2.45 – Air quality buffers – heavy industry - section 32 evaluation for the Proposed Auckland Unitary Plan

1 Overview and Purpose

This evaluation should be read in conjunction with Part 1 in order to understand the context and approach for the evaluation and consultation undertaken in the development of the Proposed Auckland Unitary Plan (the Unitary Plan).

In 2008,[1] Auckland's manufacturing sector generated 36 per cent of the **national** manufacturing gross domestic product and $6,871 million in gross regional product. Manufacturing is the largest employer in Auckland, with around 12 per cent of the regions employees (82,010 workers). Of these, around 15,000 are employed in heavy industrial zones.

Manufacturing requires land zoned industrial so that activities such as chemical processes, steel manufacturing, galvanising plants and livestock processing have somewhere to exist. These processes require good access to infrastructure such as roads, rail, cleaning and cooling water as well as trade waste. They generally require very large sites and are often noisy, dirty and smelly. These processes may also store and use large quantities of hazardous substances with associated potential risk.

Fortunately, due to the widespread availability of natural gas coupled with good regulation and improved process control, overall industrial emissions in the Auckland region have reduced significantly over time. Industrial emissions to air in Auckland are now generally in line with international best practice. However, by nature there is always a level of residual industrial emissions that either cannot be controlled at all times (e.g. fugitive emissions, episodic unanticipated events and/or accidents) or are too expensive to be controlled.

Emissions to air from heavy industry have the potential to affect human health and cause nuisance and reduced amenity effects. Their impacts are typically highly localised compared with other sources of air pollution. Heavy industry further carries with it the risk of explosion or other catastrophic events.

The effects of industrial air emissions depend on how much is emitted and how people are exposed. How people are exposed is influenced by proximity to source. People living closer to heavy industry are typically more exposed to industrial emissions. They further face an increased risk of exposure to residual industrial emissions (e.g. accidental discharges). Where people live is, in turn, influenced by land use planning.

Reverse sensitivity arises when land use planning fails to keep incompatible activities apart. For example, when sensitive activities, such as houses and schools, are permitted to locate in areas where they may be adversely affected by emissions to air from existing heavy industry. Over time, this encroachment causes long term uncertainty for industry because, even if they are not having problems with existing emissions, the industry is likely to face difficulties if they want to expand.

Air quality, land use and distance are therefore, inextricably linked and should not be considered in isolation. Put simply, some activities are incompatible and separating them is the primary method for allowing both (i.e. heavy industry and sensitive land use activities) to operate without interference.

Separation distances (buffers) work best where a graded approach to zoning is applied and where clear guidance is provided through zone statements and land use activity status. For example:

[1] Auckland Regional Council (2009).

- Heavy industrial zone – no sensitive activities allowed. Noxious industry allowed (with consent), reduced amenity zone, healthy working population.

- Light industrial/commercial zone – some of the less sensitive activities allowed, noxious industry not allowed, light industry is allowed, may be some reduced amenity.

- Mixed use – noxious industry not allowed, high amenity, sensitive activities allowed, at least 500 m to edge of heavy industry zone.

- Residential & shopping areas – no heavy industry, high amenity, sensitive activities predominant land use.

1.1 Subject Matter of this Section

This evaluation assesses the proposed introduction of a minimum separation distance of 500 m between heavy industrial zones and sensitive land use activities. The purpose of the separation distance is threefold:

i. Avoid locating incompatible activities next to each other;
ii. Minimise reverse sensitivity issues and provide industry with some level of certainty for future use; and
iii. Manage risk.

1.2 Resource Management Issue to be Addressed

The Auckland Regional Plan: Air Land and Water established Industrial Air Quality Management Areas to provide areas where heavy industry could locate. The intent was to apply a less stringent air discharge consenting regime (i.e. reduced amenity) expectations within these areas, through the exclusion of sensitive activities. It further provided for risk management of residual industrial emissions (e.g. fugitive and/or episodic emissions, accidents). In addition, the intent of the regional plan was that location could be considered.

However, due to a lack of integration between regional and district land functions, this exclusion (of sensitive activities) did not always occur. This has resulted in reverse sensitivity issues arising in nearly all established Industrial Air Quality Management Areas. Reverse sensitivity occurs when established land uses (for example heavy industry) are adversely affected by activities sensitive to the established land use (for example schools or houses) locating nearby.

There are also small but important inconsistent provisions for amenity and land use activity status in the legacy Auckland Regional Policy Statement, the Auckland Regional Plan and all eight of the district plans. [2] This has led to conflict in amenity expectations along zone boundaries.

As a result of the above, the following issues have arisen:

- There is a lack of new heavy industrial zoned land that is large enough to allow for industries that require significant separation (i.e. > 500 m) from sensitive activities. This has led to heavy industrial activities locating in industrial areas with insufficient distance to sensitive activities or locating in sensitive areas.
- There is continuing encroachment by sensitive activities on existing heavy industrial zones (either within the zones or very near to the zones) that creates and exacerbates conflict over amenity. It further reduces long-term certainty for industry.

[2] Cole, (2012)

1.3 Significance of this Subject

Existing policy provides for heavy industry through a requirement for "adequate separation" in the regional plan. However, this was not typically achieved in practice and as a result there has been significant encroachment into Heavy Industry zones by residential and other sensitive land use activities.

The proposal explicitly clarifies existing policy by introducing a minimum separation distance of 500 m between heavy industry and other sensitive land use activities, with underlying zoning provisions to give this effect through the Unitary Plan. Its significance relates to its application to existing Heavy Industry and residential zones where encroachment has already occurred. In these areas a hybrid approach is proposed to balance the needs of industry against proposed residential intensification.

