Joint Select Committee on the NSW Reconstruction Authority

REVIEW OF THE NSW RECONSTRUCTION AUTHORITY ACT 2022

Public Hearing on Friday 16 August 2024.

Questions taken on notice for Moore Point Joint Landowners Group

As defined by the NSW SES, the PMF is the largest flood that could possibly be conceived to occur in a particular location. I will abbreviate this definition, but it's a once-in-10,000-to-10-million-year event. We don't think it's appropriate to use this as the single measure to define risk. It should not be the sole measure. We don't believe that aligns with the recommendations of the Flood Inquiry for a risk-based assessment. We think there are other measures and improvements that could be made that take into account the characteristics of each individual location, looking at each location's flood risk and the emergency response that is capable of being achieved. That needs to be specific to the location, the catchment, the amount of development around it and the population. It's certainly not a one-size-fits-all approach. Our observation is that, in practice—we suspect it's informal, but it is what is happening in practice—that is being used as the sole measure of "risk-based".

***Ms SUE HIGGINSON:** You can take it on notice if it's helpful, but could you give examples of where you're suggesting that seems to be an unofficial adopted approach?*

Response:

I refer to the following publicly available document and extract that relies on PMF as the determining measure of risk.

"Managing existing and future flood risk in the Valley requires an integrated approach to decisions on land use and emergency management planning and supporting infrastructure. Achieving this integrated approach will require finalisation of the interim results of updated flood modelling, updating of flood evacuation capacity modelling and preparation of disaster adaptation plans and new flood planning levels, and the identification and funding of supporting infrastructure, in particular, upgrades to evacuation routes.

These tasks, led by the NSW Reconstruction Authority, are expected to take up to 3 years to complete. It is almost 5 years since the draft Precinct plan was exhibited. During this time many landowners and stakeholders have experienced uncertainty and have had to put their personal and property plans on hold and pending finalisation of the Precinct planning process. A further extended delay in decision making regarding the draft Precinct plan is not an appropriate resolution.

The Department has considered the potential for a partial rezoning of the Precinct, e.g. land above the PMF, however this is not recommended due to the above-mentioned flood risk concerns and the challenges for servicing this land. Rezoning of the Precinct, as exhibited, would pose unacceptable risks to life and property.

It is therefore concluded that the rezoning of the Precinct does not proceed."

NORTH WEST GROWTH AREA, Marsden Park North – State-led rezoning, Finalisation Report, August 2023, Department of Planning, Industry and Environment

… there are 439 rivers in New South Wales, according to the Geographical Names Board. As you would expect, they all have very different flood characteristics, surrounding development and populations, development intensity and therefore risks. We're active participants in the development industry across Sydney. We are finding that, for some reason, the exact same approaches, methods and assumptions to emergency response are being applied across Northern Rivers, Hawkesbury-Nepean, Georges River and Parramatta. All of these river systems are quite different, yet we are getting the same responses back every time. What that tells us is there is no room for innovation and there is no room to come back with a risk-based assessment that deals with the particular characteristics of that location and its population. I can elaborate more on that if the Committee would like.

Response:

The Georges River Evacuation Modelling, Flood Evacuation Analysis was prepared by Molino Stewart Pty Ltd or Liverpool City Council, dated March 2022. The Analysis includes a list of model parameters in Table i on page iv.

The SES provided the parameter of 600 vehicles per hour per lane as shown below.

Road Capacity/ Travel Time Required	• Assumed road capacity of 600 vehicles per hour per lane • This has been applied to all scenarios, except in Scenario B where the two on ramps from the Hume Highway and M5 onto the M7 will have their capacity increased to 900 vehicles per lane per hour as per TfNSW advice.	NSW SES Timeline Evacuation Model (TEM) (Opper et al, 2009)

The study area is the Liverpool CBD and surrounds, which is a built-up area, characterized by a diverse range of land uses including the Liverpool CBD, a major public hospital, universities and schools. The study area is well served by transport infrastructure, including railway stations and a number of urban roads, that are at least 4 lanes (two in each direction) and well lit.

