Fire & Rescue NSW

File Ref. No: FRN21/432
TRIM Doc. No: D21/8040
Contact: A/ Inspector Dave Absalom

08 February 2021

Transport for NSW
Sydney Metro Authority
C/- Yael Bornstein
680 George Street
SYDNEY NSW 2000

Yael.Bornstein@transport.nsw.gov.au

Dear Yael,

Re: Provisions for firefighter access to incidents in Sydney Metro projects

I refer to the development and implementation of a strategy regarding the above provisions on all Sydney Metro projects currently under construction, and the NorthWest Metro which is in operation.

It is understood that there has been extensive and ongoing consultation between Fire and Rescue NSW (FRNSW) and Transport for NSW (TfNSW) - Sydney Metro Authority, over a number of years in respect to the matter. To date, there has not been a proposed strategy or measure that has been considered suitable or agreed to by either party.

It is deemed that such provisions are required in order for FRNSW to be able to fulfil its responsibilities as legislated within the provisions of the Fire and Rescue NSW Act 1989, and specifically that defined within clause 5A *General functions of Commissioner.* Without such provisions, FRNSW submit that firefighters are presented with significant operational challenges in respect to safety and intervention activities, particularly within a tunnel environment. This has the potential to have an adverse impact on public safety.

FRNSW request that TfNSW develop and submit a proposal for review and determination that identifies potential strategies addressing the above requirements.

For further information please contact Fire Safety on (02) 9742 7434, referencing FRNSW file number FRN21/432. Please ensure that all correspondence in relation to this matter is submitted electronically to firesafety@fire.nsw.gov.au.

Yours sincerely

A/ Superintendent Murray Mackne
Manager Infrastructure Liaison Unit
Community Safety Directorate

File ref. no: BFS21/751 (8000014839)
Doc. ref. no: D21/28389
Contact: A/ Inspector Dave Absalom
SF Nathan Everett

Transport for NSW
Sydney Metro
C/- Yael Bornstein
680 George Street
SYDNEY NSW 2000

Yael.Bornstein@transport.nsw.gov.au

05 May 2021

Dear Yael,

Re: Response to Tunnel Cross-Passage Spacing Meeting (17 March 2021)

I refer to the meeting held on 17 March 2021 and associated minutes and presentation prepared by Sydney Metro (SM) and submitted to Fire and Rescue NSW (FRNSW) by email on 19 March 2021.

It is understood that the purpose of the meeting was to: review and clarify the role and function that is expected of FRNSW as a stakeholder in SM projects, summarise previous consultation that has been undertaken in relation to the fire and life safety aspects of the tunnel design, and afford SM an opportunity to present further information to FRNSW regarding its tunnel access strategy and associated provisions.

<u>The role of FRNSW as a stakeholder in Sydney Metro projects</u>

It is acknowledged that to-date there has not been a formalised or consistent approach in regard to the requirements and expectations that have been placed upon FRNSW as a stakeholder on SM projects. It is submitted by SM that this has at times unnecessarily elevated FRNSW's role to that of a de facto consent authority, either through the requirements of the Scope of Works and Technical Criteria (SWTC) or applicable Ministers Conditions of Consent. This represents an assumption of responsibilities in excess of that prescribed under applicable legislation, and has on occasion resulted in ambiguity in regard to: the expectation for provision of FRNSW determination and approval, the degree of consideration that must be afforded to FRNSW recommendations or requirements, and

difficulties in resolving matters where competing stakeholder objectives oppose those of FRNSW.

In clarifying the role and function that is expected and required of FRNSW as a stakeholder in both current and future projects, it is understood that SM remain committed to consulting with FRNSW in regard to the fire and life safety aspects of design, even where not required to by legislation (i.e. crown development not subject to the *Environmental Planning and Assessment Act 1979* and its subordinate regulation). As such, FRNSW provide in-principle support for the proposal and are committed to working with SM in formalising a consistent approach that is appropriate to an agreed degree of responsibility.

Proposed increase in spacing of tunnel cross-passages

Since the establishment of the SM network, FRNSW has endeavoured to observe and fulfil its stakeholder roles and responsibilities as required by applicable legislation. It is considered that the intent of these roles and responsibilities is to ensure that adequate consideration and provision is made in regard to the fire and life safety aspects of each project, and subsequently that a minimum level of safety is achieved such that both the public stakeholder and members of emergency services attending an incident are not unduly exposed to an unnecessary level of risk. In achieving this outcome, FRNSW must work collaboratively with other stakeholders, including those who may have opposing or competing objectives. This often necessitates the review and assessment of proposed designs and/or strategies to ensure that FRNSW are able to observe and fulfil its obligations as the agency responsible for taking *"all practicable measures for preventing and extinguishing fires and protecting and saving life and property in case of fire"* as required under the *Fire and Rescue NSW Act 1989*, and/or taking actions in case of emergency as an identified emergency services organisation as required by the *State Emergency and Rescue Management Act 1989*. FRNSW consider that designs and strategies relating to the accessing of an incident within a tunnel (including associated provision of measures in support of this) to warrant such review and assessment.

FRNSW submit that to date there has been no formalised strategy or position that has been mutually agreed upon by both organisations in relation to accessing of an emergency incident in tunnel. As such, linewide designs and strategies have relied upon provision of measures in accordance with SWTC's that have been informed by positions that have historically been supported by FRNSW; these representing the status quo. The requirement for tunnel cross-passages at a spacing of 240m is considered to be such an example. It has been submitted by SM on a number of occasions that there now exists sufficient reason to warrant the challenging of this requirement, with an increased spacing of 500m being proposed. The information presented to FRNSW in the meeting on the 17 March 2021 generally supports this proposal based on:

- A comprehensive 'safety assurance process' (i.e. risk management process) has been followed;
- Improved safety through better management of risk, technological developments and high degree of automation;
- Reference codes and standards that have historically been relied upon to inform the SWTC are dated and do not account for the above improved safety or redundancies afforded to the SM network;

- Current reference codes and standards allow for tunnel cross-passages to be located at a spacing of 500m (may be subject to the use of performance-based solutions);
- Contemporary examples exist internationally that have adopted tunnel cross-passages at spacings of 500m;
- SM are required to consider and assess risks holistically (i.e. competing risks), not just those applicable to the fire and life safety aspects of a project;
- SM consider that legislative requirements are adequately addressed with reference to managing risk *so far as is reasonably practicable* (SFAIRP); and
- The cost benefit analysis undertaken by SM submits that the cost of adopting the 240m configuration may be grossly disproportional to the safety benefit.

It is noted that SM acknowledge within the presented information that the proposal to increase the spacing of tunnel cross-passages to 500m will correspondingly increase the operational risk.

Following a review of the information contained within the presentation and with consideration given to past consultation, FRNSW acknowledge and accept the reasons contained within the proposal. FRNSW do not, however, provide support for the proposal and offer the following comments for consideration.

1. FRNSW does not support any proposal that will result in an increase in risk to occupants and firefighters in the event of an incident. As identified above, SM have acknowledged that increasing the spacing of tunnel cross-passages will correspondingly increase the operational risk.
2. Tunnel cross-passages may be used by firefighters undertaking intervention activities as the primary point of access to an emergency incident. Such activities are an obligation that is imposed under the relevant provisions of the *Fire and Rescue NSW Act 1989* and the *State Emergency and Rescue Management Act 1989*. As such, adequate provision must be made to assist and enable FRNSW to fulfil this obligation, giving due consideration to agency requirements and recommendations, and the safety of attending firefighters. Increasing the spacing of tunnel cross-passages has the potential to exceed the capability of FRNSW's intervention activities such that it may not be able to fulfil its legislated responsibilities.
3. FRNSW does not support justification of the proposed increase in spacing of tunnel cross-passages using an approach that relies upon probabilistic risk-based assessments. FRNSW does not consider there to be sufficient data for the existing SM network, nor international data that is directly comparable and suitable for use. Similarly, FRNSW does not support justification of the proposal based on 'comparative assessments' with international networks currently in operation.
4. Much of the information provided makes reference to the National Fire Protection Association's (NFPA) Standard for *Fixed Guideway Transit and Passenger Rail Systems* (NFPA 130:2020), and in particular its allowance for tunnel cross-passages being spaced at distances greater than 244m (this distance being the prescribed deemed-to-satisfy solution) where a performance-based solution is used. This performance-based solution relies upon demonstrating that the performance requirements have been achieved using a quantitative risk assessment. As identified above, FRNSW do not support justification of the proposal using an approach that relies upon probabilistic risk-based assessments.

5. FRNSW acknowledge that as part of any risk management process there is an element of risk that remains irrespective of the controls and measures that are implemented (i.e. residual risk). Furthermore, it is understood that SM as the asset owner must weigh competing risks in a holistic manner and use tools such as cost-benefit analysis to determine the point at which a risk has been adequately managed (i.e. manage risks SFAIRP). This approach is accepted-by and reflected-in relevant legislation which requires operators and designers to develop and implement safety systems and measures SFAIRP. FRNSW consider that the provision of tunnel cross-passages at a spacing of not more than 240m to be a 'reasonably practicable' measure for an asset owner to allow for, given measures provided are intended to support occupant egress and safe and effective firefighter intervention.

Should you require further clarification regarding the above matter, please contact the Fire Safety Branch on (02) 9742 7434, referencing FRNSW file number BFS21/751. Please ensure that all correspondence is submitted electronically to firesafety@fire.nsw.gov.au.

Yours sincerely,

Superintendent John Hawes
Manager Infrastructure Liaison Unit
Community Safety Directorate

CC: Andrew Addinsell
Andrew.Addinsell@transport.nsw.gov.au

iCentral Ref :
SM-21-00099314

6 May 2021

Superintendent John Hawes
Fire and Rescue NSW
Amarina Avenue
Greenacre
NSW 2190

Dear John,

Re: FRNSW Position Statements on Sydney Metro Projects

Sydney Metro are in receipt of a number of Position Statements from Fire & Rescue NSW. The FRNSW reference numbers and titles of the correspondences are as follows:

- D20/74369 – FRNSW Positions Statements on Sydney Metro rail project
- D21/28313 – Spacing of additional fire hydrants on platforms of Sydney Metro Stations
- D20/86445 – Provision of fire hose reels and portable fire extinguishers in Sydney Metro Stations

This correspondence has been prepared to advise FRNSW on the implementation of the advice received.

