Government of **Western Australia**
Department of **Transport**
and Major Infrastructure

Empowering a thriving community

Generic Professional Data Analysis and Reporting Scope

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Prepared for Department of Transport and Major Infrastructure (DTMI)

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Version control

Version No.	Date	Prepared by	Revision or issue descriptions	Issues to
Draft	10/04/2025	M P Rogers & Associates	Combined Draft for DoT review.	DoT
0	15/05/2025	M P Rogers & Associates	Updated with Client comments and issued for Client use.	DoT
1	10/06/2025	DoT	Additional updates from DoT review	DTMI

Amendment record

This guidelines document is reviewed to ensure its continuing relevance to the systems and process that it describes. A record of contextual revisions is listed in the following table.

Page No.	Context	Revision	Date

Contents

Note

[Data analysis and reporting is expected to combine all recorded data from monitoring and provide an analysis of change along the LGA's coastline. The goal is a report that identifies areas in need of management alongside recommendations for further monitoring, investigations and/or adaptation options. The report should also consider data being gathered as part of any Coastal Monitoring Action Plan (CMAP) and identify potential improvements to the CMAP if necessary.]

Formatting Key

[Throughout this template three text colours have been used to distinguish between the following items.]

1. Recommended content.
2. [Guidance notes for the user to be deleted prior to use.]
3. Example text to be edited by the user prior to use.

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Aim / Objectives

[The aim of professional data analysis and reporting is to review all data available, analyse the trends and assist with ongoing coastal management decisions. Possible key objectives of this work are included below.

- Review and summarise all relevant monitoring data.
- Identify shoreline movement trends.
- Identify beach, rock and seabed levels and assess any changes.
- Assess sediment movement volumes and trends.
- Assess the influence of wave, wind and current climates on the coastline.
- Identify the likely causes of any changes, trends, erosion or accretion and if these will continue.
- Assess beach widths and setback/buffer distances in relation to any trigger points or assets.
- Provide recommendations for any required management or further assessments (if required).
- Recommend any improvements or changes to any aspect of the CMAP (if required).
- Review proposed management solutions in the context of any existing foreshore management plan or similar.

The above points are broad and can be further defined based on individual LGA and CMAP constraints. The LGA will need to determine their requirements and update this scope to match.]

The purpose of analysis and reporting is to allow for the LGA and its coastal manager to understand ongoing coastal changes and their causes, for use in determining management actions. This will involve review of all data and information collected as part of a CMAP (if available) as well as any previous relevant information or monitoring completed. As part of the review, any trigger points or ongoing management actions should be considered. It is expected that the following items will be completed.

- Review and summarise all monitoring data.
- Identify shoreline movement trends.
- Identify beach, rock and seabed levels and assess any changes.
- Assess sediment movement volumes and trends.
- Assess the influence of wave, wind and current climates on the coastline.
- Identify the likely causes of any changes, trends, erosion or accretion and if these will continue.
- Assess beach widths and buffer distances in relation to any trigger points or assets.
- Provide recommendations for any required management or further assessments (if required).
- Recommend any improvements or changes to any aspect of the CMAP (if required).
- Review proposed management solutions in the context of any existing foreshore management plan or similar.

[The LGA is to include, update and remove objectives as required.]

Background

[Provide a brief background that will inform the analysis and reporting, including noted ongoing changes, clear reductions in buffer width, possible management actions and any other relevant

information the LGA can provide. An example background is included below, the LGA should change this to suit their situation.]

The City of Kwinana has been conducting coastal monitoring in line with the attached CMAP for two years. In this time the area at Kwinana Beach fronting Wells Park has continued to experience seasonal erosion leading to reduced buffer width of the beach. Additionally, at Challenger Beach on the northern LGA boundary, there has also been identified changes in the coastline and reduced beach width. The City aims to better understand ongoing changes at these two locations to assist with any future coastal management options. The City has identified a possible management action for Kwinana Beach of sand nourishment and a GSC revetment, so the viability of this option should be considered.

Available Data

[Provide a list of the available data for review, this could be done as a table, dot points or as a reference to the CMAP. Combining these options allows for a clear tender response. A table will usually provide the most accessible way to view information and is the preferred method for identifying available data.

Some data may have been collected by third parties or stored online. The LGA can collate any monitoring data itself or request this from the Consultant. It is expected that the LGA will have identified most of the data available for use by the Consultant.]

The available data to review has been outlined in the associated CMAP and other investigations such as the local CHRMAP. The available data to review is included in the following table, access to this information will be made available to the Consultant on contract award.