1.4 Auckland Plan

The Auckland Plan notes the scarcity of industrial land and requires the safeguarding of existing industrial-zoned sites.

However, the Auckland Plan also recognises industry as one of three main sources of air pollution in Auckland. It acknowledges the issues that arise from reverse sensitivity and the need for effective zoning. The Auckland Plan includes a directive to **minimise reverse sensitivity** and to reduce the exposure of a growing Auckland population to emissions.

The Auckland Plan further includes a directive to locate and develop greenfield areas as sustainable liveable neighbourhoods in a way that, amongst other things, protects and enhances air quality.

1.5 Current Objectives, Policies, Rules and Methods

The Auckland Regional Plan: Air Land and Water includes plan rule controls, separation distances, buffer areas with notional boundaries and air quality management areas to address the management of industrial emissions to air. The plan further includes the principle of reverse sensitivity management and establishes industrial air quality management areas to provide areas where heavy industry could locate and operate within an expectation of reduced amenity.

Some district plans have provisions for the management of reverse sensitivity that seek to ensure that existing industry is not put at risk by new incompatible land uses establishing nearby. A good example is the Manukau City district plan provisions for the Auckland metropolitan wastewater plant at Mangere. This combines district plan buffer provisions and a designation to protect the plant from reverse sensitivity effects.

However, overall provisions to address reverse sensitivity within the eight district plans are inconsistent and variable.

1.6 Information and Analysis

Council commissioned a study to review international approaches to separation distances for industry in other, similar jurisdictions.[3] The two tables below are taken from this study and show the comparison of the proposed Heavy Industry Zones compared to the legacy District Plans and the legacy Industrial Air Quality Management Areas (IAQMA) under the Auckland Regional Plan. This is elaborated on in Appendix 3.44.2 - *Separation Distances for Industry. A discussion document prepared for Auckland Council.* Emission Impossible Ltd, 2012.

[3] Emission Impossible Ltd (2012)

Table 1 Proposed Heavy Industrial Zones compared with legacy provisions

Proposed Heavy Industry Zone [a]	Legacy District Plan	Legacy District Plan Zone	Expected amenity District Plan	Legacy Air Quality Management Area [b]	Expected amenity AQMA
East Tamaki	Auckland City	Business 6	Reduced	Industrial	Reduced
Henderson	Waitakere City	Working Environment	Not stated	**Urban**	High
Mt Wellington	Auckland City	Business 5	Some reduction	**Urban**	High
Otahuhu	Manukau City	Business 5 (Mixed) & 6 (Industry)	Reduced / some reduction [c]	Industrial	Reduced
Papakura	Papakura	Industrial 3 & 4	Reduced / some reduction	Industrial	Reduced
Rosebank Peninsula	Auckland City / Waitakere City	Business 5 & 6 / Working Environment	Some reduction / not stated	Industrial	Reduced
Silverdale	Rodney	Industrial	Reduced	**Urban**	High
Southdown	Auckland City	Business 5 & 6	Reduced / some reduction	Industrial	Reduced
Wiri	Manukau City	Business 5 (Mixed) & 6 (Industry)	Reduced / some reduction [c]	Industrial	Reduced
Takanini - removed	*Papakura*	*Industrial 3 & 4*	*Reduced / some reduction*	*Industrial*	*Reduced*
Drury – removed	*Papakura*	*Industrial 3*	*Some reduction*	*Industrial*	*Reduced*

[a] Table 1 does not include the activity specific industrial air quality management areas under the regional plan (e.g. Airport, Mangere Wastewater Treatment Plant and Contact Energy in Highbrook).
[b] Industrial = industrial air quality management area. Urban = urban air quality management area.
[c] Where noted on land information memorandum

Table 2 Proposed Heavy Industrial Zones compared with legacy regional plan provisions

Lists all areas proposed for heavy industrial zoning in the Unitary Plan and estimates the number of houses within 500 m of the Heavy Industry zone and also notes which Heavy Industry zones were previously managed as Industrial Air Quality Management Areas (IAQMA) under the Auckland Regional Plan. Note that some of the IAQMAs covered both heavy and light industrial land.

Proposed Heavy Industry Zone [a]	**Area** [b] **(ha)**	**Estimate* no. houses within 500 m**	**Legacy Air Quality Management Area** [c]	**Area (ha)**
East Tamaki	201	1078	**Industrial**	**237**
Henderson	25	490	**-**[d]	**-**
Mt Wellington	18	182	**-**[d]	**-**
Otahuhu	98	728	**-**[e]	[e]
Papakura	103	1,336	**Industrial (amended)**	**144**
Rosebank Peninsula	93	1,086	**Industrial (amended)**	**181**
Silverdale	24	3	**-**[d]	**-**
Southdown	267	756	**Industrial (amended)**	**906**
Wiri	300	613	**Industrial (amended)**	**619**
Takanini - removed	***0***		***Industrial***	***144***
Drury – removed	***0***		***Industrial***	***47***
9 Heavy Industry zones	1,129	6,272	**7 Industrial air quality management areas**	**2,278**

[a] Table 1 does not include activity specific industrial air quality management areas under the regional plan (e.g. Airport, Mangere Wastewater Treatment Plant and Contact Energy in Highbrook).
[b] Estimate area of proposed Heavy Industry zone only – does not include 500 m radius for any overlay.
[c] Industrial = industrial air quality management area (these included areas zoned both heavy **and** light industry).
[d] Urban air quality management area (high amenity).
[e] Included in Southdown industrial air quality management area
* Calculated prior to finalisation of proposed Heavy Industry zones and likely now out of date

1.7 Consultation Undertaken

A survey conducted by Auckland Council found that 76% of people were concerned, or very concerned, about air pollution from industry indicating policies to support reduced exposure to residual industrial emissions may be well received.