Executive summary

Position Statement Title	Date of receipt	Content summary	Implementation summary
Positions Statements on Sydney Metro rail project **#D20/74369**	14 September 2020	10L/s flow rate per hydrant outlet at underground stations On-site feed hydrants should be provided where street hydrants are relied upon	Stations to implement To be confirmed (details provided below)
Spacing of additional fire hydrants on platforms of Sydney Metro Stations (Revision A) **#D21/28313**	19 April 2021	Additional hydrants provided on platforms in underground stations should be located not more than 40m apart along the length of the platform	Stations to implement

Provision of fire hose reels and portable fire extinguishers in Sydney Metro Stations **#D20/86445**	27 October 2020	Position on where fire hose reels and portable fire extinguishers should be located.	Stations to implement partially (details provided below)

D20/74369 – FRNSW Positions Statements on Sydney Metro rail project

Sydney Metro received this correspondence on 14 September 2020. The position statement recommends the following:

- That fire hydrant systems provide 10L/s flow rate per hydrant outlet at underground stations
- That on-site feed hydrants should be provided where street hydrants are relied upon

Sydney Metro can advise that the underground stations will comply with the FRNSW advice for 10L/s flow rate per hydrant outlet.

Sydney Metro assets that may rely on street hydrants as part of a compliant system design include some of the Southwest Stations (Marrickville – Punchbowl) and some of the Linewide service facilities. The feasibility of providing on-site feed hydrants is being assessed, as well as other options to improve the reliability and availability of street hydrants in order to meet our statutory obligations. Further advice will be provided through the relevant project implementation groups as part of ongoing FRNSW consultation for the relevant assets.

D21/28313 – Spacing of additional fire hydrants on platforms of Sydney Metro Stations

Sydney Metro received this correspondence on 19 April 2021. The position statement recommends the following:

- That hydrants on platforms in underground stations be provided on centres not exceeding 40m to enable progressive fire attack along the full length of the platform
- That hydrant outlets on platforms should be dual-outlet type

Sydney Metro can advise that the underground stations will comply with the advice provided by FRNSW.

D20/86445 – Provision of fire hose reels and portable fire extinguishers in Sydney Metro Stations

Sydney Metro received this correspondence on 27 October 2020. The position statement recommends the following:

- That fire hose reels and portable fire extinguishers be provided throughout all front-of-house and back-of-house areas.

Sydney Metro can advise that our contractors will comply with the advice provided by FRNSW, with the exception that fire hose reels will not be provided on the platforms.

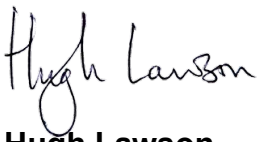
The omission of fire hose reels from platforms is a technical requirement of Sydney Metro which has been developed as part of an overarching safety risk assessment process undertaken during prior stages of the City & Southwest Project.

The outcomes of those prior design stages, as well as the documented technical requirement, have been subject to suitable safety assurance processes as required under Rail Safety National Law. These outcomes have been developed by accredited Authorised Engineering Organisations (AEO) and independently reviewed by the project ISA (Independent Safety Advisor) and will be subject to further review by the IC (Independent Certifier).

Sydney Metro can further confirm that our station contractors are required to deliver building works that will comply with the Building Code of Australia, subject to certification by a Crown Certifier.

FRNSW's ongoing support to Sydney Metro's projects is greatly appreciated and we look forward to continued engagement as the City & Southwest project progresses.

Yours sincerely



Hugh Lawson
Project Director – Sydney Metro City & Southwest

30 June 2021

Superintendent John Hawes
Fire and Rescue NSW
Amarina Avenue
Greenacre
NSW 2190

Dear John,

Re: Tunnel Cross Passage Spacing

Sydney Metro has received and reviewed Fire & Rescue NSW correspondence D21/28389, dated 5 May 2021 – Response to Tunnel Cross-Passage Spacing Meeting (17 March 2021).

The points made by FRNSW are duly noted and Sydney Metro responds to each point, including relevant commentary as follows:

FRNSW Correspondence	Sydney Metro Comments
<u>The role of FRNSW as a stakeholder in Sydney Metro projects</u> It is acknowledged that to-date there has not been a formalised or consistent approach in regard to the requirements and expectations that have been placed upon FRNSW as a stakeholder on Sydney Metro projects. It is submitted by Sydney Metro that this has at times unnecessarily elevated FRNSW's role to that of a de facto consent authority, either through the requirements of the Scope of Works and Technical Criteria (SWTC) or applicable Ministers Conditions of Consent. This represents an assumption of responsibilities in excess of that prescribed under applicable legislation, and has on occasion resulted in ambiguity in regard to: the expectation for provision of FRNSW determination and approval, the degree of consideration that must be afforded to FRNSW recommendations or requirements, and difficulties in resolving matters where competing stakeholder objectives oppose those of FRNSW.	FRNSW commentary is noted. Sydney Metro confirm agreement.

FRNSW Correspondence	Sydney Metro Comments
In clarifying the role and function that is expected and required of FRNSW as a stakeholder in both current and future projects, it is understood that Sydney Metro remain committed to consulting with FRNSW in regard to the fire and life safety aspects of design, even where not required to by legislation (i.e. crown development not subject to the Environmental Planning and Assessment Act 1979 and its subordinate regulation). As such, FRNSW provide in-principle support for the proposal and are committed to working with Sydney Metro in formalising a consistent approach that is appropriate to an agreed degree of responsibility.	FRNSW commentary is noted. Sydney Metro confirm agreement. Sydney Metro remain committed to upholding a consistent approach to FRNSW engagement for the development of FLS strategies across future lines. Sydney Metro will continue to openly consult with FRNSW on an ongoing basis, ensuring that respective responsibilities are adhered to as described in legislation and according to TfNSW's duties, notably under Rail Safety National Law (RSNL).
Proposed increase in spacing of tunnel cross-passages Since the establishment of the Sydney Metro network, FRNSW has endeavoured to observe and fulfil its stakeholder roles and responsibilities as required by applicable legislation. It is considered that the intent of these roles and responsibilities is to ensure that adequate consideration and provision is made in regard to the fire and life safety aspects of each project, and subsequently that a minimum level of safety is achieved such that both the public stakeholder and members of emergency services attending an incident are not unduly exposed to an unnecessary level of risk. In achieving this outcome, FRNSW must work collaboratively with other stakeholders, including those who may have opposing or competing objectives. This often necessitates the review and assessment of proposed designs and/or strategies to ensure that FRNSW are able to observe and fulfil its obligations as the agency responsible for taking "all practicable measures for preventing and extinguishing fires and protecting and saving life and property in case of fire" as required under the Fire and Rescue NSW Act 1989, and/or taking actions in case of emergency as an identified emergency services organisation as required by the State Emergency and Rescue Management Act 1989. FRNSW consider that designs and strategies relating to the accessing of an incident within a tunnel (including associated provision of measures in support of this) to warrant such review and assessment.	Sydney Metro note that FRNSW believe they have a legislative responsibility to provide design review and assessment. Sydney Metro will continue to engage with FRNSW as a key stakeholder on all projects and afford FRNSW the opportunity to review all relevant aspects of design. Briefings will be provided where needed to assist this engagement. FRNSW will also be consulted during construction, commissioning and handover phases.

FRNSW Correspondence	Sydney Metro Comments
FRNSW submit that to date there has been no formalised strategy or position that has been mutually agreed upon by both organisations in relation to accessing of an emergency incident in tunnel. As such, linewide designs and strategies have relied upon provision of measures in accordance with SWTC's that have been informed by positions that have historically been supported by FRNSW; these representing the status quo. The requirement for tunnel cross-passages at a spacing of 240m is considered to be such an example. It has been submitted by Sydney Metro on a number of occasions that there now exists sufficient reason to warrant the challenging of this requirement, with an increased spacing of 500m being proposed. The information presented to FRNSW in the meeting on the 17 March 2021 generally supports this proposal based on: • A comprehensive 'safety assurance process' (i.e. risk management process) has been followed; • Improved safety through better management of risk, technological developments and high degree of automation; • Reference codes and standards that have historically been relied upon to inform the SWTC are dated and do not account for the above improved safety or redundancies afforded to the Sydney Metro network; • Current reference codes and standards allow for tunnel cross-passages to be located at a spacing of 500m (may be subject to the use of performance-based solutions); • Contemporary examples exist internationally that have adopted tunnel cross-passages at spacings of 500m; • Sydney Metro are required to consider and assess risks holistically (i.e. competing risks), not just those applicable to the fire and life safety aspects of a project; • Sydney Metro consider that legislative requirements are adequately addressed with reference to managing risk so far as is reasonably practicable (SFAIRP); and • The cost benefit analysis undertaken by Sydney Metro submits that the cost of adopting the 240m configuration may be grossly disproportional to the safety benefit.	Sydney Metro note that FRNSW have separately requested additional information with regards to tunnel access strategy for SMNW and SMCSW. As Operators have been appointed for these projects, the operational responses between such Operators (i.e. MTS) and FRNSW are in place. Should these arrangements require revisiting, Sydney Metro can support engagement with the Operator. Future lines will adopt safe (SFAIRP) operational arrangements necessary to facilitate emergency access. Lessons learnt from SMNW and SMCSW will be applied. Additional controls to further improve tunnel access are under development including enhanced lighting, signage, track access vehicles and walkway enhancements.
It is noted that Sydney Metro acknowledge within the presented information that the proposal to increase the spacing of tunnel cross-passages to 500m will correspondingly increase the operational risk.	FRNSW commentary is noted. Sydney Metro comment that the increase in operational risk has been quantified and been assessed to be safe (SFAIRP).

FRNSW Correspondence	Sydney Metro Comments
Following a review of the information contained within the presentation and with consideration given to past consultation, FRNSW acknowledge and accept the reasons contained within the proposal. FRNSW do not, however, provide support for the proposal and offer the following comments for consideration.	Sydney Metro note that FRNSW do accept the reasoning that supports the proposal. Sydney Metro note that FRNSW do not provide their support for the proposal and provide further comments (5 items below) for consideration by Sydney Metro. Sydney Metro confirm that FRNSW comments have been considered and that these were reflected in the risk analysis where appropriate.
1. FRNSW does not support any proposal that will result in an increase in risk to occupants and firefighters in the event of an incident. As identified above, Sydney Metro have acknowledged that increasing the spacing of tunnel cross-passages will correspondingly increase the operational risk.	Sydney Metro note that FRNSW do not support proposals that result in an increase in risk level. Sydney Metro have demonstrated through quantified analysis that the increase in safety risk associated with the change remains within the risk acceptance criteria which, under legislation, Sydney Metro have identified. Further, Sydney Metro confirms that, incorporation of this approach for the new railway and the related increased safety risk remains within the risk acceptance criteria set out by our Enterprise Risk Assessment model. This has been achieved through a holistic, system-wide safety approach to deliver safety on current and future Sydney Metro projects. Sydney Metro delivers modern rail infrastructure that uses recognised safety technologies and arrangements to provide railways that are expected to significantly improve on the current level of safety on conventional railways generally.
2. Tunnel cross-passages may be used by firefighters undertaking intervention activities as the primary point of access to an emergency incident. Such activities are an obligation that is imposed under the relevant provisions of the Fire and Rescue NSW Act 1989 and the State Emergency and Rescue Management Act 1989. As such, adequate provision must be made to assist and enable FRNSW to fulfil this obligation, giving due consideration to agency requirements and recommendations, and the safety of attending firefighters. Increasing the spacing of tunnel cross-passages has the potential to exceed the capability of FRNSW's intervention activities such that it may not be able to fulfil its legislated responsibilities.	Sydney Metro note that FRNSW may not be able to intervene in some tunnel emergency scenarios. Sydney Metro confirm that the circumstance under which FRNSW may not be able to intervene have been accounted for, and the residual risk that such scenarios present has been shown to be acceptable to Sydney Metro under our legislative obligations. Sydney Metro's risk analysis has assumed no intervention by emergency services. And that under these circumstances, the risk remains SFAIRP and tolerable. While Sydney Metro note that cross passages form part of the arrangements to enable fire-fighting operations, there are many other aspects of tunnel design that form part of the overall safety case for fire-fighting operations.

