

Attachment A

Strategic Approach to Sediment in Auckland

Outline of Work Programme

A. Aim

1. Building on existing knowledge and experience, undertake a systemic analysis of Auckland's sediment issues to develop an implementation-focused, co-ordinated work programme across council to reduce erosion and sediment run-off into waterways and coastal receiving waters.
2. This work programme will align Te Ao Māori and Te Ao Pākehā approaches to better understand how we can influence behaviours and land-use practices to meet national and regional priorities on sediment.

B. Background and context

3. Sediment has been identified as one of the key pollutants of our freshwater and receiving (estuarine and marine) environments leading to degraded water quality, loss of habitat and degraded aquatic ecosystem health. There are also wider issues to consider, such as the loss of soil through erosion processes. The Auckland Plan 2050 identifies urban development and climate change as two specific issues that will continue to have the greatest impact on our environment, both of which are major contributors to the on-going sediment story. Existing approaches and practices need to be better targeted to meet our current evidential needs in evaluating how the Auckland Plan 2050 outcomes will be achieved.
4. This programme will focus on assessing how sediment is managed in order to identify opportunities for targeted solutions and develop a road map for future action to tackle these causes
5. The programme aims to provide clear direction and leadership across the council group and other parties to address the issue of sediment run-off into waterways, with a strong mandate from central and local government for improvement, and a focus on catchment level solutions.

C. Outcomes and expected benefits

6. Outcomes and expected benefits:
 - Drive a reversal of the environmental decline caused by sediment run-off into waterways.
 - Recommend appropriate measures to address the prevention of sediment run-off into waterways in all of Auckland's relevant strategies, policy instruments and interventions.
 - Provide a clear definition of what the council group needs to monitor and how that can be used to evaluate the effectiveness of policies and interventions.
 - Recommend optimal co-ordination of the full range of council group resources (staff and money) in minimising the impacts of erosion and sediment on Auckland's freshwater and marine receiving environments.
 - Encourage those who contribute to sediment problems to become part of the solutions.

D. Outcomes for Māori

7. Reducing sedimentation and sediment run-off into waterways will contribute to the reversal of the environmental decline of, and enhance the mauri of, major water bodies in Tamaki Makaurau over the longer term. This will in turn enhance the ability of mana whenua to exercise kaitiakitanga over their respective rōhe.

8. Embedding Te Ao Māori concepts such as kaitiakitanga into our thinking and decision-making supports a focus on the inter-relationships between the natural environment and people. Support for this approach is clearly articulated in the Auckland Plan 2050 (Direction 2 of the Environment and Heritage Outcome) and through the approach of Auckland Council to the Treaty Settlement negotiations between the Crown and iwi.
9. In October 2018, the Mana Whenua Kaitiaki Forum stated that mana whenua recognise that protecting and enhancing te mauri o te wai is the primary goal of managing Auckland's waterways. To achieve healthy waters, the Kaitiaki Forum seeks the integration of the way we manage land use activities, the design and building of roads and water infrastructure, and care for natural ecosystems. This view is consistent with the strategic approach to sediment presented in this report.

E. Work Programme

10. Across Auckland Council there are several extensive research, monitoring, enforcement and mitigation initiatives addressing the challenges and opportunities of sediment. These not only focus on water quality but also consider broader aspects of soil loss and impacts of climate change.
11. Mindful of this wide range of existing council workstreams and concurrent central government attention on this issue, the Work Programme is divided into six distinct, but related, work areas outlined in the following sections. Analysis in each area will include opportunities for innovation and partnership both across the council group and externally, where appropriate. The outputs of all of these work areas will be drawn together into one final report with recommendations by June 2019.

Work Area 1: Better Information

AIM: Identify the gaps in our knowledge and understanding, and how we address those through use of data, research and intelligence.

