Griffith-Narrabundah Community Association Inc.

PO Box 4127, Manuka ACT 2603

www.gnca.org.au email: info@gnca.org.au

Director
Environment, Planning and Sustainable Development Directorate
GPO Box 158
Canberra ACT 2601

email EPDCustomerServices@act.gov.au

SUBMISSION ON DRAFT ENVIRONMENTAL IMPACT STATEMENT PRESENTED BY CAPITAL RECYCLING SOLUTIONS P/L IN RESPONSE TO SCOPING DOCUMENT NI2018-27 REGARDING THE PROPOSED WASTE TRANSFER FACILITY IN FYSHWICK

The draft Environmental Impact Statement (EIS) presented by Capital Recycling Solutions (CES) is disappointingly deficient from a number of perspectives. It should not be accepted by the ACT Government, due to its lack of realism and rigour.

Given that about 20 per cent recovery rate of recyclables is foreseen, the term Materials Recovery Facility is particularly misleading. Its incorporation of recovery functions is ancillary to its main purpose of collection and disposal of Municipal Solid Waste (MSW). The proposed facility is therefore more accurately described as a Waste Transfer Station, and should be assessed as such.

The key visceral reactions by residents likely to be affected by a Waste Transfer Station relate to offensive odour, traffic congestion, increased potential of bird strikes at the nearby airport flight path, and toxic fumes from fires. These issues are addressed below in response to the detail presented in appendices to the EIS. A number of other related policy issues are also examined below.

Offensive odours

It is a requirement of the Scoping Document ('Form and Format of EIS') that 'digital files must not exceed 10MB each', and that the EIS must be written in plain English and avoid the use of jargon as much as possible. At least four of the appendices to the EIS, including appendix I (odour) are well above 10MB, making it difficult for ACT residents to download files and therefore derogating from the claimed community consultation process.

The report by The Odour Unit Pty Ltd is full of jargon that is perhaps comprehensible[1] to those familiar with the details of the "black box models" that have been used. For example,

[1] In contrast, the study by Holmes Air Science (2008) 'Odour modelling and impact assessment: Bomen industrial estate, Wagga Wagga' is written in clear and understandable English with comprehensible explanations of technical terms.

p. 22 states that the 'computational domain was set at 6.4m by 6.4km centred over the MRF. A receptor grid was created with a 2.4km by 2.4km by 0.025 km spacing centred over the MRF'. It is not entirely clear whether odour dispersion has been predicted for a 2.4km square or one of 6.4km, but reference to receptors suggests that it is probably the smaller of the two. However the receptor grid includes a dimension of 0.025km (presumably 25 metres in height), while p. 11 states that assessment is of 'ground level concentrations'.

What is clear from appendix I is the admission on page 24 that assumed proportions of different wastes can significantly affect the modelling results, but are not known at this stage. The statement that 'all factors would require confirmation by testing once the MRF is operational' substantiates the view that the modelling is unreliable as a guide to likely odour impacts. Given the importance of the issue, comprehensive and detailed modelling using local data and better estimates of putrescible waste should have been presented.

A particular weakness of odour modelling is that odour units are combined with population density. However, odour detection depends on individuals' olfactory receptor cells rather than population density. Even if population density is low, individuals already living in a particular location can be adversely affected by the insertion of a facility like a waste transfer station. Residents of Narrabundah, the Eastlake development, and workers and schools in Fyshwick and along Dairy Road are all likely to be affected.

Given the right atmospheric conditions, offensive odours can travel significant distances, even if only intermittently and in low concentrations. It is therefore possible that offensive odours will be detected from time to time at sites like Parliament House or the War Memorial. No account of this possibility appears to have been taken by the proponents, but the damage to Australia's reputation and foreign policy interests may not be negligible if a ceremony (e.g. Anzac Day) or greeting of foreign dignitaries is affected. The National Capital Authority should be consulted by the proponents.

Traffic congestion

It would be difficult to describe the assessment of traffic and transport effects as enlightening.

The emphasis of appendix E is on the number of vehicles using Ipswich Street in Fyshwick. The implication appears to be that there will be no net effect on Canberra because trucks transporting waste in the Fyshwick area will simply replace those using the Mugga Lane landfill area.

A genuine EIS would assess the effect of increased local traffic in Fyshwick on the overall human environment. Apart from the effect of increased traffic – especially by heavy vehicles – on safety and noxious and greenhouse emissions, the biggest effect will be that of congestion.

