

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

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Note: "Other Commentary" refers to outcomes of a Forum held by Melbourne Water to consider the "Flood Management and Drainage Strategy" held at the Manningham Convention Centre on 22 March 2007.

	Strategy Question	Discussion / Commentary	Position / Reasons
Issue 1: An agreed approach to managing existing regional flood problems			
1.1	Is it reasonable that we focus resources only to address intolerable flood risk?	<p>Manningham:</p> <p>In Manningham "intolerable risks" are generally defined by the impacts of flooding on habitable floor areas and the highest priority of allocating resources is generally towards managing flooding on affected habitable buildings.</p> <p>Accordingly capital work funding is allocated to managing flooding in flood prone areas where habitable floor areas have previously been subject to inundation.</p> <p>Other Commentary:</p> <ul style="list-style-type: none"> • There is need for a clearer definition or categories to define intolerable risk to better reflect other community values and expectations such as inconvenience, amenity, financial, different land use (business vs residential) and repeated flooding events. 	<p>Manningham supports focussing resources on 'intolerable' flood risks, but recognises 'intolerable' flood risks needs a broader definition for different land uses as well as consideration to the social, environmental and economic impacts within the municipality</p> <p>This may lead to a range of 'intolerable' flood risk categories to be applied to different land uses / circumstances and possibly different standards of protection.</p>
1.2	If so how should we address remaining tolerable risks?	<p>Manningham:</p> <p>Tolerable flood events cause a nuisance and an appropriate level funding needs to be allocated to</p>	<p>Whilst significant funding is allocated to manage 'intolerable' flood risks an appropriate level needs to be allocated to respond to 'tolerable' risks which cause nuisance. These funds should specifically be</p>

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		<p>manage areas affected by a 'tolerable' flood storm event.</p> <p>Other methods include:-</p> <ul style="list-style-type: none"> • Public education to help community understand what is intolerable risk, where 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 areas if possible. 	<p>allocated for</p> <ul style="list-style-type: none"> • emergency flood response; and • residents awareness campaigns (similar to the Community Fireguard program) enabling residents to better prepare their individual properties for flood events.
1.3	Who should be involved in determining what is tolerable and intolerable risk?	<p>Commentary:</p> <ul style="list-style-type: none"> • 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>All stakeholders need to understand the cost implications of managing both "tolerable" and "intolerable" risks of flooding.</p>	Manningham supports all stakeholders being involved in determining what is a 'tolerable' and 'intolerable' risk. Each definition category should also be consistent throughout the Region.

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1.4	What is a reasonable time frame in which to remove intolerable risks?	<p>Manningham:</p> <p>Residents that are affected by 'intolerable' risks that impact on habitable floor areas need to be given the highest priority.</p> <p>If the definition of 'intolerable' risk is broadened to include other factors other than impact on habitable floor areas, more properties may need to be included in the 'intolerable' risk category and additional funds will be required to address the risks.</p> <p>Other Commentary:</p> <ul style="list-style-type: none"> • There is a need to define 'intolerable' risk within 18 months to 2 years. • Maximum time to resolve all intolerable risks should not exceed 20 years • May need to undertake pilot schemes to obtain acceptable and affordable solutions. 	Manningham is of the view that intolerable risks should be removed within a 5-10 year period.
1.5	Should we consider the acquisition of private properties that are considered to be at extreme or intolerable risk?	<p>Commentary:</p> <p>A Strategy should be developed to address:</p> <ul style="list-style-type: none"> • Affordability/ cost effectiveness; • Protection of others; • Political acceptance; and • Identification of a lead agency. <p>Where no other alternative is available acquisition of private property may be the only choice.</p> <p>In these circumstances the acquisition would need to be accepted politically and result in a net benefit to the community.</p>	<p>Manningham supports private property acquisition where no other alternative measures to reduce the risk are available or where other alternatives are cost prohibitive.</p> <p>Local areas could be purchased and redeveloped to allow for safe overland flow path.</p> <p>Land should to be acquired through the compulsory acquisition process and then redeveloped (re-contoured, constructed and resold) to allow safe overland flow path.</p>