FRNSW Correspondence	Sydney Metro Comments
3. FRNSW does not support justification of the proposed increase in spacing of tunnel cross-passages using an approach that relies upon probabilistic risk-based assessments. FRNSW does not consider there to be sufficient data for the existing Sydney Metro network, nor international data that is directly comparable and suitable for use. Similarly, FRNSW does not support justification of the proposal based on 'comparative assessments' with international networks currently in operation.	Sydney Metro note that FRNSW do not support probabilistic risk assessments on the basis that they do not believe adequate data exists to extrapolate incident frequency. Sydney Metro confirm that the model applied follows the principles of other international railways that have successfully completed similar undertakings in recent years. Further to the above, Sydney Metro confirm the data applied prudently in the model is drawn from national and international railways with similar characteristic as part of our sensitivity testing to account for uncertainties and has been validated against international experience.
4. Much of the information provided makes reference to the National Fire Protection Association's (NFPA) Standard for Fixed Guideway Transit and Passenger Rail Systems (NFPA 130:2020), and in particular its allowance for tunnel cross-passages being spaced at distances greater than 244m (this distance being the prescribed deemed-to-satisfy solution) where a performance-based solution is used. This performance-based solution relies upon demonstrating that the performance requirements have been achieved using a quantitative risk assessment. As identified above, FRNSW do not support justification of the proposal using an approach that relies upon probabilistic risk-based assessments.	Sydney Metro note that FRNSW do not support the performance based approach, but restate that this is permitted by NFPA 130. Sydney Metro confirm that compliance with NFPA 130 (either prescriptive nor performance based) is not required in order to support the outcomes of the risk assessment. Further, Sydney Metro can confirm that compliance with NFPA 130 would alone not be accepted by Sydney Metro as a suitable demonstration of a safe railway. Guidance advocates several mitigations and a design approach for conventional railways rather than for and not compatible with a modern, GOA4 railway.
5. FRNSW acknowledge that as part of any risk management process there is an element of risk that remains irrespective of the controls and measures that are implemented (i.e. residual risk). Furthermore, it is understood that Sydney Metro as the asset owner must weigh competing risks in a holistic manner and use tools such as cost-benefit analysis to determine the point at which a risk has been adequately managed (i.e. manage risks SFAIRP). This approach is accepted-by and reflected-in relevant legislation which requires operators and designers to develop and implement safety systems and measures SFAIRP. FRNSW consider that the provision of tunnel cross-passages at a spacing of not more than 240m to be a 'reasonably practicable' measure for an asset owner to allow for, given measures provided are intended to support occupant egress and safe and effective firefighter intervention.	Sydney Metro note that FRNSW accept Sydney Metro is responsible for determining the overall safety argument and for accepting residual risk levels. Sydney Metro note that FRNSW believe 240m cross passage spacing is a reasonably practicable measure. Sydney Metro have considered, in detail, the reasonable practicability of 240m cross passage spacing. Following an approved safety assurance process, it has been demonstrated a wider cross passage spacing to be a reasonably practicable measure.

This correspondence provide confirmations intended to conclude the consultation between Sydney Metro and FRNSW related to cross passages spacing.

Furthermore, please be assured that there are many other aspects of tunnel design for future lines and the Metro solution that are being developed and integrated towards operative and safe outcomes and effective emergencies response. Ongoing engagement with FRNSW is sought to ensure these outcomes are incorporated and embodied at these early an influential stages of the projects.

We look forward to continued engagement with FRNSW as a key stakeholder, and as acknowledged during the course of this recent consultation.

Yours sincerely

Oliver Fried
Associate Executive Director – Engineering, Sydney Metro

File ref. no: BFS21/751
Doc. ref. no: D21/83772
Contact: Trent Curtin – Assistant Commissioner Community Safety

Andrew Carruthers
Executive Director Engineering – Sydney Metro
Transport for NSW
Sydney Metro
680 George Street
SYDNEY NSW 2000

By email: Andrew.Carruthers@transport.nsw.gov.au

22 July 2021

Dear Andrew,

Re: Tunnel Cross Passage Spacing

I refer to the correspondence prepared by Sydney Metro dated 30 June 2021 and submitted to Fire and Rescue NSW (FRNSW) by email on 02 July 2021 regarding tunnel cross passage spacing.

The correspondence contains commentary by Sydney Metro in response to items raised by FRNSW in letter D21/28389 dated 05 May 2021 – Response to Tunnel Cross-Passage Spacing Meeting (17 March 2021).

It is noted that the correspondence provides confirmations intended to conclude the consultation between Sydney Metro and FRNSW related to cross passage spacing. FRNSW considers that further consultation is required on this matter, given the implications of increased operational risk on emergency service response. Such issues have not been resolved to the satisfaction of FRNSW in the consultation carried out to date.

FRNSW is currently carrying out further review and consulting with other relevant stakeholders. We will provide additional correspondence to Sydney Metro regarding cross passage spacing in due course.

Fire and Rescue NSW **ABN** 12 593 473 110
Community Safety Directorate
Infrastructure Liaison Unit
Locked Bag 12,
Greenacre NSW 2190
T 02 9742 7434
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www.fire.nsw.gov.au

We thank you for your continued engagement with FRNSW on Sydney Metro projects. Should you require further clarification regarding the above matter, please feel free to contact me on 3(a) [redacted].

Yours sincerely

Trent Curtin
Assistant Commissioner
Community Safety
Fire and Rescue NSW

CC: Oliver Fried
Oliver.Fried@transport.nsw.gov.au

28 July 2021

Superintendent John Hawes
Fire and Rescue NSW
Amarina Avenue
Greenacre
NSW 2190

Dear John,

Re: FRNSW Comments on Sydney Metro Projects

Sydney Metro have engaged contractors for the design and construction of the City & Southwest Project. These contractors are required by Sydney Metro to consult with FRNSW.

Each of Sydney Metro's contractors has engaged with FRNSW to varying degrees depending on their current stage of design, however the majority of project is approaching the end of the design phase and as such FRNSW consultation on designs is reaching a conclusion.

FRNSW have raised a number of common comments across all contractor designs that relate to matters that are outside the scope of work of those contractors.

In general, the relevant comments can be categorised as follows:

1. Issues relating to rolling stock fires, including the peak heat release rate and the material properties used in computational simulations of train fires;
2. Issues relating to emergency response plans.

As these comments typically sit outside the scope of work of the contractor that is in receipt of the comment, individual contractors have not been able to close out these comments. This correspondence has been prepared to advise FRNSW how these comments are addressed within the project.

Rolling Stock Fire Safety

Sydney Metro City & Southwest is an extension of the already operating Sydney Metro Northwest. The existing rolling stock will run through the City & Southwest sections and new rolling stock will also be procured as part of the project.

Where new rolling stock is procured, the specification with regards to fire performance will be identical to that of the Sydney Metro Northwest project.

Key rolling stock fire safety features include (but is not limited to):

- Smoke and heat detection in the underframe, passenger compartment and roof mounted equipment;
- End-detrainment ramps;
- Passenger help points;
- Portable fire extinguishers;
- Full CCTV coverage;
- PA system;
- Passenger information displays;
- Strict control of train material linings in compliance with international best practice (principally EN45545);
- Restricted fuel load of each carriage to not exceed 10MW when tested to Duggan Method.

Typical FRNSW comments raised relating to rolling stock fire safety include:

- *"The FER should justify the peak fire size of 10 MW. This should consider the potential for fire spread between carriages – FRNSW are yet to see evidence showing that this would not occur for the proposed carriages."*
- *"FRNSW query the fire properties used for the train fires and consider that the values generally appear to be low and unconservative. FRNSW have not been able to obtain a copy of the CSIRO references provided. Further details are required of these. FRNSW also query the statement that the interior materials used within existing NSW rolling stock would be representative of the materials used on Sydney Metro rolling stock. Further demonstration is required of this."*

The basis of design for the Fire and Life Safety Strategy for City & Southwest is the same as that which has been approved and is operational on the Northwest section. Sydney Metro is satisfied that this basis of design for the Northwest project has been reviewed and/or approved by the appropriate parties, including:

- Relevant Authorised Engineering Organisations (AEO);
- Independent Safety Assessor (ISA);
- Independent Certifier (IC);
- Office of National Rail Safety Regulator (ONRSR);
- Crown Certifier.

Similar approvals will be sought for the City & Southwest project.

Sydney Metro is satisfied, as the Rail Transport Operator (defined under Rail Safety National Law), that the basis of design for the City & Southwest Fire and Life Safety Strategy is appropriate as it relates to rolling stock fire safety.

Emergency response plans

As noted above, the City & Southwest project is an extension of the Northwest line. The current Northwest Operator, Metro Trains Sydney (MTS) have been engaged to operate the City & Southwest line also.

Typical FRNSW comments raised relating to emergency response plans include:

- *"FRNSW note that the use of a Rail Emergency Response Unit (RERU) style of fire service to attend emergency incidents along-side FRNSW has not been resolved on the Sydney Metro project."*

- *"The development of the Emergency Response Plan (ERP) is recommended to be undertaken in consultation with the relevant FRNSW local command (with assistance from FRNSW Infrastructure Liaison Unit if necessary)"*

Sydney Metro acknowledges that the emergency response plans for the City & Southwest project have not yet been fully developed. This task is the responsibility of the Operator (MTS) and will occur in due course, with FRNSW consultation as necessary. The design and construction contractors are required by Sydney Metro to provide input into the Operator's emergency response plans.

The development of these emergency response plans must provide, So Far As Is Reasonably Practicable, safe operating procedures for Operator responses to emergencies, which will include liaison with emergency services including FRNSW. These procedures will include such measures necessary to facilitate FRNSW access into the rail corridor. This is not expected to include the provision of a dedicated emergency response unit of equivalent capability to the current Sydney Trains RERU. Sydney Metro notes that the nature of the safety risks on the Northwest and City & Southwest metro railway projects is significantly different to that of the existing Sydney Trains network and that the emergency response plans will therefore be significantly different to those implemented by Sydney Trains.