The Air Quality – Industry Transition overlay was raised specifically by a small number of submitters (less than 10). The majority requested that the 500m buffer be measured out from the edge of the Heavy Industry zone and that development of sensitive activities be restricted within 500m of Heavy Industry zones. One submitter requested that air polluting activities not be located near schools and residential areas.

In response to feedback, the approach was amended (proposed approach) and presented to local board and industry representatives from the Otahuhu area. While the approach does not go as far as to restrict all sensitive activities within 500 m of Heavy Industry zones, the move to reduce impacts on industry by reducing the Air Quality Industry Transition overlay coverage and introduce some restriction on development of sensitive activities near to Heavy Industries, was generally supported.

1.8 Decision-Making

The general approach to improve reverse sensitivity policy was endorsed by Political Working Party in August 2011. A more detailed approach, including a specified separation distance between incompatible zones and the introduction of the Air Quality Industry Transition overlay, was endorsed by the Political Working Party on 15 August 2012.

In response to feedback, the approach was amended as proposed in this report, and was endorsed, in principle, in an Auckland Plan Committee workshop on 1 August 2013. A final decision is pending.

1.9 Proposed Provisions

The exposure of the Auckland population to industrial generated air pollution and its potentially adverse effects requires an integrated management approach of land use and air discharges.

The proposal is to separate heavy industrial zoned land by at least 500 m from sensitive land use activities. For new heavy industry zones, the draft Unitary Plan has policies for this to be considered when establishing the zones. For existing heavy industry zones, and zones within 500 m of existing heavy industry zones, this will be given effect by two new types of overlay:

Air Quality – Industry Transition overlay. These are areas extending **500 m into heavy industrial zones** from the edge of a sensitive land use area. These represent areas within which industry will need to meet higher amenity expectations because residential intensification is existing or permitted in the neighbouring sensitive land use area.

Air Quality - Sensitive Activities Restriction overlay. These are areas extending **500 m into surrounding land use zones** from the edge of the heavy industrial zone. These represent areas where there is an increased risk of exposure to residual industrial emissions[4] due to the proximity of existing industrial activities. No future intensification is to be permitted within these areas.

These will be applied on a case by case basis to established Heavy Industry zones. The approach taken is intended to find the balance between the need for residential intensification and long term operational security for industry. This is achieved by:
acknowledging that reverse sensitivity impacts are likely to occur where existing and new intensive residential areas are in close proximity to industrial areas and therefore an Air Quality – Industry Transition overlay may apply;
where residential intensification near industrial areas is not strongly desired, further development of these areas is restricted to protect industry.

The proposed Air Quality Industry Transition and Sensitive Activities Restriction overlays are shown in Appendix 3.44.

There will also be new regional and district policies to clarify existing legacy provisions on reverse sensitivity.

1.10 Reference to other evaluations

This section 32 report should be read in conjunction with the following evaluations:

- 2.1 Urban form and land supply
- 2.2 Rural urban boundary location

[4] Examples of residual industrial emissions are fugitive emissions, episodic unanticipated events and/or accidental emissions.

- 2.3: Residential zones
- 2.4: Business
- 2.7: Design statements
- 2.8: Sustainable design
- 2.17: Maori land
- 2.20: Conversion of dwellings
- 2.21: Affordable housing
- 2.22: Future Urban zone
- 2.35: Rural subdivision
- 2.37: Schools
- 2.46: City centre precincts

2. Objectives, Policies and Rules

The proposal is to separate heavy industrial zoned land by at least 500 m from sensitive land use activities. For existing heavy industrial zones that have already been encroached upon by sensitive land uses, this will be given effect by regional and district provisions and two new types of overlay:

- Air Quality Industry - Transition overlay

- Air Quality Sensitive - Activities Restriction overlay

The overlays are to be established by regional and district objectives and policies in the Unitary Plan as detailed below.

2.1 Objectives

The following regional and district objectives are proposed:-

Chapter E: Section 7:11 Air Quality Industry - Transition overlay

Objective 1 *Significant adverse effects of industrial air discharges on health, property and the environment are avoided.*

Objective 2 *Incompatible land uses and activities are separated and reverse sensitivity conflicts are avoided.*

Chapter E: Section 7:12 Air Quality - Sensitive Activities Restriction overlay

Objective 1 *Significant adverse effects of industrial air discharges on health, property and the environment are avoided.*

Objective 2 *The efficiency of Heavy Industry zoned land is preserved.*

Objective 3 *Incompatible land uses and activities are separated and reverse sensitivity conflicts are avoided.*

Appropriateness of the Objectives

The objectives are appropriate because:

- The proposed separation distances for industry are consistent with the purpose (Part 2) of the RMA. This is because the separation of incompatible activities assists with avoiding or mitigating the adverse effects of industrial emissions to air (s5(2)(c)).

- The proposal gives particular regard to the maintenance and enhancement of amenity values (s7(c)).

- The proposal focuses on heavy industry emissions which are significant locally and regionally.