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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>Commentary:</p> <p>Yes there is a need for ongoing flood impact research program but it needs a:</p> <ul style="list-style-type: none"> • Methodical approach; and • Approached as a national issue; <p>There is need to 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>Manningham supports ongoing flood impact research.</p> <p>An appropriate level of funding needs to be allocated to undertake research to identify social impacts of flooding.</p>
2.1.2	What are the research priorities e.g. high risk areas, post event evaluation?	<p>Commentary:</p> <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 programs; • Economic costs of flooding & impact on insurance premiums; • Health a safety impacts on residents; and • Long term impacts – both social and economic. 	<p>Manningham supports priority research being directed towards the flood impacts on residents in the high risk 'intolerable' areas. The research should examine the areas noted in the commentary.</p>

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2.1.3	Who is best placed to co-ordinate such a program?	<p>Commentary:</p> <p>It is recognised the coordinating body should be a state/national agency that has or can attract state and funding.</p> <p>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 funds and has significant international links; or • National body that has a national water Initiative. 	Manningham supports the establishment of a research coordinating agency that can initiate and conduct research at the state and national level. The agency should be able to access and attract sufficient funding to conduct such research and distribute results to all organisations involved in flood risk management.
2.2 Flood mapping to identify risks			
2.2.1	Where are the priority areas for additional flood mapping to be undertaken?	<p>Manningham:</p> <p>Most of the Melbourne Water Catchments within the Municipality have designated flood maps.</p> <p>Manningham has funding to map the balance of the stormwater catchments under Manningham's control.</p> <p>Manningham is currently working with Melbourne Water to ensure a coordinated approach is undertaken with specific reference to the contour survey of the catchments and the flood mapping principals to be applied.</p> <p>Priority areas for flood mapping in Manningham will target the known high risk flood areas.</p>	<p>Manningham supports a coordinated approach to flood mapping and is working closely with Melbourne Water in a current flood mapping project.</p> <p>Priority should be given to the high risk flood prone areas especially those areas that do not have designated overland flow paths.</p>

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		<p>Other Commentary:</p> <p>Flood mapping priorities :</p> <ul style="list-style-type: none"> • Should be a systematic approach across the region with Melbourne Water and MAV playing a key role in the selection of priorities; • Based on an agreed and consistent standard of survey information and mapping methodology; • Need to consider activity centres, equity issues, whether concentrate on existing developed areas or new Greenfield areas; and • Could be defined by the degree of risk exposure to flooding. 	
2.2.2	Who is best placed to manage and co-ordinate flood mapping projects?	<p>Commentary:</p> <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. 	Manningham 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>Commentary:</p> <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 Cases; 	Manningham supports funding being sourced from state and federal government in partnership with local government to resource and fund mapping projects.

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		<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. 	
2.2.4	<p>What is the most appropriate forum to make this information publicly available and how should such communications be managed?</p>	<p>.Commentary:</p> <p>It is important that the information is generally available and accessible by all interested parties.</p> <p>DSE Could provide a state wide system to access the information.</p> <p>Need to connect source of information with any awareness programs, and instruct on how to interpret maps.</p> <p>It could include :</p> <ul style="list-style-type: none"> ▪ Media releases ▪ Advertising ▪ Conduct of public forums. 	<p>Manningham supports this information being available to the general public, Council, Water Authorities and all State agencies.</p> <p>This could be achieved through the creation of a special web page on the DSE web site.</p>