Sydney Metro is satisfied, as the Rail Transport Operator (defined under Rail Safety National Law), that the development of emergency response plans will occur in due course and that appropriate FRNSW consultation will be undertaken.

Conclusion

As outlined in this correspondence, a number of Sydney Metro's contractors have been unable to close a number of comments raised by FRNSW as the resolution of those comments fall outside each contractor's scope of work.

In each case described in this letter, Sydney Metro is satisfied, according our obligations under Rail Safety National Law, that the appropriate assurance and approvals will be in place to support the operational safety case for the railway.

This correspondence seeks to clarify how these comments are addressed within the City & Southwest Project, in order to facilitate the closure of these comments against the contractor designs.

FRNSW's ongoing support to Sydney Metro's projects is greatly appreciated and we look forward to continued engagement as the City & Southwest project progresses.

Yours sincerely

Hugh Lawson
Project Director – Sydney Metro City & Southwest

12th January 2022

Deputy Commissioner - Jeremy Fewtrell
Fire & Rescue NSW
1 Amarina Avenue
Greenacre, NSW 2190

Dear Jeremy,

Re: Sydney Metro Tunnel Cross Passage Spacing

This letter advises Fire & Rescue NSW of Sydney Metro's decision to adopt a maximum cross passage spacing of 500m for all future Sydney Metro Projects. Noting that this does not align with FRNSWs expectations, Sydney Metro wishes to assure FRNSW of our firm commitment to continue to work collaboratively towards a capability focused solution to optimize and enhance emergency response.

You would be aware that Sydney Metro and FRNSW jointly instructed the Crown Solicitor to advise on FRNSW's legal obligations and its potential liability in specific circumstances, both under the Work Health and Safety Act 2013 (WHS Act) and for civil liability claims. The questions posed to the Crown Solicitor reflected that FRNSW's legal obligations principally arise in the context of responding to a fire or other emergency.

As shared, Sydney Metro's legal obligations are broader and cover the entire lifecycle of the infrastructure and to deliver appropriate cost-effective contemporary infrastructure solutions. That is, Sydney Metro's obligations arise in the context of design, construction, operation and maintenance in addition to responding to a fire or other emergency and delivering a solution that is safe SFAIRP. Our agencies are concurrent duty holders to the extent that they each have the capacity to influence and control the safety matters pertaining to emergency incident response in metro rail tunnels. This can best be achieved through a joint approach, aligned, collaborative and funded.

Accordingly, Sydney Metro proposes to engage with FRNSW so that both agencies are in a position to comply with their respective legal obligations, and such that each has the capability to respond effectively to an incident in a metro rail tunnel. With this in mind, Sydney Metro has circulated an outline memorandum of understanding (MoU) to structure, establish and document how the engagement will work. Sydney Metro ask FRNSW to leverage this opportunity, building mutual commitment for the delivery and upkeep of the solution(s).

We offer our expertise and systems approach, complemented by FRNSWs emergency response expertise for a shared journey to deliver world class solutions together. We are also open to support necessary funding of resources.

Sydney Metro looks forward to and are committed to continued collaboration with FRNSW to deliver a solution which uplifts emergency response capability. I ask that we engage together early this year to agree the MoU, accelerate our dialogue, and drive solutions into the specifications for the current portfolio of Sydney Metro projects.

Please feel free to contact me at any time to discuss.

Yours sincerely,

Tim Parker
Executive Director - Projects
Projects Division
Sydney Metro
Transport for NSW
M: 0400 808 501

File ref. no: BFS21/751
Doc. ref. no: D21/123554
Contact: Chief Superintendent Wayne Phillips

Tim Parker
Executive Director - Projects
Sydney Metro
Level 43, 680 George Street
Sydney NSW 2000

By email: Tim.Parker@transport.nsw.gov.au

18 January 2022

Dear Tim

Re: Proposed increase of tunnel cross-passage spacing on Sydney Metro projects

I refer to the ongoing consultation between Fire and Rescue NSW (FRNSW) and Sydney Metro (SM) regarding the proposed increase of tunnel cross-passage spacing from a maximum of 240 metres to a maximum of 500 metres.

I note in your letter to Deputy Commissioner Fewtrell dated 12 January 2022 that we have not been able to agree an outcome on this issue and that Sydney Metro are proposing to proceed with the increase spacing of cross-passage tunnels on all future projects despite the lack of agreement on adequate fire and life safety systems.

FRNSW understands the potential cost savings that Sydney Metro are pursuing. However, we have not yet been satisfied by the information provided by Sydney Metro during our extensive consultation process that the fire and life safety performance solutions required to extend the spacing of cross-passage tunnels have been adequately addressed. On that basis FRNSW cannot support the proposed change from the currently agreed practise of spacing cross-passage tunnels at a maximum of 240 metres as provided by Australian Standard 4825-2011 Tunnel Fire Safety.

I understand that SM have considered the proposed tunnel cross-passage spacing increase to be adequately justified based on the following factors:

- A comprehensive safety assurance process has been undertaken by SM.
- Improved safety will be achieved through better management of risk, technological developments, and a high degree of automation.
- Reference codes and standards (e.g., *AS 4825-2011 Tunnel Fire Safety*) that have historically been relied upon to inform the Scope of Work and Technical Criteria (SWTC) do not account for new and improved safety systems and additional redundancies proposed in the future SM network.
- SM have adopted a performance-based design approach that does not necessitate compliance with the prescriptive requirements of these standards.
- International reference codes and standards allow for tunnel cross-passages to be located at a spacing of 500m (subject to the use of performance-based solutions).
- Contemporary examples exist internationally that have adopted tunnel cross-passages at spacings of 500m.
- SM are required to consider and assess risks holistically not just those applicable to the fire and life safety aspects of a project and need to be considered as part of the overall cost-benefit of the project.
- SM consider that applicable legislative requirements are adequately addressed with reference to managing risk *so far as is reasonably practicable* (SFAIRP).
- SM fire and life safety assessments and analysis acceptance criteria have recognised that FRNSW response and intervention cannot be achieved for cross-passage spacings greater than 240 metres.
- The SM risk assessment has determined potential life and property losses acceptable despite FRNSW and other response agencies being unable to intervene in the event of an emergency.
- The cost benefit analysis undertaken by SM determines that the cost savings of extending cross-passage tunnels to the 500 metre configuration will be financially beneficial when compared to the potential loss of life and economic disruption in the unlikely event of an emergency in the tunnel.

FRNSW agrees with SM's risk assessment that the introduction of 500 metre cross-passage tunnel spacings will mean that FRNSW and other emergency services will not be able to intervene in the event of a fire or other emergency within the proposed SM tunnels.

FRNSW acknowledges and understands the reasons provided by SM to support this proposal. FRNSW does not agree with Sydney Metro that it is acceptable to create a subterranean environment where emergency services are unable to intervene in the event of an emergency however unlikely.

Fire and Rescue NSW has a responsibility to our firefighters to ensure their safety in the event of a fire or other emergency. Sydney Metro has responsibility not to create unacceptable risks to the community and to emergency responders in the event of a fire or other emergency. That responsibility extends through the design, construction, and full operational lifecycle of the proposed projects.

Under the *Fire and Rescue NSW Act 1989* (the Act) specific functions and duties are required to be performed by the Fire and Rescue NSW Commissioner. Section 5A of the Act requires the Commissioner "to take all practicable measures for preventing and extinguishing fires and protecting and saving life and property" within a fire district.

Further, as a person (entity) conducting a business or undertaking (PCBU) under Work Health and Safety (WHS) legislation, FRNSW has a duty of care to provide a safe workplace and to prepare its staff for foreseeable emergency incidents. FRNSW is required to take WHS considerations into account when assessing infrastructure designs and operating protocols to assess how they may impact on the health and safety of staff responding to fires and other emergencies. FRNSW believes that this duty of care extends to SM when developing technical specifications for upcoming projects.

FRNSW considers that the proposed increase in cross-passage tunnel spacings without adequate mitigating performance solutions introduces unacceptable health and safety risks to firefighters and other emergency responders. It is our assessment that FRNSW and other emergency services in NSW do not currently and will not foreseeably have the capability or the capacity in outer suburban Sydney to provide safe intervention in SM tunnels where the cross-passage spacing is greater than 240 metres.

This additional risk needs to otherwise be addressed by the introduction of adequate risk controls and performance solutions. SM have not yet been able to satisfy FRNSW during our extensive consultation how these risks will be mitigated and how intervention could safely occur in the event of a fire or other emergency. FRNSW cannot otherwise support the introduction of this additional risk to the community and to emergency responders.

Provision for safe evacuation of occupants and intervention by emergency responders needs to be adequately provided for in the Scope of Work and Technical Criteria (SWTC) and Fire Engineering Report (FER) for each project rather than a separate non-binding Memorandum of Understanding or similar as is currently being proposed by Sydney Metro.

FRNSW have confirmed during our consultation that intervention during a fire or other emergency in a SM tunnel will be limited by a response agency's capability and capacity, intervention and evacuation strategies, and provision of adequate fire and life safety measures (engineering controls) to support those strategies. Cross-passage tunnel spacings and distances between intervention points are important engineering controls that support safe evacuation and safe intervention during a tunnel emergency.

The challenges faced by emergency responders in subterranean infrastructure have been further exacerbated by gradual deletion of other important control measures previously deemed necessary for fire and life safety. One important example is the reduction of trained staff to assist with evacuation and directing fire brigade resources. Deletion or reduction in the performance of these controls further increases reliance on emergency responder intervention.

Cross-passage tunnel spacings at 500 metres, when compounded by the large extended distances between above-ground intervention points being proposed by SM of up to 4.62 kilometres, extends beyond the existing and foreseeable capability and capacity of emergency responders.

I also further note that FRNSW and SM have not agreed on a formalised strategy for achieving safe and adequate intervention to a fire or other emergency in SM tunnels with the existing 240 metres cross-passage tunnel spacings. Measures previously relied upon in gaining FRNSW's support for fire engineering reports, evacuation, and intervention strategies, including the provision of Rail Emergency Response Unit type services, have not been implemented. Other control strategies, including track trolleys or similar have subsequently realised to be unsuitable for effective firefighter intervention or have been inadequately maintained. Correspondence submitted to SM relating to these matters has not yet been adequately addressed increasing the fire and life safety risks in existing infrastructure.

In consideration of the extended consultation undertaken between FRNSW and SM on this single issue (outlined for your reference below in Attachment A) and following a comprehensive internal review of existing and foreseeable capability and capacity in response to SM's proposal to date, I confirm again that FRNSW cannot support the proposed increase in tunnel cross-passage spacing to 500 metres due to the unacceptable increase in fire and life safety risk generated by the proposal.