Congestion can be analysed using a standard cost-benefit framework that values travel time delay, using established Austroads methodology. But no such analysis appears to have been produced. This failure to provide an appropriate assessment of the likely traffic effects on Canberra residents brings into question the ability of the ACT Government to assess the local impacts of the waste transfer station.

Further comment on Appendix E is provided below.

Assessment of potential for fire

Fire in a waste transfer facility can not only disrupt collection and disposal of waste, but it can produce toxic fumes that affect on-site workers and nearby residents.

Save for the assessment of the risk from bushfire in the suburb of Fyshwick affecting the waste transfer facility, scant attention has been paid to the risk of an internally-generated conflagration. Analysis below of appendix K draws attention to the regular frequency of fires in various waste facilities, including in garbage trucks. Lithium ion batteries in particular can be a source of risk.

An interesting perspective on the risk of fires is that they can occur even in metal recycling facilities, let alone in more flammable conditions associated with general waste. For example, the Access Recycling facility at 15 Lithgow Street, Fyshwick, has experienced seven fires attended by ACT Fire & Rescue in the last four years, and Sims Metal experienced one fire between 2006 and 2013 on the same site.

A more thorough and comprehensive analysis of probabilities associated with fires at waste transfer stations is required.

Potential bird-strike risk along the flight path to Canberra Airport

Another example of an unbalanced EIS is the presentation in Appendix M of advice from the Civil Aviation Safety Authority (CASA) on the likely effect on aircraft movements due to the plume of air expelled from the stack as a result of introducing and circulating additional air within the facility. Confusingly, the CASA advice appears to be based on an inspection of the site on 11 August 2017 at a time when an incinerator was being proposed, but the letter to CRS is dated 18 December 2017 and appears to relate to air venting from a waste transfer station alone, without an incinerator. CASA concluded that the plume from circulated air did not represent a risk to aircraft operations.

Aircraft safety can also be threatened through interference from wildlife, including birds, bats and flying foxes in the vicinity of an airport. Some risk already exists because of the proximity to the airport of the Jerrabomberra wetlands and orchards in Pialligo. However, a waste transfer station is likely to attract more wildlife because of the presence of food, no matter how well maintained the facility.

Australian Government guidelines – based on ICAO advice – specify that a 'putrescible waste facility – transfer station' is incompatible with aviation operations if sited within 3 kilometres of an airport. Given that Canberra airport is specified by CASA as being 3km away, and given that the extended centre line of runway 17/35 at Canberra Airport is located about 2.5km from the eastern end of the site of the proposed waste transfer facility, failure to address the risk is an incomprehensible omission.

The proponent should be required to provide a rigorous analysis of the additional wildlife strike risk that would be posed by a waste transfer station, over and above existing risks, and justify why Australian Government guidelines should be ignored. Airline management and pilot associations should be consulted, as well as the operators of Canberra Airport.

Potential anti-competitive outcome

CRS foreshadows (EIS, p. 69) the use of its associated rail facility for the 'loading and unloading of general rail freight as this capability is not currently available to Canberra'.

The business model proposed for its waste transfer station holds a number of inherent competitive advantages for CRS. Financial assistance from the NSW Government for construction of a siding and hardstand capable of handling freight will endow CRS with rail access on the site of the waste transfer facility. The nearby metal recycling facility operated by one of the CRS joint venturers (Access Recycling) can accept recycled metal and will also be able to make use of the rail facility to ship its products. This combination of related interests will provide economies of scope, an important element of natural monopolies.

Natural monopolies are enjoyed by organisations that have a cost advantage over potential competitors if they can harness economies of scale and scope. A railway company, for example, can easily add more passengers or carry more freight along its existing tracks, whereas a potential competitor would first need to duplicate track infrastructure at significant expense. In the case of the CRS waste transfer station, any potential competitor would first need to obtain suitable land, develop rail access on site, and construct the waste sorting facility: all of these costs would represent a significant barrier to entry into the waste management sector.

If the CRS proposal were approved, it would be difficult, if not impossible, for other companies to provide similar services at the same or lower cost. CRS would effectively gain a monopoly on waste management in the ACT and surrounding region. Competitive tendering for waste management in the future would be precluded. Without price regulation, a monopoly can increase prices beyond competitive levels, so the ACT Government (and hence ratepayers) would pay higher prices for waste collection and disposal.