Council has the ability to enact this proposal under section 30 and 31 of the RMA. The primary function of a unitary authority under the RMA is the establishment, implementation and review of objectives, polices and methods to:

- achieve the integrated management of natural and physical resources in its region (section 30(1)(a)); and to

- achieve the integrated management of the effects of the use, development or protection of land in its district (section 31(1)(a)).

This proposal is an integrated management approach. It seeks to use zoning (land use) provisions to separate heavy industry from sensitive land uses to improve amenity and reduce risk.

2.1.1 Policies

The proposed regional and district policies below achieve the purpose of the objectives by encouraging separation of heavy industrial zones from sensitive land uses.

Chapter C: Section 5.1 Reverse sensitivity and separation distances

1. Maintain adequate separation distances between activities with air discharges and those sensitive to air discharges by:

a. *encouraging heavy industry that requires an air discharge consent to locate in Heavy Industry zones and be separated by an appropriate distance of at least 500m from zones providing for activities sensitive to air discharges*
b. *not allowing new activities with discharges to air that are likely to have adverse effects to locate in zones where activities sensitive to air discharges are permitted activities, unless it can be shown that adverse effects can be avoided, remedied or mitigated and amenity provisions of the zone are met*
c. *not allowing activities including heavy industry that require air discharge consents to locate in Light Industry zones, unless it can be shown that adverse effects on activities sensitive to air discharges can be avoided, remedied or mitigated*

Chapter E: Section 7:11 Air Quality - Industry Transition overlay

1. *Maintain adequate separation distances between activities with air discharges and activities sensitive to air discharges.*

2. *Locate the Air Quality – Industry Transition overlay within the Heavy Industry zone to a distance of 500 m from the edge of the following zones:*

    a. *City Centre zone*
    b. *Metropolitan Centre zone*
    c. *Town Centre zone*
    d. *Local Centre zone*
    e. *Neighbourhood Centre zone*
    f. *Mixed Use zone*
    g. *Mixed Housing Urban zone*
    h. *Mixed Housing Suburban zone*
    i. *Terraced Housing and Apartment zone*

j. *Healthcare Facility zone*
k. *Retirement Village zone*

3. *Avoid locating activities that require air discharge consents in the Air Quality – Industry Transition overlay unless it can be shown that adverse effects on activities sensitive to air discharges can be avoided, remedied or mitigated.*

The purpose of the Air Quality - Industry Transition overlay is to prevent any adverse effects from existing heavy industry on nearby sensitive land use activities (particularly where intensification is planned). The Air Quality - Industry Transition overlay extends **500 m into the heavy industrial zone** from the edge of the zone containing intensive, sensitive land use activities (for example a central business district)**.**

Within the Air Quality - Industry Transition overlay, activities that require regional air discharge consent will have to meet high amenity expectations for the neighbouring zone. This is because intensification is allowed in the nearby sensitive land use area.

The Air Quality - Industry Transition overlay applies to areas of heavy industry zones that are located within 500 m of the edge of zones containing **intensive** sensitive activities. A zone containing intensive sensitive activities is defined as follows:

- All residential zones allowing a density of more than 1 dwelling per site (mixed housing, terraced housing and apartment zones)

- All business zones that allow residential activity (metropolitan centre, town centre, local centre, neighbourhood centre and mixed use)

The Air Quality - Industry Transition overlay is a policy overlay. It does not change the activity status of land use activities within the overlay area.

Chapter E: Section 7:12 Air Quality - Sensitive Activities Restriction overlay

1. *Maintain adequate separation distances between activities with air discharges and activities sensitive to air discharges.*

2. *Locate the overlay so that:*
   a. *In greenfield areas the overlay surrounds the Heavy Industry zone to a distance of 500 m from the Heavy Industry zone edge.*
   b. *In brownfield areas the overlay surrounds the Heavy Industry zone to a distance of 500 m from the Heavy Industry zone edge, except for any area within the 500m that is one of the following zones:*
      i. *City Centre zone*
      ii. *Metropolitan Centre zone*
      iii. *Town Centre zone*
      iv. *Local centre zone*
      v. *Neighbourhood Centre zone*
      vi. *Mixed Use zone*
      vii. *Mixed Housing Urban zone*
      viii. *Mixed Housing Suburban zone*
      ix. *Terraced Housing and Apartment zone*
      x. *Healthcare Facility zone*
      xi. *Retirement Village zone*

3. *Avoid locating zones within 500m of a Heavy Industry zone if they provide for activities sensitive to air discharges as permitted activities.*

4. *Avoid re-zoning land within 500 m of a Heavy Industry zone to a zone with a higher residential density, or to a zone that allows activities that increase the potential for reverse sensitivity effects, unless it is an existing zone listed in Policy 2b above (as at the date of notification of the Unitary Plan).*

5. *Avoid locating activities sensitive to air discharges within 500 m of the Heavy Industry zone edge, unless the activity has:*
    a. *A permitted activity status, or*
    b. *It is within a zone listed in Policy 2b (as at the date of notification of the Unitary Plan).*

The purpose of the Air Quality – Sensitive Activities Restriction overlay is to prevent sensitive activities establishing (or intensifying) close to a Heavy Industry zone. This will ensure that industries' ability to obtain air discharge consent is not restricted by sensitive activities that have encroached upon industry. It will also ensure that industries that require regional air discharge consents do not have adverse effects on activities that are sensitive to air discharges.