FRNSW welcomes the opportunity to further review proposals from SM that will mitigate the risk of emergency responders not being able to intervene in the event of an emergency. If you have any further queries regarding this matter, please feel free to continue to liaise with Chief Superintendent Wayne Phillips (wayne.phillips@fire.nsw.gov.au).

Yours sincerely

Trent Curtin
Acting Deputy Commissioner
Field Operations

CC – Tunnel cross-passage spacing workshop participants (September 2021):

Andrew Webb
Office of the National Rail Safety Regulator
andrew.webb@onrsr.com.au

Dean Selby
SafeWork NSW
dean.selby@safework.nsw.gov.au

Attachment A - Summary of Consultation to date

The following consultation between FRNSW and Sydney Metro has been undertaken in relation to this specific matter:

December 2019	*Sydney Metro Tunnel and Fire Life Safety Industry Briefing* presentation (Peter Littlejohns, TfNSW).
May 2020	*SMW Train evacuation in Tunnel due to train disabling fire safety risk assessment* report (SM document reference SMWSDDS-SMD-SWD-EN-REP-002157).
September 2020	*Tunnelling Evacuation Strategy Risk Assessment Briefing* and *Evacuation and Cross passage Spacing Workshop* (Claudia Bertini, TfNSW).
March 2021	*Cross Passage Spacing, FRNSW Consultation* presentation (Andrew Addinsell, SM).
May 2021	FRNSW response letter (Superintendent John Hawes, FRNSW).
June 2021	SM response letter (Oliver Fried, SM).
July 2021	FRNSW response letter (Assistant Commissioner Trent Curtin, FRNSW).
August 2021	*SMW and SMWSA Cross Passage Extension Risk Assessment Report* (SM document reference SMEDS-SMD-1NL-SF-REP-014001).
September 2021	SM presentation of *SMW and SMWSA Cross Passage Extension Risk Assessment Report* (Oliver Fried, SM)
November 2021	FRNSW and SM joint leadership tunnel walk through (Pitt St. Station to Martin Place Station).

SM and FRNSW executives met weekly between September 2021 and December 2021 to continue the ongoing discussion and consultation in relation to cross-passage tunnel spacings and to assist SM in developing additional performance solutions to resolve outstanding issues.

FRNSW and Sydney Metro senior executive meetings took place on 6 December and 21 December 2021 to further address and attempt to resolve this matter.

17 March 2022

Deputy Commissioner Jeremy Fewtrell
Fire & Rescue NSW
1 Amarina Avenue
Greenacre, NSW 2190

By email: Jeremy.Fewtrell@fire.nsw.gov.au

Dear Jeremy

Sydney Metro Tunnel Cross Passage Spacing

In your absence, I thank you for the letter from Trent Curtin dated 18 January 2022, responding to my letter of 12 January 2022.

Sydney Metro has briefed FRNSW in detail on the design features and functionality that achieve appropriate safety outcomes in relation to Sydney Metro tunnels. I note that your correspondence includes statements that are inconsistent with Sydney Metro's briefings to FRNSW. I have addressed the statements in detail in Attachment A.

I would like to re-emphasise that the Sydney Metro network achieves a level of fire and life safety that is comparable to international best practice and that significantly exceeds the level of fire safety provided in any locally provided rail tunnel environment.

In addition, the level of safety provided far exceeds that of the minimum standards provided by any local or international prescriptive code or standard. Sydney Metro (and other modern metros) have substantially uplifted the level of life safety systems and functions specifically to support the staffing model of an automated railway. The measures provided by Sydney Metro deliver a level of safety hitherto unseen on any underground railway in Australia.

Sydney Metro's rail system has been designed to reduce the likelihood of an incident requiring a response into a metro tunnel by an agency such as FRNSW. In the event such a response is required, the metro system is also designed to extend the capability of those responding and to minimise the number of personnel required to safely undertake such a response. That is, the system has been engineered to be significantly less reliant on manual intervention than traditional rail systems. This approach is consistent with the primary duty under the safety legislation by applying the hierarchy of controls: the design preference is for engineering controls (functional and process) rather than administrative controls (staff actions).

If Sydney Metro were to construct a network that complied only with minimum fire safety standards (in accordance with the deemed-to-comply standard including the historical 240m cross-passage spacing), such a design would not ensure safety so far as is reasonably practicable. For this reason, Sydney Metro has designed a metro system with a higher standard of safety and at greater expense. Sydney Metro has assessed that there is negligible difference in safety outcomes between cross-passage spacing of 240 metres compared with maximum spacing of 500m. On the other hand, building a larger number of cross-passages by adopting the shorter spacing significantly increases the exposure of construction workers to fatal risk activities, to respirable crystalline silica and to occupational noise.

I note that through Sydney Metro's consultation, FRNSW has identified significant capability challenges associated with metro tunnel access. We understand from the feedback we have received that the key issue is the access distance to the incident, noting that there are relatively long distances, up to 4km between station access points in some areas. We understand this is more significant than the spacing between cross passages. We also believe there are a number of operational solutions available to transport firefighters to a location close to the incident via the unaffected tunnel, including, for example, using an evacuated metro train from an adjacent station and/or a separate electric powered vehicle. The system has been designed with sufficient redundancy including, for example, that in many emergency situations, a train will be able to continue running to the next station, where passengers can evacuate at much reduced risk to their safety, and entirely avoiding the need for an emergency response in a tunnel. Where this is not possible, the system preferentially stops trains so that an end-carriage exit is adjacent to a cross-passage.

The draft MoU seeks to provide a framework for both agencies to proactively contribute to developing the necessary capability and solutions (including additional requirements in the SWTC and FER as necessary). Sydney Metro is also participating in preliminary discussions about a broader MoU with the Transport cluster and is keen to finalise the MoU on Tunnel incident preparation and response to avoid any delay.

Sydney Metro has informed FRNSW that it has decided to adopt cross-passage spacing of 500 metres. Regardless of cross passage spacing, we recognise there is a need to develop a response capability for emergencies in metro tunnels particularly as the network continues to expand. Accordingly, Sydney Metro seeks to actively engage in ongoing consultation with FRNSW so our respective agencies can each satisfy themselves that we are both fulfilling our concurrent safety duties. Sydney Metro sees FRNSW's positive contribution of its expertise and experience as an important and essential part of this process.

Under our rail safety obligations Sydney Metro has a duty, so far as is reasonably practicable, to consult, co-operate and co-ordinate activities with other duty holders. We believe to date that the consultation with FRNSW has been positive and informative. Accordingly, we would very much like to continue the engagement with FRNSW to work through the areas of concern.

As part of this ongoing work, we are proposing that Sydney Metro engages a suitably qualified person/organisation to develop appropriate incident response procedures and

advise on appropriate response approaches. Sydney Metro will use the advice to inform decisions about emergency response capability and necessary equipment. Ideally, Sydney Metro would do this in conjunction with FRNSW and share the advice with FRNSW, to assist its response to any incident in a metro tunnel – in accordance with its statutory functions within any fire district.

Sydney Metro is committed to working with FRNSW to develop its capability to meet any demands particular to the Metro system. To this end, we would really appreciate receiving your feedback on the draft Memorandum of Understanding.

Please feel free to contact me at any time to discuss.

Yours sincerely,

Tim Parker
Executive Director - Projects
Projects Division
Sydney Metro
M: 0400 808 501

Attachment A – Sydney Metro response to statements in FRNSW letter

Note 1: Sydney Metro has sorted the statements in the 18 January 2022 letter into three groups:

1. Restatements of Sydney Metro's safety approach
2. Misunderstandings of information provided by Sydney Metro
3. Statements contrary to information provided by Sydney Metro

A separate table for each group follows below Note 2. Row numbers in the tables are references to paragraphs in the 18 January 2022 letter from FRNSW to Sydney Metro.

Note 2: The documents referred to in the reference column of tables 2 and 3 were provided to FRNSW on the date indicated:

Document	Provided to FRNSW
1. Presentation by Sydney Metro – Cross Passage Spacing – March 2021 [**March Presentation**]	March 2021
2. SMW and SMWSA Cross Passage Extension Risk Assessment Report – April 2021 [**Risk Report**], including, Sydney Metro Residual Risk Analysis (undated)	24 Aug 2021
AND, as explicitly requested by FRNSW, reference documents 19 and 20 listed in Appendix 1 of the Risk Report: a. [19] ARUP, "SMWSASBTConcept Design Value Enhancements –VE No. 21 Removal of elevated side walkway in tunnel section –Fire risk assessment," ARUP, 2020. b. [20] CCM, "Sydney Metro West - Scoping & Definition Design Services, Fire & Life Safety Brief," CCM, Sydney, 2020	6 Oct 2021
3. SM letter to FRNSW 27 Aug 2021[**August letter**], enclosing Quantitative Risk Assessment [**QRA**]	27 Aug 2021
4. Presentation by Sydney Metro – FRNSW workshop – 29 Sept 2021 [**September Presentation**]	29 Sept 2021
5. Minutes of 29 September 2021 workshop [**Minutes**]	14 Oct 2021
6. Draft Memorandum of Understanding – consultation and engagement between Sydney Metro and FRNSW [**Draft MoU**]	16 Nov 2021
7. SM Letter to FRNSW 12 Jan 2022 [**January Letter**]	12 Jan 2022

Attachment A – Sydney Metro response to statements in FRNSW letter

A.1 Restatements of Sydney Metro's safety approach

Sydney Metro notes that FRNSW has restated the information provided by Sydney Metro in the Risk Report and summarised in the March Presentation.

