Supplementary Agenda Ordinary Meeting

Thursday, 15 August 2024





	BIRON OTTINE GOONGIE
	LEMENTARY AGENDA HAS BEEN PREPARED TO PROVIDE AN AL ATTACHMENT TO REPORT 13.26:
13.26	Mullumbimby Water Supply Strategy

ADDITIONAL ATTACHMENT

Report No. 13.26 Mullumbimby Water Supply Strategy

Directorate: Infrastructure Services

5 **Report Author:** Cameron Clark, Manager Utilities

File No: 12024/1080

Summary:

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Council engaged Hydrosphere Consulting to investigate options for the future delivery of Mullumbimby's water and provide a recommendation for giving residents and businesses reliable access to clean water at a reasonable price.

The Hydrosphere report, Mullumbimby Water Supply Strategy (December 2021), identified four scenarios for Mullumbimby's future water supply:

- Keep using current source (Lavertys Gap weir) with no new water source. System upgrades and a new water treatment plant (WTP) needed and beyond 2027 water restrictions may increase
- 2. Build an off-stream reservoir to store high flows that overtop the weir. System upgrades and new WTP will also be required
- 3. Permanent connection to the Rous County Council-operated regional water supply that supplies the rest of Byron Shire
- 20 4. Supplement the Lavertys Gap supply with a new groundwater source. Investigations needed to identify a viable source and a new WTP required

Scenario 3 - permanent, full connection to the Rous regional water supply - is the option recommended by the consultant and Council staff, based on the environmental, economic and social assessment criteria.

In June 2024, Council conducted public consultation to measure community opinion about the report findings and recommendation. A community survey gathered 411 valid responses, with the majority of responses indicating support for retaining a local water supply.

Council resolved at its Planning Meeting on 1 August 2022 (Res 24-366) the following: -

- Resolved that Council receives a report prior to the Ordinary Council meeting on 15
 August 2024 which updates the costings in the Hydrosphere report from 2021 so that
 a more current NPV comparison can be obtained between the off-stream
 storage/new water treatment plant, and connecting to Rous options.
- This report provides a response to Res 24-366 (above)and provides supplementary information in relation to the results of the consultation process that was reported to the 19

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August 2024 Extraordinary Water and Sewer Advisory Committee (Minutes are provided separately in this agenda).

At the time of compiling this report the revised NPV (as per Res 24-366) was not available and will be provided separately prior to the meeting of 15 August 2024.

The revised NVP has subsequently been provided as Attachment 4 in the Supplementary Agenda published on 9 August 2024.

10 **RECOMMENDATION**:

That Council: -

- 1) Note the outcomes of the public consultation on Mullumbimby Future Water Strategy (Attachment 1 and 2);
- 15 2) Notes the revised NPV comparison analysis for the Water Supply Options for Scenarios 2 and 3:
 - 3) Adopt Scenario 3 permanent, full connection to the Rous Regional water supply;
 - 4) Request staff to investigate and report back to Council options for Laverty Gap water treatment infrastructure and associated land use: and
- 5) Request staff to undertake an Engineering Options Analysis for the rural properties attached to the trunk main between the water treatment plant and Mullumbimby reservoirs.

Attachments:

- 1 Mullumbimby water supply strategy final draft Rev 2 public exhibition, E2024/62586
- 30 2 Mullumbimby Water Supply Strategy Public Consultation Report July 2024, E2024/80095
 - 3 Resolutions Future Water Strategy, E2024/90257
 - 4 Mullumbimby Future Water Strategy Revised NPV, E2024/93398

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Report

Introduction

Council engaged Hydrosphere Consulting in 2020 to consider options for securing Mullumbimby's water supply up to 2050 and beyond. Draft outcomes of the study were 5 presented to Council staff and the Executive Team prior to presentation to the Water and Sewer Advisory Committee in April 2021.

The study was also discussed at subsequent meetings of the Committee in September 2022, June 2023 and a Council workshop in November 2023.

10 The findings and recommendations of Hydrosphere's report, Mullumbimby Water Supply Strategy (December 2021) are presented in summary here. (Attachment 1)

Background

- Mullumbimby's demand for water is increasing with development and population growth.
- The existing source of the town's water, Lavertys Gap weir, cannot meet forecast demand without the potential for more frequent and severe water restrictions.
- A new water source is needed to provide water security for the town in the near future.
 - If the raw water supply is not augmented, restrictions are likely to be more frequent, and the weir supply will be depleted in a prolonged drought.
- 25 If the weir supply continues to be used, upgrades are needed for the raw water transfer channel between the weir and Water Treatment Plant, with the channel at risk of failure.
 - The Mullumbimby Water Treatment Plant is ageing and requires replacement.