The Air Quality – Sensitive Activities Restriction overlay has two applications:

- Greenfield areas
  The Air Quality – Sensitive Activities Restriction overlay extends **500 m into the sensitive land use zone** from the Heavy Industry zone. In other words, the overlay surrounds the Heavy Industry zone to a distance of 500 m from the Heavy Industry zone edge (to prevent zones that permit sensitive activities from locating in close proximity)

- Brownfield areas
  Where zones surrounding the Heavy Industry zone do not permit intensive sensitive activities (e.g. Light Industry zone, General Business zone, Single House zone, Countryside Living zone) the Air Quality – Sensitive Activities Restriction overlay extends **500 m into the sensitive land use zone** from the Heavy Industry zone edge. [5] Ideally no sensitive land uses should be located within 500 m of a Heavy Industry zone. However, where they are already exist, the Air Quality - Sensitive Activities Restriction overlay is applied to ensure that sensitive activities in these lower intensity zones are not intensified. This ensures that the reverse sensitivity problem is not exacerbated.

  Activities within the Heavy Industry zone are still required to adequately separate from sensitive activities, so the sensitive activities within these areas are still protected. However, sensitive activities will, due to their proximity to heavy industry, face an increased risk of exposure to residual industrial emissions.[6]

The Air Quality – Sensitive Activities Restriction overlay is a policy overlay. It does not change the activity status of land use activities within the overlay area.

2.1.2 Costs and Benefits of Proposed Policies and Rules

There has been no quantitative cost benefit analysis to support this proposal although costs and benefits have been considered qualitatively. The following assessment explains the environmental, social, economic and cultural costs and benefits in qualitative terms only.

[5] Where the zone does allow intensive sensitive activities, the Air Quality – Industry Transition overlay is applied over the relevant area of the Heavy Industry zone instead.

[6] Examples of residual industrial emissions are fugitive emissions, episodic unanticipated events and/or accidental emissions.

Costs
The introduction of Air Quality – Industry Transition and Air Quality - Sensitive Activities Restriction overlays will result in trade-offs between residential and industrial development.

Industry will face costs by having to plan for a high standard of emissions control in the Air Quality – Industry Transition overlay areas[7]. However, these costs are not new and these costs do not arise from the proposed policies. Rather they reflect historical land use planning which did not provide adequate separation for heavy industry.

Private property owners will face a cost due to restrictions on intensifying land uses within the Air Quality - Sensitive Activities Restrictions overlay areas.

Private property owners within the Air Quality – Sensitive Activities Restriction areas may face reduced capital gain as they face an increased risk of exposure to residual industrial emissions, due to their close proximity to Heavy Industry.[8] However, this increased risk (as compared with properties at a greater distance) is not new – rather it simply reflects the line on a map brought about by the new, explicit, 500 m policy for an adequate separation distance.

Further, this increased risk only applies to residential properties within Air Quality – Sensitive Activities Restriction overlay areas that are located near Heavy Industry zones that did not previously allow reduced amenity (Rosebank Peninsula (Glendene), Henderson, Silverdale).[9] This *potential* reduction in capital gain may affect around 1,433 houses.

Benefits
The proposal strikes a careful balance between providing space for industry and ensuring sensitive land uses are not adversely affected. As such, the benefits will be an improved level of assurance regarding health, safety and amenity for residents locating in new residential zones near industrial areas. This will be achieved by ensuring an adequate separation distance between residential areas and heavy industry.

Residents in existing residential areas within 500 m of a Heavy Industry zone may also benefit in the long term as noxious industries within the Air Quality – Industry Transition overlay areas either invest money to reduce emissions or move on and are replaced by cleaner industries.

The proposed separation of Heavy Industry zones from sensitive land use activities promotes long-term economic growth and employment. It does so by protecting existing heavy industry from further encroachment by residential areas and provides long term operational security for new industry zone development. This benefit would apply to around 714 businesses, which equates to around 15,886 jobs.

Light industry and commercial activities also benefit as the separation distance promotes a graded approach to development by encouraging less sensitive activities to locate in between. An example of a graded land use development would be a heavy industry zone surrounded by light industry which moves into business mixed use and commercial/retail followed by residential.

[7] Recently, one business in Auckland was required to install an Electrostatic Precipitator to control emissions at a cost of approximately $10,000,000.

[8] Examples of residual industrial emissions are fugitive emissions, episodic unanticipated events and/or accidental emissions.

[9] Because existing Heavy Industry Zones were already Industrial Air Quality Management Areas under the Regional Plan.

If industry is not adequately protected there is a risk that businesses will be forced to move out of Auckland or close down. For many businesses, relocation may not be feasible due to either the lack of heavy industry land currently available in Auckland or greater economic opportunities offshore, particularly where businesses are owned by international companies. In addition, many heavy industries are near the local communities that work in them (particularly in the south) and so relocation of industry is likely to impact those local communities.

The explicit nature of the proposed provisions will increase awareness of air quality management issues and provide a clear direction to aid industries in identifying appropriate land for long term security. This should also result in fewer land use conflicts which will be a significant benefit all round.

2.1.3 Adequacy of Information and Risk of Not Acting

It is considered that there is sufficient information on which to base the proposed policies and methods.

The risks of not acting are already being realised through continuing encroachment of residential and sensitive land use activities on heavy industry. This has resulted in conflict due to different amenity expectations and heavy industry being increasingly marginalised. It has increased costs for heavy industry having to achieve more stringent levels of emissions control. It has made it more difficult for industry to achieve air discharge consent, with associated increased costs.

