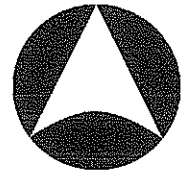
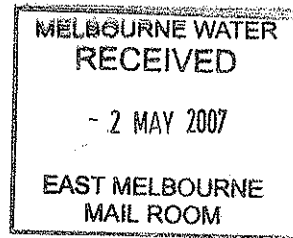


Institute of Public Works Engineering Australia
Victoria Division Limited



Institute of
Public Works
Engineering
Australia



30 April 2007

Flood Management & Drainage Strategy
Melbourne Water
P O Box 4342
MELBOURNE VIC. 3001

Attn: Mr Bruce Rush

Dear Bruce,

Port Phillip and Westernport Region - Flood Management and Drainage Strategy

Thank you for your invitation to comment on the Flood Management and Drainage Strategy Discussion Paper for the Port Phillip and Westernport Region. The Institute of Public Works Engineers Australia (IPWEA), Victoria Division, has compiled this submission.

As you would be aware, the IPWEA has had two representatives on the steering group for the project and has gathered views from a wide range of professionals in the public works industry to develop this submission.

Should you require further clarification on the above please contact myself on 9742 0835 or Geoff Glynn on 8470 8474.

Yours sincerely

Maurice Stabb
President

PORT PHILLIP AND WESTERNPORT REGION - FLOOD MANAGEMENT AND DRAINAGE STRATEGY (2007)

Submission by the Institute Public Works Engineering Australia Victoria Division (IPWEA)

Strategy Question	Discussion / Commentary	Position / Reasons
<p>Issue 1: An agreed approach to managing existing regional flood problems</p> <p>1.1 Is it reasonable that we focus resources only to address intolerable flood risk?</p>	<p>The definition of intolerable risk varies across municipalities and establishing a broad acceptable definition would assist greatly in clarifying the issue. Intolerable risk needs to better reflect flooding of habitable areas as well as other community values and expectations such as inconvenience, amenity, financial, different land use (business vs residential) and repeated flooding events.</p>	<p>Resources should be prioritised and focused firstly on 'intolerable' flood risks. The definition of 'intolerable' needs to be carefully considered and potentially a broader definition for different land uses as well as social, environmental and economic impacts within the municipality. This may lead to a range of 'intolerable' categories to be applied to different land uses / circumstances.</p> <p>This needs to be coupled with better awareness and education campaigns.</p>
<p>1.2 If so how should we address remaining tolerable risks?</p>	<p>Tolerable events cause a nuisance and some money needs to be allocated. Minor budget is provided for services needs after the 'tolerable' flood storm event.</p> <ul style="list-style-type: none"> Public education required to help community understand what is intolerable risk, that some flooding events cannot be addressed and community can help themselves in the way they manage their own land to lessen consequences of flooding. Develop improved response plans for flood events. Shift 'tolerable' risk flood into open space if possible. 	<p>With funding concentration on 'intolerable' flood risks IPWEA supports responding to 'tolerable' risks which cause nuisance and the allocation of additional funds for:</p> <ul style="list-style-type: none"> emergency flood response a residents awareness campaign (similar to the Community Fireguard program) enabling residents to better prepare their individual properties for flood events. Awareness campaign to include better property design eg ground slopes away from floor levels and landscaping allows flow of water around the dwelling and through the property in a way that minimises inconvenience - elimination of surface flows is not achievable and usually can't/shouldn't be guaranteed.

PORT PHILLIP AND WESTERNPORT REGION - FLOOD MANAGEMENT AND DRAINAGE STRATEGY (2007)