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Issue 3: Potential long term future pressures on existing drainage systems			
3.1 Development in established areas			
3.1.1	How can we better understand the timing and location of dispersed infill development and plan for it?	<p>Commentary:</p> <ul style="list-style-type: none"> • Need a coordinated approach between Melbourne Water and DSE • Councils can refine their Planning Model predictions • A community research and local government trends and forecasts to determine timing and location of development 	<p>Manningham supports:</p> <ul style="list-style-type: none"> • As indicated in Melbourne 2030, housing distribution will have 28% infill redeveloped areas at redevelopment sites by 2030. • Hence an 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.
3.1.2	How do we determine where redevelopment will have a significant impact on levels of service?	<p>Commentary:</p> <ul style="list-style-type: none"> • Need to understand existing situation first, before trying to predict development impacts • Need a consistent modelling approach across Melbourne to assess impacts and deciding where flooding is tolerable or intolerable. Melbourne Water should take lead role. • Drainage Strategy, Stormwater Management Plan, Implementing the Overland Flow Path Flood Mapping and developing a Local Law for the maintenance of On-Site Detention Systems. 	<p>Manningham is currently undertaking flood mapping of the remainder of the stormwater catchments within the municipality.</p> <p>When completed, sensitivity analysis will be possible 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>Manningham supports Melbourne Water developing an appropriate impact model in conjunction with Councils</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>Manningham:</p> <p>Manningham controls stormwater runoff from infill sites by requiring the use of On Site Detention</p>	<p>Manningham supports that in areas where it is not possible or affordable to undertake works to accommodate for additional runoff from infill</p>

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		<p>devices installed at the cost of the developer.</p> <p>Commentary:</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 • Urban water sensitive design treatments and natural drainage systems incorporated in design of developments. • Small neighbourhood detention systems to limit impact on downstream drainage system. 	<p>development , these developments should be controlled by the developer through water sensitive urban design (WSUD) such as on site stormwater detention (OSD), retarding basins etc.</p>
	<h3 style="color: #4F81BD;">3.2 Climate change</h3>		
3.2.1	<p>How do we plan in advance for the potential and uncertain impacts of climate change?</p>	<p>Manningham:</p> <p>Suggestions include:</p> <ul style="list-style-type: none"> • Designing for increased rainfall intensity by 	<p>Manningham 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>

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		<p>5% per degree of temperature increase, suggesting a similar, increase in runoff volumes of 4% by 2020 to 25% by 2100.</p> <ul style="list-style-type: none"> • Inundation of flash flooding mapping for 100 years. • Carry out Mapping & Monitoring System, due to Climate Change future plan • Establish a contingency Emergency Flood Management Plan for larger storm events.. • Produce for current: • Another layer for Climate Change • Old area Emergency Flood Management • Existing 1 in 100 year. • Add two more layers based on forecast of Weather Behaviour 2040 and 2100. <p>Other Commentary:</p> <ul style="list-style-type: none"> • Need to refine estimates to better understand implications; • Beware of the risk of over designing; and • 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>Similarly, Flood Emergency Response Plans need to be modelled on alternate climate change scenarios.</p>
3.2.2	<p>What are some of the possible responses to the impacts of climate change?</p>	<p>Commentary:</p> <ul style="list-style-type: none"> • Do nothing, acceptance by community and rely on emergency response and recovery plans; • Plan for a medium scenario; and 	<p>Manningham supports:</p> <p>Planning for medium and high risk scenarios and identifying impact on planning controls, high risk areas and overall flood mapping.</p>

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		<ul style="list-style-type: none"> • Plan for worst case scenario. 	
3.2.3	When would it be appropriate to implement adaptation strategies?	<p>Commentary:</p> <ul style="list-style-type: none"> ▪ Planning for Climate Change should as soon as possible to develop appropriate strategies; ▪ Focus should be on high risk areas: ▪ Strategies should be developed for the short term and long term scenarios. 	Manningham supports identifying flood risk through flood mapping and investigation of future planning controls over developments within the next 10-15 years.
3.2.4	Who should lead and sponsor ongoing research into future pressures on the urban drainage system represented by climate change?	<p>Commentary:</p> <ul style="list-style-type: none"> • 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. • Regular reviews of Australian Rainfall & Runoff tables to reflect climate change effects. 	Manningham 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.