Should the ACT Government nevertheless wish to approve the proposed waste transfer station, it would be prudent to require a formal undertaking from CRS to permit potential competitors to access its facilities, including sorting, recycling and rail access. Access undertakings that set out the terms and conditions of use (price, frequency, etc) can be accepted and administered by the Australian Consumer and Competition Commission.

Operational risk faced by the ACT

The ACT faces a significant risk if the CRS business venture were to collapse after it had been awarded a contract to collect and dispose of all putrescible household waste.

Potential financial risks faced by CRS include the following aspects of its business model:

- A key financial advantage that is relied on by CRS is that no landfill fee is levied at the Woodlawn site on waste that has not originated in Sydney. CRS has informed attendees at briefings that agreements are in place to ensure the continuation of this treatment of waste sent by CRS from Fyshwick. However, the NSW Parliament could at any time in the future legislate to impose a landfill fee on waste originating in Canberra or other locations in NSW.
- Rail rates could increase in the future, or additional conditions could be imposed on the carriage of putrescible waste.

- Revenue from the sale of recyclables could fall, as has occurred recently due to import restrictions imposed by China. As well as a fall in revenue, the costs of stockpiling unsaleable materials would mount over time.
- CRS could face costly legal action, or even closure, if local Fyshwick businesses or nearby residents were adversely affected by odour, toxic fumes from fires, or extreme traffic congestion.
- Any disruption of operations (e.g. machinery failure) at the proposed waste transfer facility would increase costs because of the need to resort to alternatives such as use of landfill at Mugga Lane.
- The NSW Government has reportedly allocated $1million to assist CRS in repairs and upgrades of the rail siding in Fyshwick (EIS, p. 6). The conditions of the grant are not revealed, but there is always some risk of the money being withdrawn.

While consideration of the proponent's business model is not part of the EIS, approval of the waste transfer facility must take into account the potential financial viability of the business. The ACT Government should conduct a thorough due diligence exercise, as well as considering the EIS itself.

Even if the ACT Government is convinced that the idea of a waste transfer station is a good idea, the proponent should still justify why the site needs to be on Ipswich Street in Fyshwick. The only apparent reason why this site is currently the subject of discussion is that parts of the land are already leased by CRS and an existing metal recycling facility operated by Access Recycling is co-located with the proposed site of the waste transfer station.

An identical proposal for a recycling and waste transfer station, with residual waste shipped to Woodlawn landfill by rail could be developed. Construction of a suitable rail siding somewhere between Fyshwick and the ACT border might be more expensive, but it would avoid the problems of the current proposal. There is therefore no reason to favour the current proposal simply because it suits the particular business interests of the proponent. The proponent should be required to demonstrate that no other suitable sites can be used.

The undeclared intent

The purpose of the proposal is stated on p. 1 of the EIS to be the implementation of a:

> 'waste management system to receive, sort, separate and export the ACT's waste that is currently going to landfill. CRS intends to process these waste streams which include municipal solid waste (MSW) from the red lid bin collections, commercial and industrial wastes (C&I), light residues from commercial and demolition (C&D) streams and other non-hazardous wastes, totalling approximately 300,000 tonnes per annum.'

A similar intent was expressed in an undated copy of the scoping application made available to community groups in late 2017. We understand, however, that a longer version of the scoping application, dated November 2017, was submitted to the ACT Government. We understand that the version submitted to the Government, rather than to the community, includes the following words in the introductory section:

> 'We consider the WtE [Waste to Energy] facility ancillary to the overall solution in that it is dealing with residues from the MRF and does not impact on its effectiveness or viability. As such, we are proposing to proceed with an EIS process for the MRF only, with a separate EIS process to be undertaken for the WtE component at a later date.'

The report by Cardno (Advice on EIS, Appendix H, p. 7) also states that 'the client [CRS] has advised that there will be two separate EIS, and this report will focus on the requirements of development and operation of the Materials Recovery Facility (MRF) and the Rail Freight Transport (RFT) Facility.'