Strategy Question	Discussion / Commentary	Position / Reasons
<p>1.3 Who should be involved in determining what is tolerable and intolerable risk?</p>	<p>All affected people groups should be consulted, including those that contribute upstream to flood problems As 'tolerable' and intolerable' risks may differ between communities and circumstances, all stakeholders including the community, Councils staff, Councillors, state instrumentalities (i.e. Water Authorities, Planning, etc) should be engaged in defining the terms. There should also be some consistency throughout the Port Phillip and Western Port Region.</p>	<p>IPWEA supports all stakeholders being involved in determining what is a 'tolerable' and 'intolerable' risk. Each definition category should also be consistent throughout the Region.</p>
<p>1.4 What is a reasonable time frame in which to remove intolerable risks?</p>	<p>The definition of "intolerable' risk needs to be clarified before this can be answered as the magnitude of the problem is unknown. It would be desirable to achieve this over the next two years so a prioritised list could be developed. Some consistency throughout the region also needs to be considered in resolving these risks.</p>	<p>The current level of annual funding to reduce the number of properties liable to flooding is considered inadequate. There needs to be an considerable increase in this funding to provide the community some level of satisfaction that the government has considered the issue appropriately and acted. As a start a timeframe of 10 years should be looked at for resolving intolerable risks.</p>
<p>1.5 Should we consider the acquisition of private properties that are considered to be at extreme or intolerable risk?</p>	<p>In developing options to resolve flooding, the acquisition of properties should be considered. In these circumstances the acquisition would need to be accepted politically and result in a nett benefit to the community.</p>	<p>General support for the acquisition of private property where no other alternative measures to reduce the risk are available or where other alternatives are cost prohibitive. Land should to be acquired through the acquisition process and then redeveloped (re-contoured, constructed and resold) to allow safe overland flow path and possibly assist in funding of the initiative Voluntary to compulsory acquisition is preferred. A strategic approach is required to effectively achieve this outcome.</p>

PORT PHILLIP AND WESTERNPORT REGION - FLOOD MANAGEMENT AND DRAINAGE STRATEGY (2007)

Strategy Question	Discussion / Commentary	Position / Reasons
Issue 2: Completing the knowledge base		
2.1 Understanding social impacts		
2.1.1 Is there a need for an ongoing flood impact research program?	<p>There is a need for ongoing flood impact research program but it needs:</p> <ul style="list-style-type: none"> • Methodical approach; and • Approached as a national issue; <p>Recognise that perceptions & expectations of people change as housing stock changes hands; and</p> <p>Increased development, works and climate change can change flooding.</p>	<p>IPWEA supports ongoing flood impact research.</p> <p>A recent example of how this could be successfully applied is the Bayside Project Lidar Survey. This involved resource sharing amongst the DSE, Melbourne Water and the Cities of Glen Eira, Bayside, Port Phillip, Stonington, Borroondara and Kingston.</p>
2.1.2 What are the research priorities e.g. high risk areas, post event evaluation?	<p>Areas of research identified include:</p> <ul style="list-style-type: none"> • Psychological impact of floods and anxiety caused; • Effectiveness of awareness campaigns, communication & education strategies; • Economic costs of flooding & impact on insurance premiums; • Health a safety impacts on residents; and • Long term impacts – both social and economic. 	<p>The priority for research should be for flood impacts in the high risk 'intolerable' areas and the research to examine the identified areas noted in the commentary.</p> <p>Funds are currently available through the Natural Disaster mitigation program for this purpose. All Councils should be able to access these funds.</p>
2.1.3 Who is best placed to co-ordinate such a program?	<p>It is recognised the coordinating body should be a state/national agency that has or can attract funding. Some suggested organisations include:</p> <ul style="list-style-type: none"> • Melbourne Water in partnership with DSE with support from MAV; • Emergency Management Australia which has 	<p>IPWEA supports the research coordinating agency be one that can incorporate research at the state and national level, can access sufficient funding and an has the ability to pass the research results to all organisations involved in flood risk management.</p>

PORT PHILLIP AND WESTERNPORT REGION - FLOOD MANAGEMENT AND DRAINAGE STRATEGY (2007)

Strategy Question	Discussion / Commentary	Position / Reasons
	<p>funds and has significant international links; or</p> <ul style="list-style-type: none"> • National Water Initiative. 	
2.2 Flood mapping to identify risks		
2.2.1 Where are the priority areas for additional flood mapping to be undertaken?	<p>Most of the Melbourne Water Catchments have flood maps in metropolitan Melbourne. The flood mapping within councils varies greatly.</p> <p>Priority areas for flood mapping should be areas where there is a known high risk of flooding.</p> <p>Flood mapping priorities should have a systematic approach across the region with Melbourne Water, MAV and Councils having a role in the selection of priorities. Also there needs to be a consistent standard of survey information and mapping.</p> <p>Designated activity centres under M2030 should also have a priority.</p>	Metropolitan areas (Melbourne and regional) that developed prior to the 1970s.
2.2.2 Who is best placed to manage and co-ordinate flood mapping projects?	<p>Some suggestions put forward:</p> <ul style="list-style-type: none"> • Melbourne Water as flood plain manager for the Region – but MW does not cover the whole state. • State Government through Land Vic to cover metropolitan and rural. <p>The inclusion of flood information in flood schemes is a costly and time consuming process. Serious consideration should be given to having the Minister introduce these scheme amendments in a fast tracked process for the benefit of the community and to avoid lengthy and costly appeals.</p>	IPWEA supports the State Government being the overall coordinator for the whole state with Melbourne Water taking a leadership role for the Port Phillip and Westernport Region.
2.2.3 How could these projects be resourced and funded?	<p>Some funding sources considered:</p> <ul style="list-style-type: none"> • Melbourne Water and Councils as joint funding; • State Government after preparation of Business 	IPWEA supports funding being sourced from state and federal government to resource and fund the mapping projects.