	FRNSW Correspondence	Sydney Metro observation – restatements of Sydney Metro approach	Reference
3	A comprehensive safety assurance process has been undertaken by SM.		• March Presentation • Risk Report • August Letter and QRA • September Presentation • Minutes
4	Improved safety will be achieved through better management of risk, technological developments, and a high degree of automation.		• March Presentation • Risk Report • August Letter and QRA • September Presentation • Minutes
5	Reference codes and standards (e.g., AS 4825-2011 Tunnel Fire Safety) that have historically been relied upon to inform the Scope of Work and Technical Criteria (SWTC) do not account for new and improved safety systems and additional redundancies proposed in the future SM network.		• March Presentation • Risk Report • August Letter and QRA • September Presentation • Minutes
6	SM have adopted a performance-based design approach that does not necessitate compliance with the prescriptive requirements of these standards.	Sydney Metro notes that compliance with prescriptive "deemed-to-comply" solutions would deliver only a minimum level of safety. Sydney Metro notes the deemed to comply standard specifies historical 240m cross-passage spacing.	• March Presentation • Risk Report • August Letter and QRA • September Presentation • Minutes

Attachment A – Sydney Metro response to statements in FRNSW letter

	FRNSW Correspondence	Sydney Metro observation – restatements of Sydney Metro approach	Reference
7	International reference codes and standards allow for tunnel cross-passages to be located at a spacing of 500m (subject to the use of performance-based solutions).	FRNSW acknowledges the performance-based approach as the basis for adopting 500m XP spacing.	• March Presentation • Risk Report • August Letter and QRA • September Presentation • Minutes
8	Contemporary examples exist internationally that have adopted tunnel cross-passages at spacings of 500m.	FRNSW acknowledges the performance-based approach as the basis for adopting 500m XP spacing.	• March Presentation • Risk Report • August Letter and QRA • September Presentation • Minutes
9	SM are required to consider and assess risks holistically not just those applicable to the fire and life safety aspects of a project and need to be considered as part of the overall cost-benefit of the project.	March Presentation Risk Report September Presentation	• March Presentation • Risk Report • August Letter and QRA • September Presentation • Minutes
10	SM consider that applicable legislative requirements are adequately addressed with reference to managing risk so far as is reasonably practicable (SFAIRP).		• March Presentation • Risk Report • August Letter and QRA • September Presentation • Minutes

A.2 Misunderstandings of information provided by Sydney Metro

	FRNSW Correspondence	Sydney Metro observation – misunderstandings	Reference
11	SM fire and life safety assessments and analysis acceptance criteria have recognised that FRNSW response and intervention cannot be achieved for cross-passage spacings greater than 240 metres.	FRNSW has indicated that it may not have the capability to intervene even with 240m XP spacing.	Feedback provided by FRNSW during 29 Sept 2021 workshop.

Attachment A – Sydney Metro response to statements in FRNSW letter

	FRNSW Correspondence	Sydney Metro observation – misunderstandings	Reference
		FRNSW advised distances in the order of 80 or 90m or greater, exceed its safe practices (depth of penetration), but has also verbally indicated greater XP spacing (up to 300m) as workable. Sydney Metro notes that Metro trains are up to 155 metres long.	
12	The SM risk assessment has determined potential life and property losses acceptable despite FRNSW and other response agencies being unable to intervene in the event of an emergency.	Sydney Metro does not consider that any life and property losses are acceptable. FRNSW's statement fails to acknowledge Sydney Metro's treatment of these risks, including the system features and functions included in the metro. Sydney Metro has determined that it has addressed the risk of life and property losses, so far as is reasonably practicable (SFAIRP), before taking account of FRNSW's response capability. The Sydney Metro risk assessment recognises the layers of protection in the design. FRNSW advised distances above 80 or 90m exceed its safe practices (depth of penetration) but has also indicated 300m as workable. The Sydney Metro solution is inherently safer than conventional underground railway solutions. Any FRNSW intervention / emergency response is additional to the measures in place to achieve safe SFAIRP outcomes.	• March Presentation • Risk Report • Addendum to Risk Report
15	FRNSW acknowledges and understands the reasons provided by SM to support this proposal. FRNSW does not agree with Sydney Metro that it is acceptable to create a subterranean environment where emergency services are unable to intervene in the event of an emergency however unlikely.	Sydney Metro is not providing a subterranean environment where emergency services cannot intervene. Rather, Sydney Metro is providing an environment where emergency services are less likely to be placed at risk by requiring they intervene. Sydney Metro is providing a world class metro with systems and functionality that protect passengers and emergency services from the potential effects of a fire.	• March presentation • Risk Report

Attachment A – Sydney Metro response to statements in FRNSW letter

	FRNSW Correspondence	Sydney Metro observation – misunderstandings	Reference
		Lives are often at greatest risk from fire when process and system failures have a compounding effect. FRNSW's statement fails to recognise that both Sydney Metro and FRNSW have obligations to assess the emergency response risk in advance and to develop and implement measures to address them. ~~there are many such environments and circumstances (not just in Sydney Metro tunnels with 500m XP spacing)~~. Sydney Metro acknowledges FRNSW's concerns regarding metro tunnel environment and circumstances that may exceed their current capability. Sydney Metro has offered support to FRNSW to better understand this and to develop their capability. Sydney Metro is satisfied that it has address the risk of loss of life SFAIRP.	
16	Fire and Rescue NSW has a responsibility to our firefighters to ensure their safety in the event of a fire or other emergency. Sydney Metro has responsibility not to create unacceptable risks to the community and to emergency responders in the event of a fire or other emergency. That responsibility extends through the design, construction, and full operational lifecycle of the proposed projects.	Sydney Metro acknowledges its responsibilities including for the community and for emergency services responders, by amongst other things reducing its risks to safe SFAIRP. Sydney Metro's obligations arise under the *Work Health and Safety Act 2013* (WHS Act), the *Rail Safety National Law* (RSNL), the *Passenger Transport Act 1990* (PT Act 1990), the *Passenger Transport Act 2014* (PT Act 2014) and the Transport Administration Act 1988 (TAA). Sydney Metro has offered to support FRNSW to fulfill its responsibilities to firefighters and the wider community, in order that FRNSW may meet its obligations under the *Fire and Rescue NSW Act 1989* (FRNSW Act). An important part of FRNSW's safety obligations is to identify operational steps it should take in order to safely respond to an emergency incident in a metro tunnel. XP spacing at 500m has been demonstrated not to introduce risks that are unacceptable under the applicable legislation, codes or standards.	• March Presentation • Risk Report • September Presentation

Attachment A – Sydney Metro response to statements in FRNSW letter

	FRNSW Correspondence	Sydney Metro observation – misunderstandings	Reference
		Sydney Metro is required to support FRNSW under the SERM Act, EMPLAN & subplans. The draft Memorandum of Understanding is intended to record the way Sydney Metro and FRNSW will engage to fulfil their obligations as concurrent duty holders.	
17	Under the Fire and Rescue NSW Act 1989 (the Act) specific functions and duties are required to be performed by the Fire and Rescue NSW Commissioner. Section 5A of the Act requires the Commissioner "to take all practicable measures for preventing and extinguishing fires and protecting and saving life and property" within a fire district.	An important part of FRNSW's obligations is to identify operational steps it should take in order to safely respond to an emergency incident in a metro tunnel. Sydney Metro notes that the introduction of 500m XP spacing does not inherently prevent FRNSW from meeting its obligations under the FRNSW Act. Noting FRNSW has identified Section 5A of the FRNSW Act, Sydney Metro has offered to jointly develop a capability solution.	
18	Further, as a person (entity) conducting a business or undertaking (PCBU) under Work Health and Safety (WHS) legislation, FRNSW has a duty of care to provide a safe workplace and to prepare its staff for foreseeable emergency incidents. FRNSW is required to take WHS considerations into account when assessing infrastructure designs and operating protocols to assess how they may impact on the health and safety of staff responding to fires and other emergencies. FRNSW believes that this duty of care extends to SM when developing technical specifications for upcoming projects.	Sydney Metro acknowledges its obligations under WHS legislation – these are explicitly addressed in delivery of our assets across the full lifecycle (design, construction, commissioning, operation, maintenance and incident response). Sydney Metro acknowledges FRNSW's role in assessing infrastructure designs and operating protocols. Sydney Metro is committed to ongoing engagement with FRNSW in the review of Sydney Metro assets as they progress through design, construction and into operation. Sydney Metro is including extensive design provisions which improve intervention opportunities and proactively address safety risks to emergency responders. These include tunnel ventilation and smoke extraction, low level XPs, a walkable track-bed, better lighting, signage, smoke separation between tunnel and stations, a track level mobilisation room, optimised train control to ferry emergency services and passengers, extensive CCTV monitoring and communications coverage.	• SM letter to FRNSW 30 June 2021

Attachment A – Sydney Metro response to statements in FRNSW letter

	FRNSW Correspondence	Sydney Metro observation – misunderstandings	Reference
		An important part of FRNSW's safety obligations is to identify operational steps it should take in order to safely respond to an emergency incident in a metro tunnel.	
19	FRNSW considers that the proposed increase in cross-passage tunnel spacings without adequate mitigating performance solutions introduces unacceptable health and safety risks to firefighters and other emergency responders. It is our assessment that FRNSW and other emergency services in NSW do not currently and will not foreseeably have the capability or the capacity in outer suburban Sydney to provide safe intervention in SM tunnels where the cross-passage spacing is greater than 240 metres.	Sydney Metro's risk assessment has already determined that adequate mitigations are in place and that unacceptable health and safety risks are not introduced. The "mitigating performance solutions" designed into the metro are extensive and have been covered in detail during Sydney Metro's briefings to FRNSW. Sydney Metro is including extensive design provisions which improve intervention opportunities and proactively address safety risks to emergency responders. These include tunnel ventilation and smoke extraction, low level XPs, a walkable track-bed, better lighting, signage, smoke separation between tunnel and stations, a track level mobilisation room, optimised train control to ferry emergency services and passengers, extensive CCTV monitoring and communications coverage. Sydney Metro has committed to supporting FRNSW to develop the necessary capability for responding to an emergency in a metro tunnel. Sydney Metro is required to support FRNSW under the SERM Act, EMPLAN & subplans. The draft Memorandum of Understanding is intended to record the way Sydney Metro and FRNSW will engage to fulfil their obligations as concurrent duty holders.	• March Presentation • Risk Report • September Presentation
20	This additional risk needs to otherwise be addressed by the introduction of adequate risk controls and performance solutions. SM have not yet been able to satisfy FRNSW during our extensive consultation how these risks will be mitigated and how intervention could safely occur in the	Adequate controls to reduce risk SFAIRP have already been identified and are implemented for Sydney Metro projects through specified solutions which are being contracted and designed. Sydney Metro acknowledge that further work with FRNSW may be beneficial to optimise their capability and note that there are provisions within the Sydney Metro designs to provide additional	• March Presentation • Risk Report • September Presentation

Attachment A – Sydney Metro response to statements in FRNSW letter

	FRNSW Correspondence	Sydney Metro observation – misunderstandings	Reference
	event of a fire or other emergency. FRNSW cannot otherwise support the introduction of this additional risk to the community and to emergency responders.	tools and equipment as may be necessary to further enhance FRNSW's capability. Sydney Metro needs FRNSW to actively engage in the consultation towards development of specific scenarios or solutions. Sydney Metro would welcome comment on the provisions being made, or specific operational needs. Sydney Metro acknowledge that cross passages support safe evacuation and intervention. However Sydney Metro has determined that their influence on safe outcomes is much reduced in the context of a modern, fully automated railway with the many fire and life safety systems and functions as provisioned. Historical comparison to railways designed and constructed prior to and without these features and functions has little relevance. Historically, 240m cross passage spacing reflected the deemed-to-comply requirements of the North American standard.	
25	I also further note that FRNSW and SM have not agreed on a formalised strategy for achieving safe and adequate intervention to a fire or other emergency in SM tunnels with the existing 240 metres cross-passage tunnel spacings. Measures previously relied upon in gaining FRNSW's support for fire engineering reports, evacuation, and intervention strategies, including the provision of Rail Emergency Response Unit type services, have not been implemented. Other control strategies, including track trolleys or similar have subsequently realised to be	Sydney Metro understands that FRNSW are in consultation with Metro Trains Sydney Pty Ltd (MTS), the operator of the Sydney Metro Northwest line, regarding incident response arrangements. It is the responsibility of the contracted operator to implement any necessary provisions on future Sydney Metro lines. Sydney Metro notes that the Rail Emergency Response Unit (RERU) is a unit of Sydney Trains, which is a fundamentally different railway operator. The functions of RERU are understood to be specific to the nature of the railway that Sydney Trains operates. At this early stage, there is opportunity to influence the fire and life safety requirements in conjunction with FRNSW.	• March Presentation • Risk Report • September Presentation • Minutes