30 **Overview**

Hydrosphere Consulting prepared a long-term strategy for the Mullumbimby water supply. The key issue addressed is water supply security (servicing existing customers and future development over the long-term). The current demand for water is similar to the secure yield at Lavertys Gap Weir and if the worst drought on record were to repeat, the current supply would not meet demand. Council has prepared growth management strategies for urban land, rural areas and business/industrial land which include future development that will increase the demand for potable water.

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The strategy also considers:

Asset condition and performance (see reference to raw water channel and WTP above)

• Drought management and emergency response.

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 Heritage considerations and management obligations - Lavertys Gap Weir and channel (as part of the Mullumbimby hydro-electric power complex) are listed on the NSW State Heritage Register and the WTP has local heritage significance.

Scenarios and recommendations

10 The Mullumbimby Water Supply Strategy identifies four viable scenarios for providing water to the town into the future.

No local options have been identified that do not require major infrastructure solutions. Supply scenarios have been developed from combinations of options that achieve the required secure yield over the long-term (754 ML/a, an increase of 377 ML/a at 2050). All scenarios include the following common components in the short-term:

- Continued use of the weir supply and Mullumbimby WTP
- Short- term WTP upgrades to ensure consistent supply of microbially safe water
- Extension of the RCC emergency bulk water supply connection to service all Mullumbimby water supply customers to be used as a secure emergency response measure when required to supplement the weir supply

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SCENARIOS IDENTIFIED IN REPORT (Attachment 1):

Scenario 1 - Keep drawing water from Lavertys Gap weir with no new water sources

Continuing to use Laverty's Gap weir will require upgrades of the existing raw water transfer system, a new water treatment plant (WTP) and emergency connection to the regional supply operated by Rous County Council (RCC). Mullumbimby's current supply is expected to be secure until 2027, assuming emergency supply is available and water loss management measures are successful.

If Laverty's Gap weir cannot meet the water demand, water restrictions would be required. Temporary emergency responses would include use of the emergency connection to the Rous County Council regional water supply, water carting, accessing "dead storage" in Laverty's Gap Weir and establishing a new groundwater bore as an emergency source.

Whilst this option provides the lowest cost, it cannot be progressed due to the unavoidable risk of not being able to meet the future water supply needs of Mullumbimby.

Scenario 2 – Off-stream storage

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Building a new off-stream water reservoir between Lavertys Gap weir and the town to store high river flows that would normally overtop the weir. This scenario will require improvements to the existing raw water transfer system, a new WTP and full emergency connection to the RCC regional supply. This scenario could provide a secure water supply until about 2060, depending on the size of the storage.

A 200 ML storage is expected to be required. This option is not recommended due to the high cost and the need for a replacement WTP.

Scenario 3 – Full connection to Rous County Council regional supply

The RCC regional supply provides water for Byron Bay, Bangalow, Brunswick Heads,
Ocean Shores and surrounding areas, as well as Ballina, Lismore and Richmond Valley shires.

Permanent connection to the regional water supply would mean that water is no longer sourced from Lavertys Gap weir and there would be no need to build a new WTP at Mullumbimby.

Permanent, full connection to the regional water supply is the option recommended by the consultants and Byron Shire Council staff based on the environmental, economic and social assessment.

Scenario 4 - Groundwater

This option involves supplementing Mullumbimby's existing water supply from Lavertys

Gap weir with a new groundwater source pumped directly to the WTP for treatment or to the weir storage, depending on the location of the bore supply and future location of a new WTP.

If groundwater is pursued, further investigation of potential bore locations will need to consider land ownership and acquisition, heritage constraints, local geology and environmental constraints. Once potential bore locations have been identified, test bores need to be established and samples taken to determine the yield, salinity and other parameters of concern for drinking water supply.

This scenario ranked second in the environmental, economic and social assessment but would require significant additional investigation and lead-time.