Table 1 Available monitoring data

Item	Data Type	Time range of available data	Monitoring Frequency
1	Post-storm monitoring		
2	Photographic monitoring		
3	UAV/drone surveys and photos		
4	Sediment sampling and analysis		
5	Benthic habitat surveys		
6	Coastal structure inspections and assessments		
7	Terrestrial surveying		
8	Hydrographic surveying		
9	Profile surveys / Beach survey transects		
10	Geotechnical and geophysical surveys		
11	Shoreline mapping		
12	Wave data		
13	Wind data		
14	Current data		
15	Water level data		

Some data collected as part of the CMAP has been completed by and/or stored by third parties and government organisations such as various metocean monitoring and photographic monitoring. These datasets and their custodians have been outlined in the CMAP. The Consultant will be responsible for sourcing such data. It is noted that any raw data used by the Consultant should also be supplied to the LGA for their records. The following table provides a list of these items and where to access them.

Table 2 Monitoring data to be sourced from third parties

Item	Data Type	Organisation	Available through
1	Photographic monitoring	Photographic monitoring application	"Website link"
2	UAV/drone surveys and photos	Drone data web host	"Website link"
3	Benthic habitat surveys	Data WA	"Website link"
4	Terrestrial surveying	DoT	"Website link"
5	Hydrographic surveying	DoT	"Website link"
6	Profile Surveys / Beach survey transects	DoT	"Website link"
7	Geotechnical and geophysical surveys	Data WA	"Website link"
8	Shoreline mapping	DoT	"Website link"
9	Wave data	DoT	"Website link"
10	Wind data	BoM	"Website link"
11	Current data	DoT	"Website link"
12	Water level data	DoT	"Website link"

(The above organisations and data available through links will need to be updated based on individual LGA requirements. Additionally, both tables will need to be modified to reflect available data.)

Tasks

[The tasks outlined in this section detail the required components of data analysis and reporting. This aims to achieve clear outcomes for the scope.]

The following tasks are required to be completed by the Consultant as part of the surveys.

1. Task 1 – Receive all available monitoring data, this may include requesting data from online sources.
2. Task 2 – Review and analysis all available data.
3. Task 3 – Identify any recommendations
4. Task 4 – Reporting.

Task 1 – Source Available Monitoring Data

[The data collected as part of any CMAP should be supplied to the Consultant undertaking review and reporting. It is noted that some data may have been collected by third parties as discussed above, for these items, either the LGA or the Consultant can source the data.

It is expected that data will be provided in suitable and accessible formats appropriately labelled for use. Difficulties with supplied data may lead to increased costs or limited analysis.]

The LGA will supply available monitoring data as outlined within the CMAP to the Consultant. The data supplied will be labelled and in appropriate and accessible formats.

For any other monitoring data, the Consultant will be required to collect this from relevant parties, such as DoT.

The Consultant is to confirm if supplied data is appropriate.

Task 2 – Review and Analyse Available Data

[Identify the required outcomes from the review and analysis process.]

The Consultant is to review all monitoring data in line with the objectives identified earlier. The outcomes of the analysis should be clearly defined and simple to understand by the LGA.

Task 3 – Recommendations

[Depending on the requirements of the LGA and ongoing coastal change, the analysis of monitoring data may identify areas that require management. Additionally, refinements to a CMAP could be identified. These findings and outcomes will need to be presented.]

The Consultant is to identify any recommendations for future monitoring, investigations, or adaptation options at areas that require management, or to improve the CMAP.

Task 4 – Reporting

[All identified data and analyses should be provided to the LGA and coastal managers as a simple summary report that includes monitoring results and identifies outcomes of the objectives.]

The Consultant is to provide a summary report that includes all monitoring components and identified objectives. Expected components of the report are identified in the Deliverables section of this scope.

Methodology

[The methodology for the analysis of monitoring data will depend on required outcomes and objectives of the LGA. The methods outlined below are brief and should only be used as a guide in reviewing those proposed by the Consultant. The LGA should be cautious when prescribing a methodology as it may lead to additional cost and complications.

It is recommended that the LGA request a methodology from the Consultant and review their process against the guidelines below.

If the LGA has specific requirements to the process, to align with internal processes or data, these should be included.]

The Consultant is to develop and provide a methodology for the review and analysis of each aspect of the monitoring detailed below.

- Review and summarise all monitoring data.
  - [This generally involves collation and review of all available monitoring data. A summary of each monitoring activity including any observations or outcomes should be presented.]
- Identify shoreline movement trends.
  - [Using shoreline mapping and survey data, changes in the location of the shoreline can be recorded over time to determine ongoing trends. A chainage plan for the shoreline could be

developed, allowing the change from a baseline position to be tracked and plotted. This will allow for any trends to be easily discovered and visually seen by the readers.]