12. Recognising the extensive work already undertaken, and ongoing, through the Wai Ora – Healthy Waterways Programme, Water Outcomes SharePoint, RIMU's Research Programme, and the Knowledge Auckland website, further investigation in this work area comprises two streams:
 - a) *Coordination of information, data and research:* to improve transparency and sharing of sediment-related information, data and research across council and externally [outputs link closely to WA6: Developing a Narrative].
 - b) *Research and evidence:* focusing on current gaps in council knowledge of sediment issues and management approaches [outputs link closely to WA4: Monitoring and Evaluation].
13. *Freshwater Management Tool:* Our understanding of current and future scenario state assessments for the region for a range of pollutants, including sediment, will be greatly enhanced by the Freshwater Management Tool (FWMT). This is an integrated contaminant load model and in-stream concentration model currently being built by Healthy Waters to help council meet the requirements of the National Policy Statement for Freshwater Management (NPS-FM) and develop Water Quality Improvement Strategies. The FWMT will assist in providing the robust evidence base for setting objectives, policies and rules in regional planning instruments, as well as helping to define the costs involved to council to achieve these objective through the Long-term Plan 2021 and other processes.

Work Area 1 Key Outputs

	Key Output	Due
<i>Coordination of information, data and research</i>		
1.1	Shared, central repository of sediment-related research reports	Complete
<i>Research and evidence</i>		
1.2	Case Study: Flat Bush (example of permitted activity)	Complete
1.3	Gap analysis and recommendations for research, including ecological, social, cultural and economic impacts	May 2019

Work Area 2: Strategy and Policy

AIM: Examine the gaps and opportunities for improving the management of sediment in regional strategies, plans and policies across the council group, and where council can influence central government direction on sediment.

14. The Auckland Plan 2050 identifies three key challenges for the Auckland region and how to address them over the next 30 years:
 - Population growth and its implications
 - Sharing prosperity with all Aucklanders
 - Reducing environmental degradation.
15. Sediment relates directly to the first and third of these and impacts on the second. A key feature of both the Auckland Plan 2050 and the Auckland Unitary Plan-Operative in Part (AUP-OP) is to promote a compact urban form, against a challenging central government agenda for increased and more rapid provision of housing, as set out in the National Policy Statement on Urban Development Capacity 2016. To reflect this challenge one workstream within Work Area 2 will examine opportunities for improving sediment outcomes in the Auckland Plan (Key Output 2.1) and a further workstream is examining how to include opportunities and innovation to reduce sediment issues in strategic land development processes for housing and transport outcomes (Key Output 2.2).
16. The effectiveness of the Auckland Unitary Plan (operative in part) (AUP-OP) provisions in minimising the impact of land-use activities on sensitive receiving environments will be fundamental to meeting the challenge of the Auckland Plan 2050 to reduce environmental degradation.
17. A further workstream within Work Area 2 (Key Output 2.3) will provide a stock-take and gap analysis of how the sediment-related provisions of the legacy 2001 Regional Plan: Sediment Control and legacy District Plans objectives were integrated into the AUP-OP. It will also reflect on the recommendations of the Independent Hearings Panel in relation to earthworks.
18. Findings from this work area will complement and be integrated with two other related council workstreams:
 - The integrated AUP-OP Monitoring Programme led by Plans & Places to fulfil the s35(2)(b) statutory requirement of the RMA, which will provide a high-level review of the Regional Policy Statement. Sediment is one of the first focus areas of the AUP-OP Monitoring Programme, which aims to produce a set of indicators by April 2019.
 - The AUP-OP Water Review Project, led by Healthy Waters, is evaluating the effectiveness and efficiency of water-related provisions in the AUP-OP as part of the NPS-FM implementation programme. In its first phase this project is examining, in detail, the plan rules and plan implementation process in relation to sediment. The results of this study will inform the plan change process for the NPS-FM, delivered in phases from 2025.

Bringing the results of these three studies together will complete the required policy loop analysis of the effectiveness of the AUP-OP in managing sediment.