The legal principle of estoppel 'provides relief to a person who has detrimentally relied on an assumption, representation or conduct , encouraged or made by the other party, such that it would be unconscionable in the circumstances to allow the latter to resile from that assumption, assurance, representation or conduct'[2]. While the legal use of estoppel does not apply in the present case, the concept does contain the useful principle that a party should not 'blow hot and cold' in a way that misleads another. The principle of equitable estoppel should be applied to the EIS process, if for ethical reasons alone.

An email from [redacted] (Access Recycling) at 2.06pm on 31 May 2018 to Ms Marea Fatseas (Chair, Inner South Canberra Community Council) and several ISCCC members states in part that ' … can we also put it on the record that we wont be building a waste-to-energy plant …?'.

However it is always possible that any future owner of the site or the waste transfer facility could apply to apply for approval for incineration of the residual waste.

Hazard and risk analysis

The draft EIS document includes a summary of various hazards, and presents a risk rating in section 7.1 (pp. 110-120) of the situation after mitigative action has been taken to minimise or eliminate each risk category. Of the 31 risk categories identified in the draft EIS, the post-mitigation risk is assessed as 'Negligible' in two cases, 'Very Low' in 12 cases, and 'Low' in 17 cases.

Whether the result of this risk analysis stretches the bounds of credulity is an open question.

The methodology used is specious at best. Risk is defined as a combination of likelihood of occurrence and its consequence. Conflating the two concepts is meaningless, despite being the favoured approach of many consultants. A rigorous analysis would present the likelihood or probability of occurrence for a range of severity levels to provide a more realistic picture that includes extreme events as well as 'most likely' scenarios. The consequences of each level of severity should be described separately.

Given the high degree of confidence in risk mitigation that is expressed in the draft EIS, the proponent should be willing to accept heavy penalties for any system failures. To ensure an adequate incentive to maintain risk mitigation policies, the proponent should be required to post a substantial bond, preferably in the form of a standing bank draft that is guaranteed by the issuing bank.

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[2] Seddon, N. 2004 *Government contracts: Federal, state and local*, 3rd ed, The Federation Press, Sydney, p. 309.

Regular monitoring by the ACT Government of compliance should also be required. To avoid "regulator capture", the cost of regulation should be levied as part of the rates payable by CRS to the ACT Government's Consolidated Revenue, and inspectors should be employed by the Government rather than being outsourced to private firms.

Further issues

Further comment is provided below against selected attachments.

Yours sincerely,

Leo Dobes
President
5 June 2018

APPENDIX E: TRAFFIC AND TRANSPORT ASSESSMENT

The effect on local traffic in a relatively confined area of a busy commercial precinct is one of the key issues that merit detailed assessment. However, the AECOM document is less than satisfactory in this regard because it omits analysis of the more relevant impacts, and only partially analyses others. It is effectively limited to traffic counts.

The critical shortcoming of the AECOM report is that there is no analysis of the costs of congestion. In particular, no information is provided on the estimated additional travel time (or its social cost) that will be imposed on traffic in the area. The AECOM report is overly focused on numbers of vehicles.

Information about the increase in travel times for vehicles along Ipswich Street and surrounding streets is more relevant than the number of vehicles because heavy vehicle traffic will be turning. In practice, turning vehicles impose a greater degree of delay on other vehicles than does the addition of an extra vehicle into free-flowing traffic streams.

The travel time impact can be valued in the standard cost-benefit framework used by Austroads. Because much of the traffic is attributable to freight or tradespersons, then it would be appropriate to value any additional travel time at 100 per cent of average weekly ordinary time earnings. It is not clear why this standard, conventional analysis has not been carried out as a matter of course.

The first paragraph of section 2.5 (Vehicle Generation Assumption) appears to imply that any additional congestion in Fyshwick is irrelevant because 'additional traffic movements … from heavy vehicles [will be] redirected from the Mugga Lane Resource Management Centre … .' This is misleading because the social cost of additional congestion in an already heavy-trafficked area like Ipswich Street will far outweigh any reduction in congestion in a more remote site like Mugga Lane.

Rigorous analysis of traffic impacts also require an estimate of future growth of traffic in the area, as well as growth in the number of waste collection trucks as Canberra grows and more waste is collected from surrounding regions of NSW. It is not enough to present information on the number of trucks in a peak period, as in Figure 8. Population and traffic levels in the ACT cannot be assumed to be constant into the future.