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Comparison of Supply Scenarios (Hydrosphere report page VI)(Attachment 1)

Scenario	Security of supply	Capital cost (2021\$) ¹	30-year operation and maintenance cost (2021\$) ¹
S1: Base case: Improvements to the existing raw water transfer system, a new WTP and full emergency connection to the regional supply and new WTP.	Secure until 2027. Beyond 2027, restrictions may become more frequent and/or more severe.	\$14,430,000 (weir supply, WTP, emergency supply)	\$4,862,000 (operation of weir supply)
S2: Off-stream storage: Improvements to the existing raw water transfer system, full emergency connection to the regional supply, construction of a 200 ML off-stream storage and new WTP.	A 200 ML storage is expected to provide a secure supply until approximately 2060.	\$35,830,000 (weir supply, WTP, emergency supply, 200 ML storage)	\$5,363,000 (operation of weir supply)
S3: Permanent connection to RCC regional supply: Mullumbimby would form part of the RCC regional supply network with bulk treated water transferred to the Azalea Street reservoirs.	The secure yield would be determined by the RCC bulk supply system, as with the remainder of Byron Shire.	\$4,264,000 (emergency supply, pipeline duplication)	\$20,910,000 (purchase of water)
S4: Supplementary groundwater: Improvements to the existing raw water transfer system, new WTP, full emergency connection to the regional supply, construction of new bores to the south- west of Mullumbimby with raw water transferred either to the weir or the new WTP for treatment and distribution to the township.	A supplementary groundwater supply with a yield of 1.1 ML/d is expected to provide a secure supply until 2050. Higher groundwater yields would reduce reliance on the weir supply and increase the security of the groundwater option.	\$18,149,000 (weir supply, groundwater bores, WTP, emergency supply)	\$5,497,000 (operation of weir and groundwater supply)

The costs do not include current operating costs, staff costs or costs of infrastructure modifications for heritage preservation as these
are common to all scenarios.

Preferred Scenario

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Based on the Triple Bottom Line assessment, the most favourable scenario is S3: Full connection to the RCC regional supply. This scenario would have minimal incremental environmental impact and the security of supply is only limited by the security of the RCC regional supply.

The addition of Mullumbimby to the regional supply is unlikely to affect RCC's overall bulk supply strategy and the major environmental impacts associated with the regional scheme are fixed regardless of the inclusion of Mullumbimby in the regional scheme.

When factors such as energy consumption, infrastructure modifications and required investment are considered, the regional supply has significant benefit over the local scenarios.

The original Net Present Value Cost (NPV) of the regional scenario is the lowest of all scenarios. There are significant capital cost savings in avoiding the need to replace the Mullumbimby WTP, upgrade the weir supply and construction of new infrastructure, however the ongoing costs of a regional supply are higher than local scenarios.

The benefits of centralisation of water supplies and regional interconnection have been recognised in a previous study undertaken by the Northern Rivers Regional Organisation of Councils (now Joint Organisation) including improved financial outcomes through economies of scale, access to a wider range of options to improve efficiency, system resilience and operational flexibility. Financial benefits would result from regional opportunities for staging of water source development, increased flexibility in scheme development, reduced duplication of infrastructure and sharing of costs over a larger customer base. There is also the potential to reduce the risk of supply shortage in the region through supply diversity, supply redundancy, climate resilience and system flexibility. A regional scheme also allows access to a wider range of options to improve environmental and social outcomes than a local scheme.

Key issues

- Trunk main customers Approximately 13 customers on Wilsons Creek Road are connected to the trunk water main running from the Water Treatment Plant. The Hydrosphere report identified that future servicing of trunk main-connected customers would need to be resolved dependent on the preferred scenario.
- Dunoon Dam Comments received during the public exhibition period expressed concern that connecting Mullumbimby to the Rous regional water supply would support the case for construction of Dunoon Dam. Byron Shire Council has advice from Rous County Council that there would be no requirement to augment its supply to connect Mullumbimby to the regional network. This information was made public during the exhibition period.
- Concerns raised by Committee members and community in relation 1) to costings
 provided in the Hydrosphere report being outdated as these costing were based on
 industry figures from 2021; and 2) Discount rates and inflation rates.