19. Auckland Plan 2050 introduces the concept of the circular economy as one that focuses on restoring and recapturing value within a product's lifecycle by intention and design, optimizing the value of materials and resources. This strategic sediment initiative (Key Output 2.4) provides an opportunity to apply circular economic principles to the challenges presented by erosion and sediment in Auckland. The focus of this study will be on identifying opportunities to apply those principles to land use and land use change policies and operations to eliminate or reduce waste externalities, which are resulting in soil (including sediment) loss and adverse impacts on fresh and marine waters.
20. This research will support delivery of outcomes for the Auckland Plan 2050 as well as delivering on wider strategies and plans such as the Auckland Climate Action Plan (ACAP), which is currently in development, and likely to include specific actions on protecting and enhancing soils.

Work Area 2 Key Outputs

	Key Output	Due
2.1	Review of challenges and opportunities for sediment within the Auckland Plan	Jan 2019
2.2	Review and assessment of opportunities to minimise sediment issues in strategic land development processes for housing and transport outcomes (e.g. <i>Supporting Growth, FULSS, Structure Planning</i>)	Jan 2019
2.3	Stocktake and gap analysis of how the ALWP (Regional Plan: Sediment Control) and District Plans objectives were integrated into the AUP-OP	Feb 2019
2.4	Strategic Research Project: Circular Economy and Soil	May 2019
2.5	Participation in MfE Sediment Expert Group and development of Essential Freshwater Package	Ongoing

Work Area 3: Interventions

AIM: Examine current interventions and investigate how key learnings from those can be supported or built upon to improve compliance.

21. National interventions to reduce erosion and sediment include the Freshwater Improvement Fund, the Billion Trees initiative, Hill Country Erosion Fund and the industry-led introduction of Farm Management Plans.
22. Regional interventions to improve sediment outcomes include regulatory methods through the AUP-OP, including resource consent conditions, as well as non-regulatory methods ranging from guidance notes on best practice, capital works, education through field days, training seminars and advice to practical initiatives such as funding of community planting initiatives.
23. In addition, programmes funded by the Water Quality Targeted Rate will directly benefit sediment outcomes for Auckland, for example, the Contaminant Reduction Programme (\$44.5 million) will fund projects to reduce sediment into the Kaipara Harbour, as well as projects to reduce litter and road contaminants with stormwater treatment, including funding for the stormwater treatment for the Hurstmere Road upgrade. A further \$20.4 million has been set aside for the rehabilitation of urban and rural streams, to improve the ecological health of streams, enable urban development in areas such as Omaru Creek in East Tamaki and stabilise areas of high stream erosion, reducing sedimentation in the harbours.
24. A quick win in this area was to use information from early investigations to provide strategic input to the final draft of *GD05: Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region*. This included:
 - updates to reflect the adoption of the Auckland Plan 2050 and how it considers sediment.
 - explicit reference to sensitive receiving environments within the fundamental principles of erosion and sediment control.
 - enhanced recognition of the regional impacts of climate change signalled in the 2018 NIWA report and the need to accommodate these potential impacts when designing erosion and sediment control devices.
 - references to the newly updated Small Sites Booklet in English and Mandarin.
25. A second area of focus has been to work with the Licensing and Regulatory Compliance's Targeted Initiatives team to better understand how a co-ordinated, strategic approach could support improved compliance with erosion and sediment control on small sites. A lack of erosion and sediment controls on small sites is a long-standing issue. The cumulative impact of non-compliance from this permitted activity has the potential to add significant loadings of sediment and other contaminants to Auckland's waterways. Auckland's projected growth, combined with central government pressure for increased (and faster) development, means that this issue is only going to increase.