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Strategy Question	Discussion / Commentary	Position / Reasons
	<p>Cases:</p> <ul style="list-style-type: none"> • Increase drainage levy; • Allocate all drainage levy income to drainage works (no dividend to the Government); • Natural Disaster Mitigation Program; • Local Grants Scheme; and • New Levy similar to CFA and Insurance Levy. 	
<p>2.2.4 What is the most appropriate forum to make this information publicly available and how should such communications be managed?</p>	<p>It is important that the information is generally available and accessible by all interested parties. DSE Could provide a state wide system to access the information. Need to connect source of information with any awareness programs, and instruct on how to interpret maps. The involvement of the Building Commission is vital as the consequence of their unintended distribution of incorrect information is problematic for Councils.</p>	<p>This information should be available to the general public, Council, Water Authorities and all State agencies. This could be achieved through the creation of a special web page on the DSE web site.</p>
<p>Issue 3: Potential long term future pressures on existing drainage systems</p>		
<p>3.1 Development in established areas</p>		
<p>3.1.1 How can we better understand the timing and location of dispersed infill development and plan for it?</p>	<p>Need a coordinated approach between Melbourne Water, DSE and Councils Councils can refine their Planning Model predictions A community research and local government trends and forecasts to determine timing and location of development.</p>	<p>As indicated in Melbourne 2030, housing distribution will have 28% infill redeveloped areas at redeveloped sites by 2030. The increase in runoff volumes and an increase in peak flow can be assessed based on the percentage of housing distribution allowed under the Planning Scheme. Where development is encouraged in these areas State Government funding should be available to upgrade the drainage network to provide the required level of service (the desired position) or allow the</p>

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Strategy Question	Discussion / Commentary	Position / Reasons
<p>3.1.2 How do we determine where redevelopment will have a significant impact on levels of service?</p>	<p>Need to understand existing situation first, before trying to predict development impacts.</p> <p>Need a consistent modelling approach across Melbourne to assess impacts and deciding where flooding is tolerable or intolerable. Melbourne Water should take lead role.</p> <p>Developer contributions don't go far enough as they should also apply to building works not subject to Town Planning consent and requirements.</p>	<p>Once the flood mapping is completed for all high risk areas it will be possible to carry out sensitivity analysis by assuming infill development in accordance with the planning scheme.</p> <p>Impact will then be determined by the definitions of tolerable and intolerable risks yet to be categorised.</p> <p>IPWEA supports Melbourne Water developing an appropriate impact model in conjunction with Councils</p>
<p>3.1.3 What should we do in areas where it is not possible, practical or affordable to undertake works to accommodate additional runoff?</p>	<p>Suggested ways include:</p> <ul style="list-style-type: none"> • Restrict infill development through Planning controls and control the % of impervious areas; • Accept additional flooding and handle through flood response plans • Require on site detention • Make better use of open space and roads for flood control • Review 2030 and challenge if aspirations for infill development is feasible in all locations. • Education and awareness programs • Public information released by the Building Commission needs to be correct and consistent with advice from regional and local drainage authorities. 	<p>IPWEA supports that in areas where it is not possible or affordable to undertake works to accommodate for additional runoff from infill development should be controlled by the developer through water sensitive urban design such as on site stormwater detention, retarding basins etc.</p>