Despite this, the report adopts the 600-vehicle capacity that is used for rural roads, and dismisses rail and pedestrian evacuation, even though it is acknowledged there are many people in the study area that do not have access to a vehicle, as quoted below in the Molino Stewart Report:

"While the NSW SES evacuation planning for the Georges River relies upon motor vehicle evacuation, there are currently thousands of people within the floodplain that do not have access to a vehicle (over 30% of dwellings in some areas). It is recognised that both rail and pedestrian evacuation have their limitations and may not be able to be relied upon. Furthermore, they are generally not supported by the NSW SES".

This can now be compared to another Evacuation Strategy, prepared in 2018 by Molino Stewart for Marsden Park North a land release in the north west of Sydney, to rezone rural land to residential (urban purposes). The same parameter of 600 vehicles per hour per lane is used and copied below for reference (table 1, page 8).

Development Name:	Marsden Park North - Full Development	
Date:		22/08/2018
Calculation ID:	Preliminary ILP, Yield 22 June 2018	
Notes:	Full Development with Rising Road Access	
Data Type	**Input Data**	**Data Source**
Residential		
Number of Dwellings	4098	Proposed development minus areas above PMF
Vehicles Per Dwelling	1.8	2011 Census
(OR) Total Number of Residential Vehicles		
percentage of census respondents not reporting		
Residential Vehicles	7376	Calculated
Commercial		
Number of Business Premises	0	No proposed commercial development
Vehicles Per Business		
(OR) Total Number of Commercial Vehicles	60	Retail & Employment Assessment states 70 jobs
Commercial Vehicles	60	Calculated
Total Vehicles (TV) = residential + commercial	7436	Calculated
Evacuation Route		
Number of Lanes	1	One lane available on Richmond Road
Evacuation Route Capacity (RC) (veh/hr)	600	Calculated

To the point raised at the Public Hearing, the same assumptions for road evacuation capacity being used across different catchments and for two completely different environments.

One is a built-up area, well served by transport infrastructure, and the other is a rural/peri-urban area with the road infrastructure yet to be built.

I further raise the basis of the 600-vehicle parameter provided by the NSW SES as a parameter for all evacuation modelling. This rationale is that a typical **rural road** has a capacity of 1,200 vehicles per hour. The halving of the capacity is to account for:

- Heavy rain
- Darkness
- Driver unfamiliarity.

The basis for the 600 vehicle per lane per hour is described initially in a 2004 conference paper by Opper and then subsequently in a 2010 conference paper by Opper, Cinque and Davies which states: "this paper was a result of the involvement in 1997… Hawkesbury Nepean Flood Advisory Committee".

The 2004 paper states: "*The evacuation timeline tool continues to evolve* ***based on suggestions of interested colleagues***". It refers to the 600 vehicle per lane per hour, but only references the 1997 paper mentioned above.

The 2010 paper states that "the model **does not attempt to dynamically model traffic demand or flow rates**". In the conclusion of the paper, it states that "the method of timeline analysis is not

claimed to be unique or without **parallel nor is it the result of extensive academic research and development program**" and by their own admission, that "**the SES has been unable to get any individual or organisation to authoritatively provide a different number**".

Further, when evacuating residents, drivers evacuating from their homes will be **highly familiar** with the roads that are the evacuation routes because these are **the same roads that service their daily needs** for travel to work, school, shopping etc. Austroads supports this concept with the following statement*: "The driver population can have a significant impact on traffic capacity. Local knowledge and regular use of a road network is a protective factor, whereas 'where weekend or recreation drivers are a significant portion of the traffic stream, the capacity may be reduced'*[1].

There are significant concerns that the assumption provided in respect to the 600 vehicles per hour per lane is an outdated assumption since Mr Opper developed it in 1997 and presented it in a conference paper in 2004. This appears to have been accepted as fact in the planning process.

Applying the same capacity of 600 vehicles per lane per hour now appears to be adopted state-wide, regardless of the catchment or urban context.

[1] www.austroads.com.au *Austroads Guide to Traffic Management* – Part 3, page 36.