26. Early observations from the review of the AUP-OP provisions for managing erosion and sediment control on small sites compared with the Auckland Regional Council and various District Council provisions revealed a reduced regulatory burden for the developer than previously applied with lower thresholds for permitted activity. This puts greater emphasis on high quality compliance and enforcement.
27. With almost 20,000 small sites being developed in Auckland each year, sustained education and training of the various actors within the building industry to improve compliance is costly to achieve at the scale required to impact on the whole region. The focus of the Targeted Initiatives team on sediment control on small sites at Flatbush, Hobsonville and Paerata has provided invaluable evidence that education and training, whilst an important part of the solution, has limited success in achieving compliance in the absence of sustained, quality inspection and enforcement.
28. A step change is required to achieve improvements in compliance with erosion and sediment control on small sites at scale, using the collective resources of council in a collaborative manner. The establishment of the Targeted Initiatives team, and the evidence provided by their focus on erosion and sediment control on small sites during 2018 provides the opportunity for this to be effective.
29. As part of this strategic programme, innovative policy and process options are being examined in partnership with all of the key actors to provide a longer-term solution that is embedded in council process and independent of staff turnover. Further initiatives are also being explored to see how council can support industry incentives to encourage those who are part of the problem to innovate and become part of the solution across the full range of earthworks sites.
30. In the next phase of the programme, it will be important to balance the focus on interventions in land-use change with a review of how council provides advice on rural land management issues.

Work Area 3 Key Outputs

	Key Output	Due
3.1	Review of GD05: Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region	Complete <i>(may revisit depending on results of other research)</i>
3.2	Report on Options for Small Sites Compliance	Feb 2019
3.3	Assessment of options for Good Practice Incentives	Feb 2019
3.4	Kaipara Harbour Mitigation Strategies	May 2019

Work Area 4: Monitoring and Evaluation

AIM: Define what council needs to monitor and how that can be used to evaluate the effectiveness of policies and interventions.

31. Monitoring and evaluation of both sediment generation and fate as well as interventions to minimise sediment loss are an important component of understanding the issue and closing the policy effectiveness loop. To do this, an integrated source to sink monitoring framework is required. That is, at a catchment level we need to understand where the sediment is coming from (source) and where it ends up (sink) and what the impact of sediment is in the receiving environment. This requires a 'mountains to sea' approach in monitoring programmes. Specific monitoring around the effectiveness of sediment policies and mitigation devices is also required.
32. As part of council's State of the Environment Monitoring Programme, the Research and Evaluation Unit (RIMU) has event-based sediment monitoring at twelve riverflow sites across the region. The focus of these has previously been rural land use and as such urban or urbanising locations have not been included. RIMU is addressing this by adding new sites in new growth areas, so far one site in the southern growth area has been identified. RIMU also has a comprehensive regional monitoring programme covering fresh and marine water quality and ecological health. To better understand the effects of sediment related to development of growth areas we are taking an integrated monitoring approach in response to the Warkworth Structure Plan and in the Southern Structure Plan areas.

33. Modelling undertaken for the FWMT has only been possible due to past investment in the monitoring data collected to date. Ongoing validation monitoring will be required and there will be areas of specific monitoring required to improve assumptions in the model such as the generation of sediment during an earthworks phase.
34. More concerted monitoring and evaluation is required to validate the effectiveness of specific sediment retention and mitigation devices under different conditions. For example, additional monitoring is occurring in the Weiti catchment to monitor sediment from the earthworks and from surrounding catchments. Healthy Waters' research in the Hōteio aims to investigate methods to stabilise areas of high in-stream erosion to reduce sedimentation in the harbours. Information can be obtained through specific research but also by improving the information collected as part of consent monitoring, including submission of raw data in electronic form so that it can be further analysed.

Work Area 4 Key Outputs

	Key Output	Due
4.1	Sediment Monitoring Strategy: including an integrated source to sink monitoring framework	April 2019
4.2	Scoping report: Evaluation of effectiveness of sediment retention and monitoring devices under different conditions	May 2019

Work Area 5: Co-ordinating and Building Capacity

AIM: Establish what skills and resources are needed for council group to make informed decisions and to implement and enforce policies. Phase 1 will develop a clear understanding of options to deliver as much as possible within existing resources.