Section 2.2 of Appendix E reveals that traffic counts were conducted for the standard morning (0800-0900) and afternoon (1615 to 1515) peaks, but that an additional lunchtime peak (1200 to 1300) exceeded both the morning and afternoon peaks. Subsequent analysis does not appear to have considered the lunchtime peak, so that the picture presented of traffic growth must be considered to be incomplete.

Figure 3 seems to indicate that the existing PM peak has 742 vehicles travelling southwards along Ipswich Street, past Wiluna Street. A further 87 vehicles join the southward stream by turning from Wiluna into Ipswich, giving a total of 829. However the southward facing traffic shown at the southern end of Ipswich Street (close to Canberra Avenue) appear to total only 805 (140+230+435).

Section 2.4 mentions that removal of recyclables will involve road vehicles. Section 2.5.7 (p. 11) specifies that only 70 per cent of recycled material will be transported by rail. The remaining 18,000 tonnes will be trucked 'to other local and regional reuse facilities using semi-trailers or truck and dog'.

Signalisation of the exit into Ipswich Street is assumed to be implemented in section 3.2. No analysis is presented, save for a hopeful comment that 'it should not significantly increase delay on to southbound traffic on Ipswich Street. Any interruption to regular flow of traffic is likely to create bunching that can have significant effects in terms of travel time. This is especially the case because of other traffic lights southwards on Ipswich Street. The increasing practice of running yellow and red lights in the area by commercial vehicles can be expected to raise safety concerns.

The issue of safety and vehicle crashes involving trucks has not been covered adequately. Congested traffic conditions can result in frustration and impatience on the part of drivers of both passenger vehicles and trucks, particularly at traffic lights where trucks on tight schedules are turning against the flow of traffic. Conditions in the crowded streets of Fyshwick can be expected to be more conducive to crashes than the relatively rural milieu of Mugga lane.

Pedestrian safety is briefly considered, but bicycles are not. The proponents should be required to provide satisfactory explanations of how cyclists will be protected.

The proposal suggests that site exit signals will be phased with the Wiluna street signals. However, vehicles turning right from Wiluna Street into Ipswich Street will incur an additional delay because they will encounter an additional delay to give way to waste trucks that are turning right into Ipswich Street. This aspect is not addressed in the draft EIS, and nor is it explicit whether the site exit signals will be determined by signal changes at Wiluna Street, or whether waste trucks exiting the site will be able to activate a change in signals at Wiluna Street.

There is no indication of who will bear the financial cost of installing new signalisation arrangements at the site exit. Nor is there any indication of who will bear the financial cost of additional road maintenance on Wiluna Street, Lithgow Street, and Ipswich Street, due to the increase in traffic by heavy vehicles.

Increased traffic flow can have secondary effects that have not been covered in the traffic analysis. For example, businesses along Wiluna Street and Ipswich Street will see a significant increase in heavy vehicle traffic. Entry and exit from parking bays or shopfront spaces will become more difficult and is likely to see a significant reduction in custom to businesses. The situation is analogous to parts of Parramatta Road in Sydney where many businesses have closed because of difficult customer access.

APPENDIX I: ODOUR IMPACT ASSESSMENT

The spectre of emission of unpleasant odours is probably of greatest visceral concern to residents in the vicinity of the proposed waste transfer station. The analysis of odour concentration and dispersion in appendix I, on the other hand, is unsatisfactory. It would be unlikely to pass the "pub test".

Canberra residents most likely to be directly affected live in suburbs like Narrabundah, the new Eastlake development, and possibly Kingston and Manuka. Other areas that may be affected include Parliament House, the Fyshwick markets, schools, retailers throughout Fyshwick, and the Molonglo Group's proposed retail and residential precinct on Dairy Road.

Modelling of odour concentration

The modelling reported in Appendix I is incomplete and inadequate at best:

- Like all modelling exercises, the results reflect expected (i.e. average) values. That is, they are based on parameters that reflect standard operations and usually assume "typical" atmospheric conditions.

- Some parts of the analysis are not clear and even appear contradictory. For example, a factor of nominal additional fugitive (uncontained) emissions of 5 per cent from fast-action doors was included – albeit without explanation – as 'the most realistic estimate of odour emissions from the plant' (p. 22). On p. 32, however, the 5 per cent figure for fugitive odour emissions 'is based on … leakage through doorways where all have been assumed in the modelling to be opened during operation hours, when in practice the opening time would be very brief …'. Without detailed explanation, it is not clear whether modelling assumed continuously open doors, or the existence of fugitive emissions during temporary opening of fast-action doors.

