

**Delta Risk Management Strategy (DRMS) Phase 1
Response To Comments: Emergency Response and Repair**

Comments	Responses
Reviewer: Bergmooser	
<p>1. The analysis and assumptions for this topical area are reasonable though an effort needs to be made to more clearly explain that the section is focused on post event actions (as discussed in para 2, pg 1) resulting in levee failure. A majority of those involved in emergency response/repair are focused on flood fight actions (not addressed by this strategy); as such clarity will ensure they focus their analysis.</p>	<p>The following text has been added to Section 2, page 1: “The ER&R model focuses on post-event actions only. Seasonal flood-fighting activities are not explicitly modeled, though the model allows for a reduction in emergency response capacity during the time of the year when one would expect non-event-related flood-fighting actions on non-flooded islands to be ongoing. As such, these activities would detract resources from the emergency operations.”</p> <p>Further modifications made to Section 4.4 to stress that the response and repair actions in the model only represent event-related activities.</p>
<p>2. Page 7/Para 4.4: Repair type RT2: As further discussed in para 4.9 (Repair Rates), structural protection of an interior levee can, in most foreseen situations, be accomplished only by truck; provisions may well need to be included to strengthen/construct access roads to allow transit. Further, as demonstrated during the Jones Tract failure, interior protection may include import of borrow material to raise the levee elevation in addition to slope protection either by temporary measures or placement of rock.</p>	<p>Added to Section 4.4: During the dry season, erosion protection and/or repair of damage resulting from erosion (repair type RT2) can be carried out from land, with rock produced at local quarries transported and dumped onto the interior slope by truck. This repair action is limited to those levees that have road access. While the model differentiates between those islands that have land access and those that do not, it does not differentiate between roads that are in good condition and those that require strengthening to allow the land-based work to proceed. Resource and time requirements to strengthen or construct access roads to allow the truck transit associated with land-based repair are not included in the material, cost and time estimates produced by the ER&R model. Furthermore, the model does not include any temporary or permanent raising of the levee elevation in the case of erosion protection or repair.</p>

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<p>3. Page 12/Para 4.9: Based on experience and industry input, from either a cost or productivity basis, material for a post-event repair would not be limited to marine delivery/placement. The exception to that statement may be repair types RT5 (breach closure) and RT4 (cap breach opening) though even there a cost analysis of options would be warranted w/the limiting factor being site access.</p>	<p>From an emergency standpoint, marine delivery and placement is more efficient than land-based. Even if rock were sourced from quarries with no marine access, it is likely that a facility to allow the transfer of material from truck to barge would be established to allow marine placement.</p>
<p>4. I am unable to assess/comment on para 5 due to a general lack of background information on the model. I would welcome an opportunity to discuss the model assumptions and results and perhaps clarify the Districts' approach to emergency response/repair, in particular as applies to breach closure.</p>	<p>We are willing to meet and discuss this subject.</p>