35. Effective management of erosion and sediment requires working in collaboration on activities across the council group, mana whenua, partners and external stakeholders. Evidence suggests that while there are some local areas of success, this is not happening at any real scale. In part, this is because the relationships, roles and responsibilities between different work areas in relation to sediment are not clearly articulated, understood or coordinated.
36. Different strategic drivers play a significant role in the extent to which environmental issues are addressed, irrespective of statutory requirements. For example, Auckland Transport and Watercare have specific operational priorities, which can present significant environmental challenges. The requirement for Council Controlled Organisations' Statements of Intent to demonstrate alignment of their activities to the outcomes of the Auckland Plan 2050 should start to broaden their focus to include environmental priorities in the future, resulting in better coordination across the council group.
37. This work area will review how functions relating to sediment are split across the council group, taking into account the full range of erosion and sediment management issues. In the initial phases of this programme, focus will be on assessing what can be done by better aligning existing skills and resources. The aim is to provide intelligence to assess our current and proposed work against the scale of the challenge and advocate for additional or more targeted support to manage erosion and sediment issues if appropriate.
38. Final recommendations will identify if/where work can be completed within existing resources and if/where requests for additional funding need to be brought forward for consideration by the appropriate Committee.

Work Area 5 Key Outputs

	Key Output	Due
5.1	Report: Review of how functions relating to sediment are split across council, including skills availability.	Feb 2019
5.2	Strategic Sediment Resource Plan: including a cost benefit analysis of options for Long-term Plan 2021 funding	June 2019

Work Area 6: Communication and Engagement

AIM: Look at how and with what messages we engage council, mana whenua, partners and wider stakeholders.

39. One of the key outputs of this work area is to develop a shared and coordinated regional narrative for sediment, pulling together our latest understanding of sediment sources and the effectiveness of interventions. This will be an iterative process as myriad historic and new targeted, regional and national studies and research activities add valuable insight to this complex and challenging story.
40. Internally, this will be facilitated using the SharePoint Water Outcomes platform. Externally, this narrative will be shared using the Watershed Story Maps, being created by Healthy Waters as an engagement tool for mana whenua and wider stakeholders in preparation for the implementation of the NPS-FM. The Watershed Story Maps could also be used to signpost interested parties to Knowledge Auckland, which will continue to be used to make available research and monitoring reports as well as simple summary documents.
41. Collating this information will not only facilitate a coordinated approach across the council group, but will also provide a coherent picture to the public of the strategies, policies, actions and interventions council is using to address the sediment issue.
42. An early draft of this narrative was provided to the Hauraki Gulf Forum (20 August 2018) and the SeaChange Political Reference Group (26 September 2018) in the context of meeting strategic sediment outcomes for the Hauraki Gulf. Work is currently in progress to expand the narrative to include initiatives and projects across the whole region.
43. Building on this shared narrative it will be important to develop key messages for communication across the council group, private sector and the wider community. Several existing activities and networks could potentially be linked into for this activity, for example the NPS-FM engagement strategy and Local Board events. Engagement activities would vary depending on the target audience but likely include:
 - Communities – public awareness and engagement campaigns/proactive communications with schools
 - Mana whenua – hui, Kaitiaki Forum
 - Council Controlled Organisations
 - Councillors – workshops/briefings/site visits
 - Local Boards – workshops/briefings/site visits
 - Businesses – direct engagement with businesses and through professional bodies such as the International Erosion Control Association (IECA), business support organisations and training institutes
 - Chinese Media – there is a potential need to deliver information through Chinese media in Auckland, particularly in relation to earthworks on construction sites. The Targeted Initiatives unit has already delivered key message about compliance on small sites in this way.