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Strategy Question	Discussion / Commentary	Position / Reasons
3.2 Climate change		
3.2.1 How do we plan in advance for the potential and uncertain impacts of climate change?	<p>Suggestions include:</p> <ul style="list-style-type: none"> • Designing for increased rainfall intensity by 5% per degree of temperature increase, suggesting a similar, increase in runoff volumes of 4% by 2020 to 25% by 2100. Develop two more layers based on forecast of Weather Behaviour 2040 and 2100. • Develop contingency Emergency Flood Management Plan for larger storm events. • Need to refine estimates to better understand implications of the climate change scenarios and ensure we consider the risk of over designing systems. • Should use current design criteria as base and undertake a risk/cost/benefit analysis of impacts of medium and high changes in rainfall intensity 	<p>IPWEA supports the concept of modelling current rainfall intensities as a base model, with overlays for medium and high increases in rainfall intensity due to potential climate change effects.</p> <p>Similarly, Flood Emergency Response Plans need to be modelled on the two climate change scenarios.</p>
3.2.2 What are some of the possible responses to the impacts of climate change?	<p>Do nothing, acceptance by community and rely on emergency response and recovery plans</p> <p>Undertake planning for the various scenarios.</p>	<p>Planning for various scenarios and identifying impact on planning controls, high risk areas and overall flood mapping.</p>
3.2.3 When would it be appropriate to implement adaptation strategies?	<p>This should be considered soon as the debate and understanding on climate change is improving and may lead to a reasonable approach.</p>	<p>IPWEA supports the identification of flood risk through flood mapping and investigation of future planning controls over developments within the next 10-15 years.</p>

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Strategy Question	Discussion / Commentary	Position / Reasons
<p>3.2.4 Who should lead and sponsor ongoing research into future pressures on the urban drainage system represented by climate change?</p>	<p>Climate change impacts are an international and national issue. At the Regional level Melbourne Water should take the lead role and lobby governments, collaborate with national and international research and coordinate with local governments.</p> <p>Regular reviews of Australian Rainfall & Runoff tables to reflect climate change effects.</p>	<p>IPWEA supports a lead role being undertaken by the Melbourne Water and other Water Authorities and work with State Government Research agencies (CSIRO) and Local Government to identify impacts of Climate Change on drainage systems and works or actions required to respond to threat.</p>
Strategy Question		
Discussion / Commentary		
Position / Reasons		
Issue 4: Enhanced community education, flood awareness and preparation		
<p>4.1.1 Who is best placed to co-ordinate and manage an on-going community education and awareness program?</p>		<p>The Victorian State Emergency Service (SES) should take the lead role and work collaboratively with Melbourne Water, Emergency Management Australia, Dept Health & Services, Vic Police, DSE, Local Government and any other parties with an interest in education and response to flooding.</p>
<p>4.1.2 What should be the role of other stakeholders in developing and implementing a community education and awareness framework?</p>	<ul style="list-style-type: none"> • Local Government to plan effectively by identifying vulnerable areas. • Melbourne Water and Local Government could provide flood intelligence. • Bureau of Meteorology provide flood warning information • This information could be provided to all parties and the community on a web page 	<p>The State should take the responsibility for developing an awareness campaign working with all stakeholders and fund the delivery of the awareness campaign through a number of agencies ranging from the state to local communities.</p>
<p>4.1.3 What are the key objectives and tools of a community education and awareness framework?</p>	<p>Property owners need to be aware of the risks and plan for the consequences of flooding (as is the case for bushfires). If aware, they can take some control of the situation by either planning for the event (place valuable items above flood levels) or simply</p>	<p>Key Objectives include:</p> <ul style="list-style-type: none"> • Awareness of flood Risk • Community mindset changed to accept some

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Strategy Question	Discussion / Commentary	Position / Reasons
	<p>ensure they do not knowingly live in a flood prone area. Information on the extent of the issue and that all flooding cannot be managed is important also.</p>	<p>responsibility</p> <ul style="list-style-type: none"> Reaching the whole community Floods are a natural event and people need to be aware that you cannot control nature <p>Tools include:</p> <ul style="list-style-type: none"> Media, flood information guidelines, brochures, school flood kits, household flood plans; Section 32 – improved flood information Flood Smart Plans at local level Consistent information from insurance companies Schools flood education Better information from building surveyors and the Building Commission playing a lead role to assist <p>Warning systems where possible.</p>
<p>4.2 The role of planning controls in raising community awareness</p>		
<p>4.2.1 What are the main impediments to the inclusion of flood information in planning schemes?</p>	<ul style="list-style-type: none"> Affected property owners may object to the planning scheme amendment due to loss of value of there property. Time to get community support for change Amendments to Planning Schemes are expensive and can take 1 to 2 years to complete. The cost burden to Council to undertake planning amendments is large. Developers frustrated with the time taken to complete amendments Inconsistency across municipal boundaries – should be on a catchment basis. Accuracy of information to justify change to 	