Attachment A – Sydney Metro response to statements in FRNSW letter

	FRNSW Correspondence	Sydney Metro observation – misunderstandings	Reference
	unsuitable for effective firefighter intervention or have been inadequately maintained. Correspondence submitted to SM relating to these matters has not yet been adequately addressed increasing the fire and life safety risks in existing infrastructure.	The draft MoU aims to document the consultation arrangements between Sydney Metro and FRNSW so that the response protocols are settled in advance of future metro lines are operational. Sydney Metro is open to considering with FRNSW whether the draft MoU could address the Sydney Metro Northwest line.	
27	FRNSW welcomes the opportunity to further review proposals from SM that will mitigate the risk of emergency responders not being able to intervene in the event of an emergency. If you have any further queries regarding this matter, please feel free to continue to liaise with Chief Superintendent Wayne Phillips (wayne.phillips@fire.nsw.gov.au).	FRNSW has a statutory obligation to respond to emergency incidents in metro tunnels and in doing so, it must also meet its obligations under the WHS Act and FRNSW Act. An important part of FRNSW's safety obligations is to identify operational steps it should take in order to safely respond to an emergency incident in a metro tunnel. Accordingly, these obligations extend to FRNSW proactively contributing to the process for developing measures for emergency response in metro tunnels. To these ends, Sydney Metro has provided a framework for ongoing consultation (the draft MoU) and has shared extensive design and risk materials and has briefed FRNSW. Other than FRNSW's 18 January letter, there has been no feedback.	

A.3 Statements contrary to information provided by Sydney Metro

	FRNSW Correspondence	Sydney Metro observation – misunderstandings	Reference
1	FRNSW understands the potential cost savings that Sydney Metro are pursuing. However, we have not yet been satisfied by the information provided by Sydney Metro during our extensive consultation process that the fire and life safety performance solutions required to extend the spacing of cross-passage tunnels have	Sydney Metro has invested extensively in the overall safety solution. While there are some cost savings associated with building fewer XPs, this is a subsidiary factor – there is significant risk associated with construction, including respirable crystalline silica and general construction hazards including occupational noise exposure. These risks, along with costs, are considerations in determining what is reasonably practicable to ensure safety. In this case, Sydney Metro has satisfied itself that the cost of additional XPs is grossly	• March Presentation • Risk Report • September Presentation • Minutes

Attachment A – Sydney Metro response to statements in FRNSW letter

	FRNSW Correspondence	Sydney Metro observation – misunderstandings	Reference
	been adequately addressed. On that basis FRNSW cannot support the proposed change from the currently agreed practise of spacing cross-passage tunnels at a maximum of 240 metres as provided by Australian Standard 4825-2011 Tunnel Fire Safety.	disproportionate to their safety benefit, and the construction safety risks significantly exceed the operational safety benefit once built. FRNSW states it "is not yet … satisfied the fire and life safety standards … have been adequately addressed…" (Sydney Metro understands this to be a reference to risks, rather than standards). This statement fails to acknowledge Sydney Metro's treatment of these risks, including the system features and functions included in the metro. Sydney Metro has satisfied itself that the risks of life and property losses have been addressed so far as is reasonably practicable (SFAIRP), without taking account of FRNSW's response capability. The Sydney Metro risk assessment recognises the layers of protection in the design. AS4825-2011 doesn't stipulate cross passage spacing. It allows a performance-based approach and our risk assessment demonstrates the design (with 500m XP spacing) complies. Sydney Metro notes that a deemed-to-comply approach results in a lower level of safety – it reflects a minimum level of safety which Sydney Metro's chosen design far exceeds. Sydney Metro notes, in respect of the 240m SP spacing referred to, that FRNSW has advised distances above 80 or 90m exceed its safe practices (depth of penetration) but has also indicated 300m as workable. Sydney Metro notes it has already formally advised FRNSW that 500m XP spacing will be implemented – this spacing is no longer a proposal. Sydney Metro is including extensive design provisions which improve intervention opportunities and proactively address safety risks to emergency responders. These include tunnel ventilation and smoke	

Attachment A – Sydney Metro response to statements in FRNSW letter

	FRNSW Correspondence	Sydney Metro observation – misunderstandings	Reference
		extraction, low level XPs, a walkable track-bed, better lighting, signage, smoke separation between tunnel and stations, a track level mobilisation room, optimised train control to ferry emergency services and passengers, extensive CCTV monitoring and communications coverage. The Sydney Metro solution is inherently safer than conventional underground railway solutions. Any FRNSW intervention / emergency response is additional to the measures in place to achieve safe SFAIRP outcomes.	
2	I understand that SM have considered the proposed tunnel cross-passage spacing increase to be adequately justified based on the following factors:	Sydney Metro notes it has already formally advised FRNSW that 500m XP spacing will be implemented – this spacing is no longer a proposal.	• January letter
13	The cost benefit analysis undertaken by SM determines that the cost savings of extending cross-passage tunnels to the 500 metre configuration will be financially beneficial when compared to the potential loss of life and economic disruption in the unlikely event of an emergency in the tunnel.	Sydney Metro has applied industry recognised methods which show only a minor risk improvement for closer XP spacing (from 500m to 240m) and at disproportionate cost. Cost-Benefit analysis demonstrates that more cross passages do not give a commensurate risk reduction. The 500m solution is well within Sydney Metro and TfNSW risk tolerability targets. Sydney Metro has satisfied itself of this through a quantitative risk assessment. Construction of fewer XPs also reduces construction safety risk, overall project cost and yields shorter delivery duration. FRNSW refers to "economic disruption in the unlikely event of a tunnel emergency". Although not considered specifically in this workstream, by addressing its primary obligation for safety in all phases of the infrastructure lifecycle, Sydney Metro has also addressed potential loss of life and the consequential economic disruption which may result..	• March Presentation • Risk Report • September Presentation • Minutes

Attachment A – Sydney Metro response to statements in FRNSW letter

	FRNSW Correspondence	Sydney Metro observation – misunderstandings	Reference
		There are extensive technical measures that make Sydney Metro resilient, including system redundancy, degraded operating modes, design for earthquakes and flooding, for nefarious acts as well as for fire. It would be difficult to identify any direct correlation between XPs and economic disruption in the event of a tunnel emergency.	
14	FRNSW agrees with SM's risk assessment that the introduction of 500 metre cross-passage tunnel spacings will mean that FRNSW and other emergency services will not be able to intervene in the event of a fire or other emergency within the proposed SM tunnels.	Sydney Metro notes that discussions on intervention solutions relevant to the designed configuration have not yet occurred. Sydney Metro has never stated that FRNSW will not be able to intervene and, on the contrary, has sought to jointly develop capability. Sydney Metro notes it has already formally advised FRNSW that 500m XP spacing will be implemented – this spacing is no longer a proposal. Sydney Metro notes that FRNSW has advised there may be circumstances where FRNSW is unable to effectively intervene for 240m as well as for 500 m XP spacing. Sydney Metro's risk assessment has not taken account of FRNSW's response capability. Emergency response intervention would be an addition to the safe SFAIRP solution being implemented. Events where FRNSW are needed but unable to effectively intervene would require multiple concurrent failures of various fire and life safety systems including those set out below. Sydney Metro's intention behind engaging with FRNSW is to develop protocols for emergency response in tunnels that would provide for all such circumstances as are reasonably foreseeable. Sydney Metro is including extensive design provisions which improve intervention opportunities and proactively address safety risks to emergency responders. These include tunnel ventilation and smoke extraction, low level XPs, a walkable track-bed, better lighting, signage, smoke separation between tunnel and stations, a track level	• March Presentation • Risk Report • September Presentation • Minutes

Attachment A – Sydney Metro response to statements in FRNSW letter

	FRNSW Correspondence	Sydney Metro observation – misunderstandings	Reference
		mobilisation room, optimised train control to ferry emergency services and passengers, extensive CCTV monitoring and communications coverage.	
21	Provision for safe evacuation of occupants and intervention by emergency responders needs to be adequately provided for in the Scope of Work and Technical Criteria (SWTC) and Fire Engineering Report (FER) for each project rather than a separate non-binding Memorandum of Understanding or similar as is currently being proposed by Sydney Metro.	Sydney Metro confirms that all SWTCs (or equivalent) do contain very comprehensive fire safety provisions. FRNSW misunderstands the MOU which will not contain technical specifications. The MOU was provided to FRNSW in draft (on 16 Nov 2021) as a framework for recording arrangements for ongoing consultation and collaboration between FRNSW and Sydney Metro. Sydney Metro notes this will support procurement and progressive engagement throughout detailed design and development of detailed specifications and plans (SWTC, SPR, FER etc).	• March Presentation • September Presentation • Draft MoU
22	FRNSW have confirmed during our consultation that intervention during a fire or other emergency in a SM tunnel will be limited by a response agency's capability and capacity, intervention and evacuation strategies, and provision of adequate fire and life safety measures (engineering controls) to support those strategies. Cross-passage tunnel spacings and distances between intervention points are important engineering controls that support safe evacuation and safe intervention during a tunnel emergency.	Sydney Metro acknowledges that cross passages support safe evacuation and intervention. However, Sydney Metro has determined that their influence on safe outcomes is much reduced in the context of a modern, fully automated railway with the many fire and life safety systems and functions as provisioned. Historical comparison to railways designed and constructed prior to and without these features and functions has little relevance. At that time, 240m cross passage spacing was empirically nominated. For example, in many emergency situations, a train will be able to continue running to the next station, where passengers can evacuate at much reduced risk to their safety, and entirely avoiding the need for an emergency response in a tunnel.	• March Presentation • Risk Report • September Presentation • Minutes
23	The challenges faced by emergency responders in subterranean infrastructure	FRNSW's statement that "challenges … in subterranean … infrastructure have been further exacerbated by gradual deletion of	• March Presentation • Risk Report