3 Alternatives

Alternatives considered were:

1. Preferred option: Balanced approach incorporating Air Quality – Industry Transition **and** Air Quality – Sensitive Restriction overlay areas

2. Status quo

3. Alternative 1: Air Quality – Industry Transition overlay areas (only)

4. Alternative 2: Air Quality – Sensitive Restriction overlay areas (only)

The preferred alternative is discussed in 2.0 above. The status quo alternative is outlined in 1.2 and 1.5 above. The table that follows discusses each alternative compared with the preferred alternative.

	Preferred Alternative: Balanced approach	Status Quo	Alternative 1:Air Quality – Industry Transition overlay areas	Alternative 2: Air Quality – Sensitive Restriction overlay areas
Appropriateness	Proposed separation distances for heavy industry actively promote the purpose (Part 2) of the RMA. This is because the proposed integrated management of land use will avoid, mitigate or remedy any adverse effects on the environment. It further gives particular regard to maintaining and enhancing amenity values. The proposal is therefore considered appropriate.	This option does not actively promote the purpose of the RMA. Existing zone provisions have not worked well in practice with sensitive land uses being located in close proximity to heavy industry. This has failed to maintain or enhance amenity values (s7(c)). This option is not considered appropriate.	This option is consistent with the purpose (Part 2) of the RMA. The proposed integrated management of land use would avoid, mitigate or remedy any adverse effects on the environment and give particular regard to maintaining and enhancing amenity values. However, it may compromise the ability of people and communities to provide for their economic well-being as it disadvantages industry. This option is not considered appropriate.	This option is consistent with the purpose (Part 2) of the RMA. The proposed integrated management of land use would avoid, mitigate or remedy any adverse effects on the environment. However, it restricts future intensification and potentially the ability of communities to provide for their economic well-being. This option is not considered appropriate.
Effectiveness	The balanced approach strikes a compromise between the objective to avoid significant adverse effects (Air Quality – Industry Transition overlay) and the objective of preserving the efficiency of heavy industrial land (Air Quality – Sensitive Restriction overlay). The relevant overlays are applied based on the proposed intensification of the neighbouring sensitive land use zone. Areas earmarked for future intensification are afforded greater protection against adverse amenity effects and risk.[10] However, areas zoned for low intensity sensitive land uses must expect some risk of exposure to residual industrial emissions due to their close proximity to heavy industry. The preferred alternative also provides policy on reverse sensitivity and separation distances to support the objective of separating incompatible land uses and activities. This option will achieve all three objectives and is considered effective.	Status quo does not meet the stated objectives. This option is not considered effective.	This option supports the objectives to avoid significant adverse effects (objective 1) and to separate incompatible land uses and activities (objective 3). However, it does so at the expense of preserving the efficiency of some heavy industrial land (objective 2). This is because Air Quality – Industry Transition overlay extends 500 m from the edge of the sensitive land use zone **in to the heavy industrial zone**. This option is considered only partially effective.	This option supports the objective to preserve the efficiency of heavy industrial land (objective 2). However, it does so at the expense of potentially avoiding significant adverse effects (objective 1) and the separation of incompatible land uses and activities (objective 3). This is because Air Quality – Sensitive Restriction overlay extends 500 m from the edge of the heavy industrial zone **in to the sensitive land use zone**. This option is considered only partially effective.
Efficiency	The proposed provisions seek to capitalise on the efficiencies inherent in moving from eight district plans and a regional plan to a single Unitary Plan. The proposal is easily implemented with no additional expense incurred by Council. A key objective of the proposed provisions is the preservation of efficiency of heavy industrial land. As such, the proposal is considered efficient. These provisions are focused on large-scale air discharges (i.e. those industries requiring regional air discharge consent). Small scale industry will not	It would be infeasible to retain the existing (inconsistent) provisions from eight district plans. It would be efficient to introduce overlays for industrial air quality management areas as defined in the existing regional plan. The majority of these areas are, however, considered too small to provide adequate separation of heavy industry and nearby sensitive activities.	The introduction of Air Quality – Industry Transition overlays (only) would see some efficiency gains for future industry through the early identification of potentially compromised heavy industry (Air Quality - Industry Transition overlay areas) prior to land purchase. However, this option does not preserve the efficiency of existing Heavy Industry zones. This is because Air Quality – Industry Transition areas extend **into the heavy industry zone**, thus effectively reducing the size of the zone in practice.	The introduction of Air Quality – Sensitive Restriction overlays (only) supports the objective of preserving the efficiency of heavy industrial land. As such, this option is considered efficient.

[10] Examples of residual industrial emissions are fugitive emissions, episodic unanticipated events and/or accidental emissions.

