or existing industry in the area.

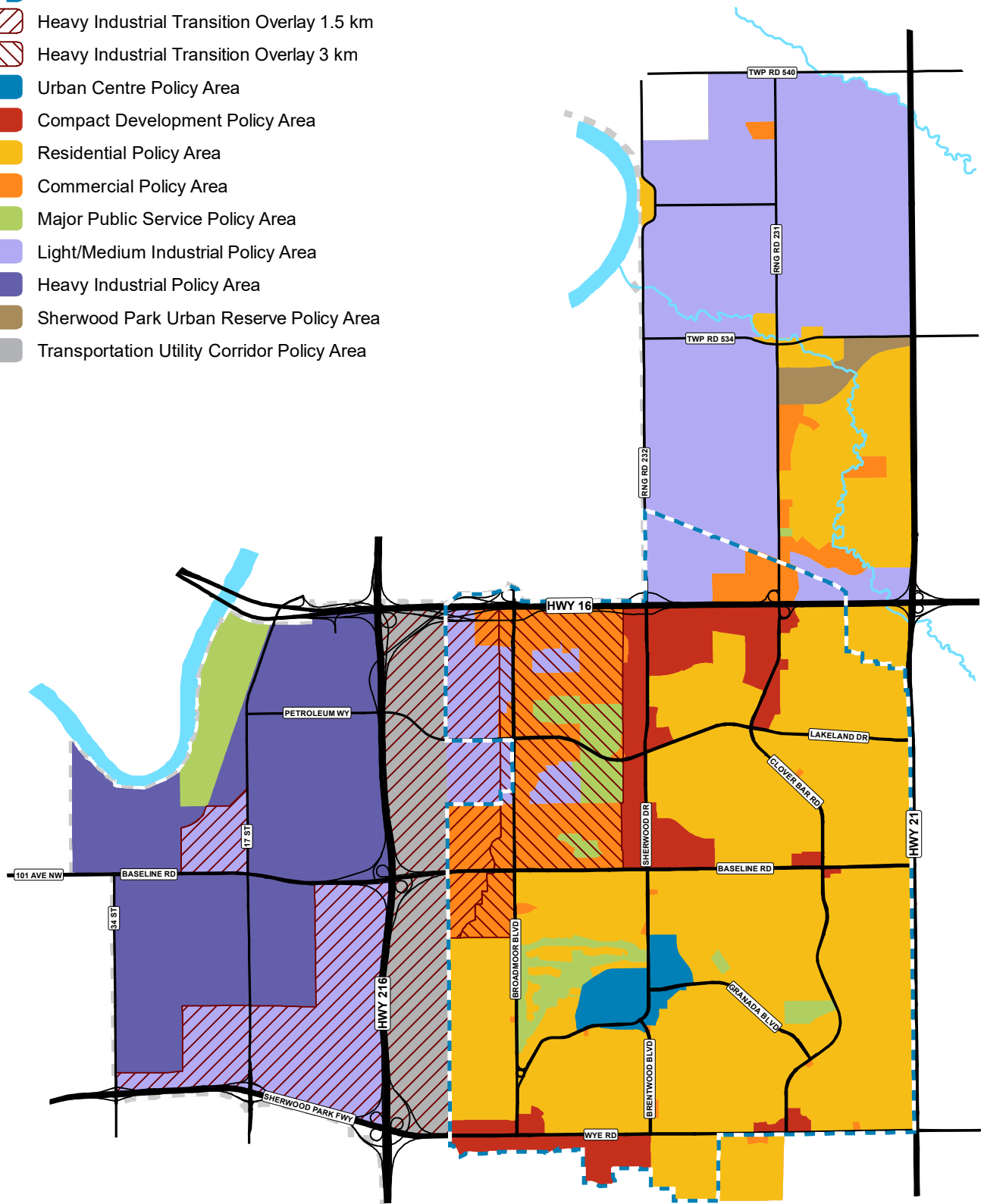
The SIA strongly recommends that the current setbacks in the Industrial Heavy Overlay Bylaw, which has been recognized as a best practice amongst municipalities across Canada, be kept intact for the benefit and safety of the community and all stakeholders. Further, the SIA recommends that regular 5 year risk assessments be conducted, with complete information, as a collaborative effort between Strathcona County and the SIA.

MAP 3: URBAN SERVICE AREA - SHERWOOD PARK

Enclosure 1
Attachment 3



- Municipal Boundaries
- Built-Up Urban Area
- Heavy Industrial Transition Overlay 1.5 km
- Heavy Industrial Transition Overlay 3 km
- Urban Centre Policy Area
- Compact Development Policy Area
- Residential Policy Area
- Commercial Policy Area
- Major Public Service Policy Area
- Light/Medium Industrial Policy Area
- Heavy Industrial Policy Area
- Sherwood Park Urban Reserve Policy Area
- Transportation Utility Corridor Policy Area



Strathcona County does not guarantee the currency, completeness or accuracy of this map and it is provided without warranty or condition of any kind. Please contact Planning and Development Services for original Plan.

Amended by Bylaw 2-2019