- Reality requires modelling of extremes, such as when sorting or compaction machinery, or entry and exit doors break down in hot weather and waste on the floor of the facility cannot be moved for an extended period. Sensitivity testing was reportedly carried out (p. 22), but sensitivity tests are based on an assumed fixed magnitude deviation from mean values, and do not provide information on the likelihood of occurrence.

- The modelling is based on a number of fixed assumptions. For example, a critical assumption is that a weighted average waste profile of 30 per cent putrescible Municipal Solid Waste and 70 per cent Commercial and Industrial Waste would be processed. A more comprehensive approach would have employed Monte Carlo analysis that considered potential variation in all relevant variables, as well as associated probability distributions.

- Given that CRS intends to collect waste from the wider region where waste profiles are presently not accurately known, use of a constant 30/70 mix is seriously

questionable. Indeed, the authors concede that 'all factors would require confirmation by testing once the MRF is operational' (p. 24). In other words, little confidence can be placed in the raw modelling results.

- The report lacks a clear discussion of any cumulative predictive errors introduced by the combined use of different models, or the compatibility of their interactions. Some have been developed for north American geophysical conditions. For example, it is not clear how coastline data (p. 13) sourced from the US Geological Survey shoreline database accords with landlocked Canberra conditions, particularly at a smaller resolution in Fyshwick.

- One of the model parameters is the orientation of the waste transfer facility. It is important because the inclusion of wind direction, combined with opening of access doors, affects estimates of odour concentration and dispersion. Figure 2.1 (p. 7) of appendix I indicates correctly that the facility faces approximately north-north-east. Figure 4.3 of Appendix H, on the other hand, shows the facility orientated towards the north. It is not entirely clear from the appendixes to Appendix I what Building Profile Input Program (BPIP) was used. The proponents need to clarify this issue.

- Table 3.3 (p. 23, Appendix I) presents parameters for an unidentified waste transfer station in Sydney that processes only municipal waste, with mean stack gas temperature measured as 21.4 degrees Celsius. However, Appendix B (Model source, emission and BPIP configurations) to Appendix I appears to indicate that the exit temperature of odour fumes from the stack was set at 0 degrees Celsius in the modelling process. This setting would tend to underestimate the extent of dispersion of the odour plume when emission temperatures are higher due to higher ambient temperatures inside the facility, as would be the case in summer in the ACT.

Dispersion of odour

- Odour concentrations were estimated at ground level (p. 11), using a 2.4km by 2.4km receptor grid centred over the waste transfer station (p. 22). There does not appear to be any information about estimated odour perception further away from the emitting stack. Confusingly, p. 22 also indicates that 'the computational domain was set at 6.4km by 6.4km centred over the MRF'.

- The level of exposure to odour depends on a number of factors, the so-called FIDOL factors: Frequency of the exposure; the Intensity of the odour; the Duration of the odour episodes; the Offensiveness of the odour; and the Location of the source. A comprehensive analysis should present results that address each of these factors. For example, some dispersion models consider only Duration of odour episodes greater than three minutes, but humans are able to detect odours of duration of seconds.

- A major omission in reported modelling is consideration of potential odour impacts at Parliament House in Parkes, which is a little over 4 km away from the proposed waste

transfer facility. Given that stack emission is to be employed, a particular combination of atmospheric conditions could see detectable odour intensities at Parliament House. Whether this would be a welcome event during visits by international dignitaries or even tourists, requires little guesswork.

Monitoring and enforcement

Modelling exercises can induce a misplaced sense of certainty about their output. This is particularly the case with "black box" models such as those used in Appendix I to predict odour dispersion. Unless comprehensive explanations and analyses are provided of the workings of the model and its findings, little confidence can be placed in the results.

The draft EIS (Purdon Planning, section 6.8.5, p. 96) presents a post-mitigation risk matrix that rates the risk from 'odour from transport and processing of waste' as 'low'. However, Appendix I (sections 3.3.1 and 3.3.2, pp. 23-24) makes it clear that the specification of an odour emissions factor cannot be estimated without knowing the proportions of municipal solid waste and commercial and industrial waste. It concludes that 'all factors would require confirmation by testing once the MRF is operational'. In other words, the modelling cannot provide defensible results.