	Preferred Alternative: Balanced approach	Status Quo	Alternative 1:Air Quality – Industry Transition overlay areas	Alternative 2: Air Quality – Sensitive Restriction overlay areas
	be affected. Efficiency gains for future industry will be realised in the early identification of potentially compromised heavy industry (Air Quality - Industry Transition overlay areas) prior to land purchase. Industry will be able to make informed choices and plan in accordance with relevant amenity expectations by either moving to a location with appropriate separation from sensitive activities, or by incorporating a high standard of emissions control during the design phase. It is noted that such efficiency gains are not available to existing (compromised) industry near sensitive land uses earmarked for intensification.			
Costs	Industry will face costs by having to plan for a high standard of emissions control in the Air Quality – Industry Transition overlay areas. However, these costs are not new and these costs do not arise from the proposed policies. Private property owners will face an opportunity cost due to restrictions on intensifying land uses within Air Quality - Sensitive Activities Restrictions overlay. Private property owners within the Air Quality – Sensitive Activities Restriction areas may face reduced capital gain as they face a higher risk of exposure to residual industrial emissions (as compared with properties at a greater distance), due to their close proximity to Heavy Industry.[11] However, this risk is not new – rather it simply reflects the line on a map brought about by the new, explicit, 500 m policy for an adequate separation distance. This *potential* reduction in capital gain may affect around 2,998 houses. Residential properties within Air Quality – Sensitive Activities Restriction overlay areas that are located near to Heavy Industry zones, where reduced amenity was not allowed previously (Rosebank Peninsula, Henderson, Silverdale), may face an increased risk of exposure to residual industrial emissions .[12]	Substantial costs are currently being incurred as a result of conflict arising from differing amenity expectations in areas surrounding existing Heavy Industry zones. This means industry also faces higher costs and longer timeframes for air discharge consent processing. Industry also faces increased costs by having to plan for a high standard of emissions control.	Industry will face costs by having to plan for a high standard of emissions control in the Air Quality – Industry Transition overlay areas. However, these costs are not new and these costs do not arise from the proposed policies.	Private property owners will face an opportunity cost due to restrictions on intensifying land uses within Air Quality - Sensitive Activities Restrictions overlay. Private property owners within the Air Quality – Sensitive Activities Restriction areas may face reduced capital gain as they face a higher risk of exposure to residual industrial emissions, (as compared with properties at a greater distance), due to their close proximity to Heavy Industry. However, this risk is not new – rather it simply reflects the line on a map brought about by the new, explicit, 500 m policy for an adequate separation distance. This *potential* reduction in capital gain may affect around 6,272 houses. Residential properties within Air Quality – Sensitive Activities Restriction overlay areas that are located near Heavy Industry zones, where there was a high amenity requirement previously (Rosebank Peninsula, Henderson, Silverdale), may face an increased risk of exposure to residual industrial emissions .[13]
Benefits	The benefits of the preferred option will be an improved level of assurance regarding health, safety and amenity for residents locating in new	It would be infeasible to retain the existing (inconsistent) provisions from eight district plans and one regional plan.	The benefits of introducing Air Quality – Industry Transition overlays (only) would be an improved level of assurance regarding health, safety and amenity for	The benefits of introducing Air Quality – Sensitive Activities Restriction overlays would be improved certainty for industry due to the preservation of

[11] Examples of residual industrial emissions are fugitive emissions, episodic unanticipated events and/or accidental emissions.
[12] Because existing Heavy Industry Zones were already Industrial Air Quality Management Areas under the Regional Plan.
[13] Because existing Heavy Industry Zones were already Industrial Air Quality Management Areas under the Regional Plan.

	Preferred Alternative: Balanced approach	Status Quo	Alternative 1:Air Quality – Industry Transition overlay areas	Alternative 2: Air Quality – Sensitive Restriction overlay areas
	residential zones, and areas earmarked for future intensification, near industrial areas. This will be achieved by ensuring an adequate separation distance between residential areas and heavy industry. Residents in existing residential areas within 500 m of a Heavy Industry zone may also benefit in the long term as noxious industries within the Air Quality – Industry Transition overlay areas move on and are replaced by cleaner industries. The proposed separation of Heavy Industry zones from sensitive land use activities promotes long-term economic growth and employment. It does so by protecting existing heavy industry from further encroachment by residential areas and provides long term operational security for new industry zone development. Light industry and commercial activities also benefit as the separation distance promotes a graded approach to development by encouraging less sensitive activities to locate in between. The explicit nature of the proposed provisions will increase awareness of air quality management issues and provide a clear direction to aid industries in identifying appropriate land for long term security. This should also result in fewer land use conflicts which will be a significant benefit all round.	There are no benefits of doing so.	residents locating in new residential zones, and areas earmarked for future intensification, near industrial areas by ensuring an adequate separation distance. This benefit would apply to around 6,272 houses. Residents in existing residential areas within 500 m of a Heavy Industry zone may also benefit in the long term as noxious industries within the Air Quality – Industry Transition overlay areas move on and are replaced by cleaner industries.	industry zoned land. This promotes long-term economic growth and employment by protecting existing heavy industry from further encroachment of residential areas and provides long term operational security for new industry zone development. This benefit would apply to around 714 industries which equates to around 15,886 jobs.
Risks	Manufacturing industries contribute significantly to Auckland's economy both in terms of production and employment. Currently there is a shortage of suitable industrial land in Auckland with many heavy industry zones being compromised by their proximity to sensitive land uses. Additionally, forecasts in the Auckland plan state a further 1,000 hectares of heavy industry land will be required over the next 30 years. The risk in not taking the opportunity to improve on legacy provisions is of continuing encroachment by residential and sensitive land use activities on heavy industry. This will result in more conflict, due to different amenity expectations, and heavy industry moving to other regions.	The risks of status quo are already being realised through continuing encroachment by residential and sensitive land use activities on heavy industry. This has resulted in conflict, due to different amenity expectations, and heavy industry being increasingly marginalised. This has also resulted in additional costs for industry being required to undertake expensive mitigation and face longer, more expensive air discharge consent processes.	The risk of introducing an Air Quality – Industry Transition overlay only, is that the provisions are biased towards protection of amenity for residents with no preservation of efficiency of land zoned for heavy industry. Currently there is a shortage of suitable industrial land in Auckland. This option faces a real risk of industry moving to other regions with subsequent losses to employment and the Auckland economy.	The risk of introducing an Air Quality – Sensitive Restriction overlay only, is that the provisions are biased towards preservation of efficiency of land zoned for heavy industry with less protection of amenity for residents. This option does not meet the Auckland Plan objectives for increased intensification.