- Identify beach, rock and seabed levels and assess any changes.
  - [Comparing the changes in surveys using a heat map, any change in the levels can be determined, alongside the context of local geology. These changes can be quantified to determine movement volumes and can be assessed using an understanding of local metocean conditions to determine the cause of any change.]
- Assess and determine sediment movement volumes and trends.
  - [Comparing changes in the surveys and survey profiles / beach survey transects will allow for sediment movement volumes to be calculated. Ongoing trends can be discovered through repeated surveys, with more information available the longer a dataset exists. The volume and direction of sediment movement accompanied by understanding the metocean conditions can be used to evaluate sediment dynamics in an area.]
- Assess and determine the influence of wave, wind, and current climates on the coastline.
  - [Using sourced metocean data, the nearshore wave, wind, and current climates can be assessed to gain an understanding of how these processes interact to influence coastline dynamics and coastal assets over both short and long-term periods.]
- Identify the likely causes of any changes, trends, erosion or accretion and if these will continue.
  - [Using the understanding of sediment dynamics and metocean conditions, the likely causes of any change to the coast can be determined.]
- Determine and assess beach widths and buffer distances in relation to any trigger points or assets.
  - [Confirm or determine trigger points related to assets at risk from coastal hazards. Using the available monitoring data, measure and assess each trigger point. Present the outcomes of the assessment, identifying anywhere that the trigger point has reached, or is close to being reached.]
- Provide recommendations for any required management or further assessments, if required.
  - [Throughout the review and analysis, items that may require management or further assessment should be identified. These items should be presented alongside recommendations for future actions. These recommendations should align with associated documents such as foreshore management plans and CHRMAPs.]
- Review proposed management solutions, if already presented in a foreshore management plan or similar.
  - [If management solutions are proposed through a management plan or otherwise, these can be considered as part of the analysis. The understanding of sediment dynamics, ongoing trends and areas at risk can be used to assess if the proposed solution will create the desired outcome along the coast. It is noted these recommendations might be broad and general in nature unless specific investigations are undertaken.]
- Recommend any improvements or changes to any aspect of the CMAP (if required).
  - [Through the review and analysis, it may be discovered that there are gaps in the CMAP. It could also be discovered that the scope of monitoring could be reduced to save budget without impacting the outcome. Any recommendations that could improve the CMAP should be provided.]

Deliverables

[In this section the LGA should consider their requirements of the analysis and reporting to ensure they are met within the deliverables.

The LGA is to confirm the requirements of the report and adjust deliverables as required.]

The Consultant is required to provide a clear and succinct report that includes the following components.

1. A summary of all relevant monitoring data including related assessments or past investigations.
2. Provide a summary of any identified changes or trends.
3. Summarise the geology of the area.
4. Summarise the sediment dynamics in the area.
5. Summarise the metocean conditions in the area.
6. Identify the likely causes of the identified changes or trends.
7. Provide beach widths and buffer distances in relation to any trigger points.
8. Provide recommendations for any required management or further assessments (if required).
9. Recommend any improvements or changes to any aspect of the CMAP (if required).
10. (Include any requirements specific to the LGA).

In addition to the report, any raw data gathered by the Consultant for use in the project must be provided to the LGA.

Timeframe

[Use this section to provide the recommended time for the review, analysis and reporting of the monitoring plan. The timing of the review should be aligned with the provision and receival of all data required to complete the assessment.]

The City will deliver all monitoring data to the Consultant in XX, these data will be supplied on contract award. The Consultant is to provide a timeline for this project with the final report being supplied within XX months of the works being awarded.

Documents and Files to be Provided

[This is where the LGA can provide details of any documents and files that will assist the Consultant conducting the review, this should include all monitoring data and any CMAP. Examples of these documents are included below.]

The following files (and documents) will be provided to the Consultant on the award of the works.

- Details of any changes or works along the coastline.
- Post-storm monitoring.
- Photographic monitoring.
- UAV/drone surveys and photos.
- Sediment sampling and analysis.
- Benthic habitat surveys.
- Coastal structure inspections and assessments.

- Terrestrial surveying.
- Hydrographic surveying.
- Profile surveys / Beach survey transects.
- Geotechnical and geophysical surveys.
- Shoreline mapping.
- Wave data.
- Wind data.
- Current data.
- Tide data.
- Previous analysis reports.
- The CMAP.
- Details of any specific labelling requirements.
- Any relevant documents the LGA has access to.

Appendices

[Include any required documents, these could include previous analysis reports and the CMAP along with any other documents the LGA wishes to supply.]