Work Area 6 Key Outputs

	Key Outputs	Due
6.1	Shared narrative framework: internal, using SharePoint Water Outcomes platform	Feb 2019 and ongoing
6.2	Shared narrative: external, using the Watershed Story Maps	April 2019 and ongoing
6.3	Shared narrative: updates of sediment-related research and monitoring, including simple summary documents via Knowledge Auckland	Ongoing
6.4	Engagement: development of options for wider engagement to reflect shared narrative.	June 2019

F. Comparison with part a) of Environment and Community Committee Resolution Number ENV/2018/99

44. On 14 August 2018, the Environment and Community Committee passed Resolution Number ENV/2018/99. The full text of the resolution can be found at http://infocouncil.aucklandcouncil.govt.nz/Open/2018/08/ENV_20180814_MIN_6842_WEB.htm
45. This work programme addresses part a) of that resolution, which the committee requested:
a scoping report by December 2018 on options for an integrated approach to reduce sedimentation of Auckland's receiving environments (a regional view, not specific to the Weiti development or the catchment), including the following matters:
- i) *individual site approaches*
 - ii) *catchment approaches*
 - iii) *sediment control measures for sensitive receiving environments*
 - iv) *timeframe*
 - v) *costs*
 - vi) *methods for working with iwi, community groups, land owners, experts and other interested parties*
 - vii) *resourcing, including any trade-offs in work programme required to prioritise this work.*
46. The following table demonstrates how the Key Outputs of the work programme will deliver the individual parts of the Resolution.

Resolution Item	Delivered by Key Output #
i. Individual site approaches	1.3 Case Study: Small Sites Compliance 2.2 AUP-OP provisions review 3.2 Report on Options for Small Sites Compliance 3.3 Assessment of options for Good Practice Incentives 4.3 Scoping report: Evaluation of effectiveness of sediment devices
ii. Catchment approaches	1.3 Gap analysis and recommendations for research, including ecological, social, cultural and economic impacts 1.5 Kaipara Harbour Sediment Mitigation Study – Phase 2 2.3 Review and assessment of strategic land development processes 2.4 Strategic Research Project: Circular Economy and Soil

Resolution Item	Delivered by Key Output #
	2.5 Participation in Ministry for Environment 'At Risk Catchments' initiative
iii. Sediment controls for sensitive receiving environments	1.4 Case Study: Okura Long Bay 2.3 Review and assessment of strategic land development processes 2.4 Strategic Research Project: Circular Economy and Soil 2.5 Participation in Ministry for Environment 'At Risk Catchments' 3.1 Review of GD05 4.2 Sediment monitoring strategy 4.3 Scoping report: Evaluation of effectiveness of sediment devices
iv. Timeframe	See section G 5.2 Strategic Sediment Resource Plan
v. Costs	5.2 Strategic Sediment Resource Plan
vi. Methods for working with iwi, community groups, land owners, experts and other interested parties	3.3 Assessment of options for Good Practice Incentives 3.4 Review of current interventions related to sediment in rural land management. 6.2 Shared narrative: external 6.3 Shared narrative: updates 6.4 Awareness raising: key messages
vii. Resourcing, including any trade-offs	5.1 Report: Review of sediment-related functions 5.2 Strategic Sediment Resource Plan

G. Timeline of deliverables by Work Area

Sub-action	2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	June 2019	July 2019 onwards
WA1: Better Information								
1.1 Shared sediment library								
1.2 Case Study: Flat Bush								
1.3 Gap analysis of research activities								
WA2: Strategy and Policy								
2.1 Sediment in the Auckland Plan								
2.2 Sediment in strategic land development processes								
2.3 ALWP/District Plan → AUP-OP Stocktake								
2.4 Circular Economy and Soil								
2.5 Participation in MfE Initiatives								
WA3: Interventions								
3.1 Review of GD05								
3.2 Report on options for small sites								
3.3 Assessment of good practice incentives								
WA4: Monitoring and Evaluation								
4.1 Sediment Monitoring Strategy								
4.2 Scoping Report: evaluation of device effectiveness								
WA5: Coordinating and Building Capacity								
5.1 Review of functions								
5.2 Sediment Resource Plan								
WA6: Communication and Engagement								
6.1 Shared narrative: internal								
6.2 Shared narrative: external								
6.3 Shared narrative: research updates								
6.4 Awareness and engagement plan								

Key:

Phase 1: Understanding: finalise identification of issues	Phase 2: Development of options and recommendations	Phase 3: Implementation: Delivery of options
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