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Issue 4: Enhanced community education, flood awareness and preparation			
4.1.1	Who is best placed to co-ordinate and manage an on-going community education and awareness program?	<p>Commentary:</p> <ul style="list-style-type: none"> • Vic SES is best placed to take a lead role. • Needs to be a collaborative approach and all key players should be involved. 	Manningham supports VIC SES taking a 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.
4.1.2	What should be the role of other stakeholders in developing and implementing a community education and awareness framework?	<p>Commentary:</p> <ul style="list-style-type: none"> • Local Government to plan effectively by identifying vulnerable areas. • Melbourne Water and Local Government could provide flood information and intelligence. • Bureau of Meteorology provide flood warning information 	Manningham supports that the state taking responsibility for developing an awareness campaign working with all stakeholders with the allocation of an appropriate level of funding to delivery the awareness campaign through a number of agencies ranging from the state to local communities.
4.1.3	What are the key objectives and tools of a community education and awareness framework?	<p>Commentary:</p> <p>Key Objectives include:</p> <p>Awareness of flood risk that include:-</p> <ul style="list-style-type: none"> • Community mindset changed to accept some responsibility • Reaching the whole community • Floods are a community responsibility. • Impacts of flooding on community. • Insurance advice on flooding. 	Manningham supports the objectives and tools as detailed in the commentary.

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		<ul style="list-style-type: none"> • Response to flood events. <p>Tools include:</p> <ul style="list-style-type: none"> • Media, flood information guidelines, brochures, school flood kits, household flood plans; • Section 32 Notices – improved flood information • Flood Smart Plans at local level • Schools flood education • Warning systems where possible 	
	<p>4.2 The role of planning controls in raising community awareness</p>		
4.2.1	<p>What are the main impediments to the inclusion of flood information in planning schemes?</p>	<p>Manningham:</p> <p>Affected property owners may object to the planning scheme amendment due to loss of value of their property.</p> <p>Other Commentary:</p> <ul style="list-style-type: none"> • Accuracy of information to justify change to planning scheme • Time to get community support for change • Inconsistency across municipal boundaries – should be on a catchment basis. <p>The time taken to undertake a Planning scheme amendment is costly and relatively time consuming</p> <p>Acquiring the land subject to inundation could be very expensive and politically unacceptable.</p>	<p>Manningham notes impediments. Where planning scheme amendments are proposed, amendments will be implemented progressively over the whole catchment rather than incrementally on sub catchments.</p>

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4.2.2	How could these impediments be removed?	<p>Commentary:</p> <ul style="list-style-type: none"> • Consistent regulation required; and • Targeted educational material to the community. 	Manningham supports this matter being further investigated by Melbourne Water.
4.2.3	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>Manningham:</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. 	

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Issue 5: Agreed responsibilities and improved collaboration between agencies			
5.1	Is there a need for greater collaboration between flood management agencies?	<p>Manningham:</p> <p>Yes greater collaboration is needed but has improved.</p>	Manningham agrees greater collaboration is required between all agencies.
5.2	What activities require greater collaboration?	<p>Commentary:</p> <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; • 60 hectare limit between MW and Council responsibility; • State approach and broader collaboration with Catchment Management Authorities; • Funding arrangements; • The need to investigate the establishment of a Metropolitan or State Drainage Authority; • Flood risk assessment and prioritisation; • Capital works program; • Mapping Surveys; and • Community education. • Flood mapping methodology 	Manningham 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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5.3	What aspects need greater capacity building within agencies and which aspects should be centralised?	<p>Commentary:</p> <p>Aspects that could be considered for centralisation include:</p> <ul style="list-style-type: none"> • Flood Mapping; • Planning and Building Control; • Improved knowledge base within Councils; • Community education and awareness programs; • Community responsibilities – how they can residents help themselves; and • Brochures. • VicRoads needs understand downstream impacts 	Manningham supports the establishment of a working group, lead by Melbourne Water with representatives of all stakeholders to work through the aspects identified and develop solutions.
5.4	Who should take the lead in establishing a collaborative framework/approach?	<p>Commentary:</p> <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 	Manningham supports Melbourne Water & State Government Agencies taking the lead role, but working closely with Local Government.
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?	<p>Commentary:</p> <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. 	Manningham 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.

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5.6	Who should lead the co-ordination and development of flood management activities in the region?	<p>Commentary:</p> <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 	Manningham supports Melbourne Water & State Government Agencies taking the lead role, but working closely with Local Government