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Strategy Question	Discussion / Commentary	Position / Reasons
	<ul style="list-style-type: none"> • Frustration of residents who object to applications on amenity grounds, which can not be taken into account with a planning application that is solely triggered by SBO. SBO related applications often result in objections being received by Council that have nothing to do with drainage of flooding issues. These objections result in extra administrative and financial burdens on the Planning process. 	
4.2.2	<p>How could these impediments be removed?</p> <ul style="list-style-type: none"> • Consistent regulation required; and • Targeted educational material to the community. • Need to increase exemptions through VPPs, not schedules. Need to consult with Councils on a yearly basis to check controls 	<p>Better information for all parties would assist however more work to explore these issues needs to be undertaken</p>
4.2.3	<p>Who is the most appropriate agency to control developments outside existing flood prone areas that may have an adverse impact on flood levels or the environmental values of floodplains? How might this be achieved?</p> <ul style="list-style-type: none"> • Local Government and Department of Sustainability and Environment or Melbourne Water. • Local Government as a responsible Authority and others as a referral authority for any developments. • The Building Act allows Councils to designate flood levels and introduce designated overland flow paths. This process seems quite different to that required of Melbourne Water under other legislation. • The building over easements needs to be reviewed so that future protection of valuable easements to alleviate flooding is retained. 	

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Strategy Question	Discussion / Commentary	Position / Reasons
Issue 5: Agreed responsibilities and improved collaboration between agencies		
5.1 Is there a need for greater collaboration between flood management agencies?	Yes	IPWEA agrees greater collaboration is required between all agencies.
5.2 What activities require greater collaboration?	<p>Activities identified include:</p> <ul style="list-style-type: none"> • Mapping • Planning Scheme Amendments (Regional or Catchment approach); • Legislative Framework – Who is Flood Management Authority and as of right developments; • Clarifying the 60 hectare issue between Melbourne Water and Council responsibility; • State approach and broader collaboration with Catchment Management Authorities; • Funding arrangements; • Investigation into establishing a State Drainage Authority; • Flood risk assessment and prioritisation; • To refine planning controls and remove some minor controls. • Capital works program coordination; • Community education. 	IPWEA supports the establishment of a working group, lead by Melbourne Water with representatives of all stakeholders to work through the activities identified and develop solutions.
5.3 What aspects need greater capacity building within agencies and which aspects should be centralized?	<p>Aspects that could be considered for centralisation include:</p> <ul style="list-style-type: none"> • Flood Mapping and modelling; • Planning and Building Control; 	IPWEA supports the establishment of a working group, lead by Melbourne Water with representatives of all stakeholders to work through the activities identified and develop solutions

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Strategy Question	Discussion / Commentary	Position / Reasons
	<ul style="list-style-type: none"> • Improved knowledge base within Councils; • Community education and awareness programs; • Community responsibilities – how they can help themselves; and • Brochures. 	
5.4 Who should take the lead in establishing a collaborative framework/approach?	<p>Lead should be taken by:</p> <ul style="list-style-type: none"> • Whole of government approach • SES, Melbourne Water, Bureau of Meteorology, Police, Councils and industry bodies such as MAV and the IPWEA. 	<p>IPWEA supports Melbourne Water & State Government Agencies taking the lead role, but working closely with Local Government.</p>
5.5 Would the development of Municipal Emergency Management Plans be an appropriate mechanism to co-ordinate activities? What would be needed to achieve this?	<ul style="list-style-type: none"> • Emergency Management Plans are generally response plans only; • Perhaps could be improved to include flash flooding and riverine flooding events; and • Not really suitable for education. 	<p>IPWEA supports a New Plan to be developed by Melbourne Water, other Water Authorities in close liaison with Local Government and other agencies with an interest in flood activity.</p>
5.6 Who should lead the co-ordination and development of flood management activities in the region?	<p>Lead should be taken by:</p> <ul style="list-style-type: none"> • Whole of government approach • SES, Melbourne Water, Bureau of Meteorology, Police, Councils and industry bodies such as MAV and the IPWEA. 	<p>IPWEA supports a New Plan to be developed by Melbourne Water, other Water Authorities in close liaison with Local Government and other agencies with an interest in flood activity.</p>