Clearly, it is not possible to conduct a credible risk analysis in the absence of such a key parameter as the odour emissions factor. It is not enough to claim (draft EIS, p. xii) that the 'adoption of advanced technology ensures … risks can be appropriately mitigated'. Further, the risk analysis involves a subjective process (draft EIS, p. 55) of 'professionals in the given field' (no detail is provided) assigning probabilities. Where such probabilities are based on the 'most likely' scenario, they are of little use in identifying risks and consequences when things go badly wrong, which is the case of primary interest to nearby residents.

Given the importance of odour issues for Canberra residents and the opaqueness of the modelling analysis, there is a strong case for expecting a safety net of monitoring and enforcement. The proponents do not, however, offer any indication of such considerations.

If the waste transfer station is approved, its owners should be required to post a very significant financial bond that would be used to deduct penalties on every occasion that odour limits are breached. The bond could be in the form of a standing bank draft, guaranteed by the issuing bank: this would minimise the cost to the operator and would ensure continued oversight by the bank of operational practices. Given that the proponents have assessed the post-mitigation risk as 'low', there should be little reason for objection by them to such an arrangement.

Regular monitoring would also be required, including a capacity for inspections out of office hours in response to any complaints by residents. To avoid "regulator capture", the cost of regulation should be part of the rates payable by CRS to the ACT Government as part of its Consolidated Revenue, and inspectors should be employed by the Government rather than being outsourced.

APPENDIX K: FIRE RISK

Scoping document NI2018-27, Table 1 and clause 8.1.11, explicitly requires the proponent to address 'fire or explosion originating in the facility impacting on surrounding land uses and human health'.

The focus of Appendix K is on potential bushfire risk that may threaten the proposed recycling facility and its infrastructure. The risk is assessed as being 'Negligible' (p. 6).

However, fire can also be caused by a range of factors that are internal to a waste transfer facility, including[3]:

- Hot processes such as welding or shrink wrapping
- Build-up of debris in fume extraction fans
- Poorly installed or maintained mechanical equipment such as bearings that can overheat
- Faulty or misused electrical equipment such as fork lift truck charging units
- Batteries, particularly damaged lithium ion batteries used in many electronic products
- Malicious ignition, including arson or vandalism

According to Fattal[4] et al., (2016, p. 4) 'over half of all waste sent to land fill is potentially flammable with roughly 10% of waste in landfills being potentially toxic (plastics, industrial waste, rubber, etc)'. Although little is known about the causes of specific fires that have occurred in Australian waste facilities of various types, arson may have been as common as spontaneous combustion (Figure 3, p. 7), and lithium batteries are reported to have caused fires in the cargo hold of an aircraft while loading (Box 1, p. 10).

Tim Snell, Managing Director, Industrial Monitoring & Control, a company that specialises in thermal imaging, is reported as saying that 'the risk [of fire] is much higher at waste transfer stations than landfills, partly because of the open air environment[5]. The risk to nearby workers and residents is also greater because of the likelihood of toxic fumes.

Surprisingly, fires can even occur at metal recycling facilities. According to ACT Fire & Rescue (Mark Brown, *pers. comm.*, 29 March 2018), the incidents in the table below are recorded as taking place at 15 Lithgow Street (Block 13, Section 8), Fyshwick.

The issue of spontaneous combustion is addressed in section 6.11 of the draft Environmental Impact Statement (EIS). The risk of 'plant based or spontaneous combustion fire' is considered to be 'Medium', especially in the waste stream and baled recyclables within the building. Mitigation measures foreshadowed in section 6.11.3.1 the draft EIS include thermal imaging, compaction of wastes into sealed containers that eliminate oxygen, installation of fire management equipment, and the fact that the moisture in MSW waste limits burning. The post-mitigation risk is therefore regarded in section 6.11.5 to be 'Very Low'.

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[3] Based on Environment Protection Agency, Ireland 2013 *Guidance note: Fire safety at non-hazardous waste transfer stations*, Wexford.

[4] Fattal, A., Kelly, S., Liu, A., and D. Giurco 2016 'Waste fires in Australia: Cause for concern?', Institute for Sustainable Futures, University of Technology Sydney. Report prepared for the Department of the Environment, Canberra.