4 Conclusion

The proposal is to separate heavy industrial zoned land by at least 500 m from sensitive land use activities. For existing heavy industrial zones that have already been encroached upon by sensitive land uses, this will be given effect by regional and district provisions and two new overlays:

- Air Quality - Industry Transition overlay - which provides improved amenity for residential areas earmarked for future intensification that are close to Heavy Industry zones.

- Air Quality - Sensitive Activities Restriction overlay - which seeks to preserve the functions of existing Heavy Industrial areas by limiting intensification of nearby sensitive activities.

The preferred option strikes a compromise between the objective to avoid significant adverse effects (Air Quality – Industry Transition overlay) and the objective of preserving the efficiency of heavy industrial land (Air Quality – Sensitive Restriction overlay). It would efficiently and effectively achieve the stated objectives of:

- Avoiding significant adverse effects on health, property and the environment;
- Preserving the efficiency of industrial zoned land; and
- Avoiding reverse sensitivity conflicts from the co-location of incompatible activities and land uses.

Benefits would include an improved level of assurance regarding health, safety and amenity for residents locating in new residential zones, and areas earmarked for future intensification, that are near industrial areas. This will be achieved by ensuring an adequate separation distance between residential areas and heavy industry. Similarly the proposed provisions will promote long-term economic growth and employment by protecting heavy industry from further encroachment by residential areas. They will further provide long-term operational security for new industry zone development.

The status quo contains significant inconsistencies and is not considered viable or desirable.

Alternative 1, to introduce only Air Quality Industry Transition overlays would not achieve the objective of preserving the efficiency of industrial zoned land. There is a shortage of industrial land in Auckland and this runs a real risk of industry moving to other regions with subsequent losses for employment and the Auckland economy.

Alternative 2, to introduce only Air Quality Sensitive Transition overlays is biased towards preserving the efficiency of heavy industry land and does not meet the Auckland Plan objectives for increased intensification.

5 Record of Development of Provisions

5.1 Information and Analysis

- Appendix 3.45.1 – Proposed Heavy Industry Zones
- Appendix 3.45.2 - *Separation Distances for Industry. A discussion document prepared for Auckland Council.* Emission Impossible Ltd, 2012.
- Appendix 3.45.3 - *Natural Environment Issues and Approaches Paper*, Report to Unitary Plan Political Working Party, 2 August 2012. Auckland Council, 2012b.
- *People's Panel Air Quality survey*. July. Prepared by BP&A and Auckland Council's Research, Consultation and Engagement Team. Auckland Council, 2012.

- *Industry Snapshot of the Auckland Region: the Manufacturing Sector.* - Auckland Regional Council, 2009.
- The Auckland Plan. Auckland Council (2012),
- *Auckland Council Best Practice Air Quality Provisions from Legacy District Plans*. Prepared for Auckland Council by Val Cole, March, 2012.
- Examples of industries impacted by reverse sensitivity provided by Air Resource Consents Team

5.2 Consultation Undertaken

Consultation on the proposed Unitary Plan is outlined in Section 1.8. Additional consultation is outlines in this section.

A recent survey by Auckland Council found that 76% of people were concerned, or very concerned, about air pollution from industry.[14] This was despite the majority of respondents (52%) living nowhere near any activities, industrial or otherwise, that were sources of air pollution and indicates policies to support reduced risk of exposure to residual industrial emissions may be popularly received.

A small number of submitters (less than 10) raised the option proposed in the Draft Unitary Plan directly. There was general support for the proposed 500m buffer distance, however, the majority of submitters, including industrial representatives and Auckland Regional Public Health Service, requested that the buffer extend out from the Heavy Industry zone edge (Option 4) restricting development of sensitive activities within 500m. One submitter also suggested that sensitive activities should be required to mitigate reverse sensitivity effects.

While there was no feedback directly in support of the Draft Unitary Plan approach (Option 3) one submitter did request that Council prevent air polluting activities from locating near schools and residences.

In response to Draft Unitary Plan feedback, consultation was undertaken with Mangere/Otahuhu Local Board and James Fletcher Drive Industry Group Inc representatives on 19 July 2013. This meeting was convened to discuss concerns raised by James Fletcher Drive Industry Group Inc specifically regarding adverse impacts of the Air Quality – Industry Transition overlay on Industry in the Otahuhu industry area. The proposed option was developed in preparation for this meeting and was presented to representatives for discussion. While the proposed option did not entirely address their requests to restrict development of all sensitive activities within 500m of the Heavy Industry zone and to not restrict industry, feedback from industry representatives at this meeting was positive in regard to the more balanced approach that reduces restriction on industry and introduces restrictions on development of sensitive activities near to Heavy Industry zones.

5.3 Decision-Making

The proposed approach was first endorsed by the Political Working Party in August 2011. The presentation broadly covered the approach to strengthen district plan provisions in relation to reverse sensitivity and buffering.

A more detailed approach was endorsed by the Political Working Party on 15 August 2012. The approach introduced the Air Quality – Industry Transition Overlay which was to cover all Heavy Industry land within 500m of zones allowing sensitive activities. This approach was adopted in the Draft Unitary Plan.

[14] Auckland Council, (2012)

As a result of feedback on the Draft Unitary Plan and subsequent consultation with Industry representatives, a revised approach, as presented in this report, is proposed. The approach was endorsed, in principle, by the Auckland Plan Committee work shop on 1 August 2013. A final decision is pending.