Attachment A – Sydney Metro response to statements in FRNSW letter

	FRNSW Correspondence	Sydney Metro observation – misunderstandings	Reference
	have been further exacerbated by gradual deletion of other important control measures previously deemed necessary for fire and life safety. One important example is the reduction of trained staff to assist with evacuation and directing fire brigade resources. Deletion or reduction in the performance of these controls further increases reliance on emergency responder intervention.	other important control measures previously deemed necessary for fire and life" is incorrect. Sydney Metro has briefed FRNSW in detail on the system design which avoids the likelihood of an emergency response in a tunnel even being necessary. To the contrary, Sydney Metro (and other modern metros) have substantially uplifted the level of life safety systems and functions specifically to support the staffing model of an automated railway. In fact, this approach is consistent with the primary duty under the safety legislation by applying the hierarchy of controls: the design preference is for engineering controls (functional and process) rather than administrative controls (staff actions). The measures provided by Sydney Metro deliver a level of safety hitherto unseen on any underground railway in Australia. FRNSW's statements emphasise the need for the development of procedures and scenario playbooks to be developed in advance to assist all involved in emergency response. This is an important aspect of FRNSW's obligations.	• September Presentation • Minutes
24	Cross-passage tunnel spacings at 500 metres, when compounded by the large extended distances between above-ground intervention points being proposed by SM of up to 4.62 kilometres, extends beyond the existing and foreseeable capability and capacity of emergency responders.	Safety outcomes for passengers and first responders do not solely depend upon cross passage spacing or the distance between above-ground intervention points. There are many and various systems and functions in place to deliver safe outcomes. The concurrent failure of multiple systems is unlikely and, in such circumstances, the intervention points and XPs (spaced at 500m) have been demonstrated to provide a level of safety commensurate with the risk. FRNSW has not engaged with the facilities designed into metro tunnels on the West and WSA lines.	• March Presentation • Risk Report • September Presentation • Minutes

Attachment A – Sydney Metro response to statements in FRNSW letter

	FRNSW Correspondence	Sydney Metro observation – misunderstandings	Reference
26	In consideration of the extended consultation undertaken between FRNSW and SM on this single issue (outlined for your reference below in Attachment A) and following a comprehensive internal review of existing and foreseeable capability and capacity in response to SM's proposal to date, I confirm again that FRNSW cannot support the proposed increase in tunnel cross-passage spacing to 500 metres due to the unacceptable increase in fire and life safety risk generated by the proposal.	Sydney Metro notes the "unacceptable increase in fire and life safety risk" is not substantiated and is at odds with the marginal impact assessed by Sydney Metro, the grossly disproportionate cost and that a safe SFAIRP outcome has been demonstrated.	• March Presentation • Risk Report • September Presentation • Minutes

File Ref. No.: FRN22/1
Doc. Ref. No.: G22/219
Your Ref. No.:

Mr Cameron Chesters
Fire Brigade Employees Union
E: cchesters@fbeu.net

11 January 2023

Dear Mr Chesters

Re: Government Information (Public Access) Act 2009 – Notice of Decision

1. Summary of access application

On 16 November 2022, we received your access application under the *Government Information (Public Access) Act 2009* (GIPA Act). You asked for Fire and Rescue NSW (FRNSW) information relating to:

"We kindly request a copy of all correspondence between FRNSW and Sydney Metro over the past 24 months concerning A) Safety risks to firefighters during fire incidents within train tunnels and B) Standards applicable to cross passage tunnel designs for planned rail tunnels in Sydney."

For the period 09/11/2020 to 09/11/2022

2. Processing of application

Under the *GIPA Act*, agencies must conduct reasonable searches for government information requested in an access application. In certain circumstances, they must also consult third persons to see whether they object to the information sought being released.

3. Searches for information

Under the GIPA Act, FRNSW must conduct reasonable searches for the government information you asked for in your application. I have caused to have searches

undertaken of our records to find any information that falls within the scope of your application.

Searches were conducted by the Strategic Capability Business Unit through their current database for the information, using the search parameters of the dates provided, involved entities, and location name. Certain information was identified.

These searches resulted in the location of eleven (11) documents falling within the scope of your application. These documents are fully described and listed in the Schedule of Documents attached to this Notice of Decision.

4. Consultation

The government information to which you seek access includes information requiring consultation under section 54 of the GIPA Act. As part of the information sought by you relates to the business interests of a third party, it has been necessary to consult with that third party to ascertain whether they object to the release of their information.

An objection has been made to part of the release of the information sought, that is, the documents listed at points 1 and 2 of the attached Schedule of Documents, as discussed in further detail in part 6.2 of this Notice.

The third party has also indicated that they have no objection to the release of some of the information in issue, namely the documents listed at points 3, 4, 5, 6, 7, 8, 9, 10, and 11 in the attached Schedule of Documents.

5. Decision

I am authorised by the principal officer, for the purposes of section 9(3) of the GIPA Act, to decide your access application.

I have decided, under section 58(1)(a) of the GIPA Act, to provide access in full to some of the information sought in your access application, namely the documents listed at points 4, 5, 6, 7, 8, 9, 10, and 11 in the attached Schedule of Documents.

I have decided also under section 58(1)(a) to release the document listed at point 3 in the Schedule of Documents *in part*. Parts of the information contained in this document have been deleted pursuant to section 74 of the GIPA Act, due to there being an overriding public interest against the disclosure of that information, as canvassed at part 6 below.

I have also decided under section 58(1)(d) of the GIPA Act, not to provide access to some of the information sought in your access application, namely the documents listed at points 1 and 2 in the attached Schedule of Documents.

This decision is reviewable under section 80(d) of the GIPA Act (see part 9 of this Notice for information about your review rights).

6. Reasons for decision

Under section 9(1) of the GIPA Act, you have a legally enforceable right to access the information you asked for, unless there is an overriding public interest against its disclosure.

To decide whether or not there is an overriding public interest against disclosure of the information you asked for, I applied the public interest test, which is set out in section 13 of the GIPA Act.

I applied the public interest test by:

(a) identifying any public interest considerations in favour of disclosure;
(b) identifying any relevant public interest considerations against disclosure; and
(c) deciding where the balance between them lies.

6.1. Public interest considerations in favour of disclosure

Under section 12(1) of the GIPA Act, there is a general public interest in favour of disclosing government information. Section 12(2) of the GIPA Act sets out some examples of other public interest considerations in favour of disclosure. However, I am not limited to those considerations in deciding your application.

One consideration is that disclosure of the information could reasonably be expected to promote open discussion of public affairs, enhance Government accountability, or contribute to positive and informed debate on issues of public importance. This is a strong consideration in favour of disclosure of the information requested in your application.

6.2. Public interest considerations against disclosure

When applying the public interest test, the only public interest considerations against disclosure that I can take into account are those set out in the table to Section 14 and Schedule 1 of the GIPA Act. To show that they are relevant to the information you asked for, I need to consider whether they could reasonably be expected to have the effect outlined in the table.

s.74 Deletion of information from copy of record to be accessed

An agency can delete information from a copy of a record to which access is to be provided in response to an access application (so as to provide access only to the other information that the record contains) either because the deleted information is not relevant to the information applied for or because (if the deleted information was applied for) the agency has decided to refuse to provide access to that information.

s.14, cl.2 Law enforcement and security

There is a public interest consideration against disclosure of information if disclosure of the information could reasonably be expected to endanger the security of, or

prejudice any system or procedure for protecting, any place, property or vehicle (item 2(e) in the Table).

Further, there is also a reasonable expectation that disclosure of the information could facilitate the commission of a criminal act (including a terrorism act within the meaning of the *Terrorism (Police Powers) Act 2002)* (item 2(f) in the Table).

These identified items were prepared for the purpose of ensuring commuter safety in the case of fire-related incidents on the Sydney Metro West and Sydney Metro – Western Sydney Airport projects. The documents contain details of how these incidents would be managed with the inclusion of evacuation strategies, fire engineering design elements, locations of operations control centres and their back-up counterparts.

Disclosing this information would place the safety of Sydney Metro's customers, NSW commuters, at high risk. Those with malicious intent would be able to gather details of our future projects' fire security plans and processes from these reports.

s.14, cl.3 Individual rights, judicial process and natural justice

There is a public interest consideration against disclosure of information if disclosure of the information could reasonably be expected to reveal an individual's personal information (item 3(a) in the table).

Within the information you are seeking is the personal details of other persons which I consider their personal information. For this reason, I have redacted these details from the information you are being supplied.

7. Form of access

I have provided you with PDF copies of the information that I have decided can be released.

8. Disclosure log

If information that would be of interest to other members of the public is released in response to a formal access application, an agency must record certain details about the application in its 'disclosure log' (under sections 25 and 26 of the GIPA Act).

I have decided that the information would not be of interest to other members of the public and will not be included in our disclosure log.

9. Review rights

If you disagree with any of the decisions in this notice that are reviewable, you may seek a review under Part 5 of the GIPA Act. You have three review options:

- internal review by another officer of this agency, who is no less senior than me;
- external review by the Information Commissioner; or

- external review by the NSW Civil and Administrative Tribunal (NCAT).

To assist you, I have enclosed a fact sheet published by the Information and Privacy Commission NSW (IPC), entitled *Your review rights under the GIPA Act*.

10. Further information

If you have any questions about this notice or would like any further information, please contact me via email gipa@fire.nsw.gov.au or telephone on 02 9269 6447.

With regards,

Glenn Hickey
Information Liaison Officer
Legal & Regulatory Services
Office of the Commissioner

Schedule of Documents

No.	Description of record that contains the information	Format of record	Location of record in agency	Released or withheld	Relevant public interest consideration(s) against disclosure
1.	SMW – Life and Fire Safety Strategy	PDF	Sydney Metro (ownership of document)	Not released	Table – s.14, 2(e) and (f)
2.	SMW and SMWSA Cross Passage Extension Risk Assessment report	PDF	Sydney Metro (ownership of document)	Not released	Table – s.14, 2(e) and (f)
3.	Letter Out – SMW and GW Projects – Tunnel Access Strategy (22/7/21)	PDF	Strategic Capability	Released with redactions	Table – s.14 3(a)
4.	Letter Out – Provisions for FF access to SMN	PDF	Strategic Capability	Released in full	N/A
5.	Letter Out – SMW and GW projects – Tunnel Access Strategy (5/5/21)	PDF	Strategic Capability	Released in full	N/A
6.	Letter Out – SM Tunnel Cross Passage Spacing Proposal	PDF	Strategic Capability	Released in full	N/A
7.	Letter In – SM Tunnel Cross Passage Spacing (12/1/22)	PDF	Strategic Capability	Released in full	N/A
8.	SM FRNSW Response	PDF	Strategic Capability	Released in full	N/A
9.	SMA response to FRNSW position statements	PDF	Strategic Capability	Released in full	N/A
10.	SM response to FRNSW CSW	PDF	Strategic Capability	Released in full	N/A
11.	Letter In – SM Tunnel Cross Passage Spacing (17/3/22)	PDF	Sydney Metro (ownership of document)	Released in full	N/A