[5] 'Putting out the flames' 16 August 2017, *Waste Management Review*, http://wastemanagementreview.com.au/putting-out-the-flames/

Date	Incident	Operator
23 June 2006	fire in vehicle crusher	Sims Metal
10 June 2014	fire involving 3 vehicles after a fire started in the vehicle crusher	Access Recycling
13 February 2015	minor fire in vehicle crusher extinguished by onsite staff	Access Recycling
3 March 2015	fire in scrap metal pile 20 by 10 metres; accidental during routine work	Access Recycling
13 June 2015	outdoor heating fire	Access Recycling
13 December 2015	fire in scrap metal that had been processed	Access Recycling
8 September 2016	mattresses alight caused by oxy cutting	Access Recycling
17 June 2017	rubbish in skip bin alight 2 by 5 metres	Access Recycling

Source: 'Date' and 'Incident' columns sourced from ACT Fire & Rescue (Mark Brown, *pers. comm*., 29 March 2018).

However, there is no discussion of potential risks from lithium ion batteries which can ignite if damaged, and if they come into contact with the moisture in a waste stream. Nor is information provided on any program of maintenance and testing of thermal imaging cameras, or of fire suppression equipment. The reported risk rating of 'Very Low' is credible only if all equipment is in continually full working order. The draft EIS should address these issues in detail.

To ensure that there is an appropriate incentive to fulfil any program of maintenance and testing of thermal imaging and fire suppression equipment if the waste transfer station is approved, its owners should be required to post a very significant financial bond that would be used to deduct penalties on every occasion that a fire event occurs. The bond could be in the form of a standing bank draft, guaranteed by the issuing bank: this would minimise the cost to the operator and would ensure continued oversight by the bank of operational practices. Given that the proponents have assessed the post-mitigation risk as 'very low', there should be little reason for objection by them to such an arrangement.

Regular monitoring would also be required. To avoid "regulator capture", the cost of regulation should be part of the rates payable by CRS to the ACT Government as part of its Consolidated Revenue, and inspectors should be employed by the Government rather than being outsourced.

APPENDIX M: ADVICE FROM CASA

The Civil Aviation Safety Authority (CASA) has provided to Capital Recycling Solutions (CRS) advice that addresses plume rise at the proposed recycling site. The inspection was undertaken by CASA in August 2017 and considers only the exit plume from the 21metre stack. It is not clear from the advice whether it refers solely to exhaust from air intake for a waste transfer station or to an incinerator.

A publicly available document published by the Department of Infrastructure, Regional Development and Cities, Guideline C of the National Airports Safeguarding Framework (NASF) addresses the risk of wildlife strikes in the vicinity of airports https://www.google.com.au/search?q=national+airports+safeguarding+framework+managing+risk+wildlife&oq=national+a&aqs=chrome.0.69i59j69i57j69i60l3.3727j0j7&sourceid=chrome&ie=UTF-8 (accessed 11 May 2018)

Clause 11 of Guideline C states that CASA 'can address the risk of waste foodstuffs being dumped near airports that may pose a risk to aviation safety by attracting wildlife'. The risk of strikes by birds, bats and flying foxes is greatest in the vicinity of airports where aircraft fly at lower elevations. The NASF points out that Australia has obligations under the International Convention on Civil Aviation (ICAO) to address the risk of wildlife hazards that occur off airport, citing the contents of Attachment 1 to Guideline C.

Attachment 1 to Guideline C includes consideration of proposed land use involving a 'putrescible waste facility – transfer station'. The category is rated as being incompatible with aviation operations if sited within 3 kilometres of an airport. Given that the extended centre line of runway 17/35 at Canberra Airport is located about 2.5km from the eastern end of the site of the proposed waste transfer facility, failure to address the risk of an aircraft crash is an incomprehensible omission.

Canberra Airport personnel have in the past expressed concern about the potential for a bird strike if the Jerrabomberra Wetlands were further developed to increase the number of water birds. A waste transfer facility in the vicinity of the wetlands would be likely to increase the number of birds because of the proximity of food scraps, irrespective of any care taken to minimise bird access.

A coronial inquiry into an accidental crash due to bird strike would seek to investigate and identify a proximate cause. Approval of the proposed CRS waste transfer facility by the ACT Government would inevitably raise issues of due diligence in the conduct of the approval process.

Because there can be no guarantee that the waste transfer facility will not increase the number of birds in its vicinity, it should be rejected, if only on grounds of safety alone.