Strategic Considerations

Community Strategic Plan and Operational Plan

CSP Objective	CSP Strategy	DP Action	Code	OP Activity
5: Connected Infrastructure	5.5: Provide continuous and	5.5.1: Water supply - Provide a	5.5.1.20	Report to Council on the future water strategy for

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sustainable water and sewerage management	continuous water supply that is maintained in	Mullumbimby
management	accordance with NSW Health guidelines	

Recent Resolutions

Complete detailed resolutions can be found in *appendix 3 Resolutions - Future Water Strategy, E2024/90257*

RES NO	MEETING DATE	TITLE	REPORT
24-366	01/08/2024	Costing Update for 2021 Hydrosphere Report	12024/1080
24-162	18/04/2024	Response to Questions – Future Water Strategy	12024/435
23-120	27/04/2023	Mullumbimby Water Supply Strategy – Members' Motions	12023/345
22-498	29/09/2022	Report No 4.3 – Safe and Secure Yield	12022/583
21-271	05/08/2021	Rous Future Water	12021/1181
21-239	24/06/2021	Mullumbimby Future Water Strategy	12021/781
21-251	27/05/2021	Mullumbimby Future Water Strategy	12021/478

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Financial Considerations

The quoted financial comments below in this report for each scenario are based on 2021 estimates. It is proposed that updated estimated costs will be provided as early as possible prior to the 15 August 2024.

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Water capital works reserve projected at 30 June 2024 stands at \$4,036,010.00.

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The Water Fund has planned budgeted capital works for the 2024/2025 financial year of \$2,487,200.00 with carry overs from the 2023/24 financial year of \$1,516,300.00 (yet to be approved and subject of another report to this Ordinary Council Meeting). This provides an estimated balance as at 30 June 2025 of \$32,510 in the Water capital works reserve should the budget carryovers be approved. There is a further \$793,400 available in Section 64 Contributions for Mullumbimby as at 30 June 2024 but confirmation would be needed as to how much of these funds could be utilised for any of the scenarios in this report. Irrespective of this, there is not sufficient available funds on hand.

- Therefore, any option that sits outside of permanent connection to Rous (Scenario 3) would require 100% borrowing for the capital costs or consideration of selling off some Water Fund property assets as an alternate to some generate funding.
- Cost estimates have been provided by Hydrosphere for each of the four scenarios identified. Common to all scenarios are the short-term costs associated with necessary upgrade work of the Mullumbimby WTP. Allowances but not estimates have been provided for land acquisition costs, siteworks and engineering associated with scenarios one, two and four.
 - Total capital cost, total operating cost, 30-year whole-of-life cost and a 30-year Net Present Value (NPV) cost discounted at 5%, are identified in 2021 dollars for each scenario. Those costs are listed in Table 58 (Hydrosphere report, page 157), which is included below.
 - Scenario 3 is identified as having the lowest capital cost and lowest NPV of all scenarios (noting that Scenario 1 is included as a base case only).
- Contributing to this result are the significant capital cost savings achieved in avoiding the need to replace the Mullumbimby WTP and upgrade the weir supply in addition to constructing new infrastructure.
 - The ongoing water supply cost is higher under Scenario 3 than local supply scenarios and this is accounted for under the NPV estimate.
- As noted in the Hydrosphere report, the benefits of centralisation of water supplies and regional interconnection have been recognised in a previous study undertaken by the Northern Rivers Regional Organisation of Councils (now Joint Organisation), with benefits including improved financial outcomes through economies of scale, access to a wider range of options to improve efficiency, system resilience and operational flexibility.
- Financial benefits would result from regional opportunities for staging of water source development, increased flexibility in scheme development, reduced duplication of infrastructure and sharing of costs over a larger customer base. It may be more likely that grant funding opportunities may be available on a regional basis which Scenario 3 could facilitate.

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A summary of capital costs and NPV for each scenario is provided here from the original Hydrosphere Report (Attachment 1):

Scenario 1 - Keep drawing water from Lavertys Gap weir with no new water sources

(Note: Included as a base case scenario)

5 Total Capital Cost: \$14,430,000

Total Operating Cost: \$4,862,000

Whole of life cost (30 year): \$19,296,000

NPV: \$13,410,000

Scenario 2 - Off-stream storage

10 Total Capital Cost: \$35,830,000

Total Operating Cost: \$5,363,000

Whole of life cost (30 year): \$41,197,000

NPV: \$29,538,000

Scenario 3 – Full connection to Rous County Council regional supply

15 Total Capital Cost: \$4,264,000

Total Operating Cost: \$20,910,000

Whole of life cost (30 year): \$25,174,000

NPV: \$13,748,000

Scenario 4 – Groundwater

20 Total Capital Cost: \$18,149,000

Total Operating Cost: \$5,497,000

Whole of life cost (30 year): \$23,646,000

NPV: \$15,792,000

A timeline comparison of the expenditure profile Council must contemplate for each scenario (Figure 74, page 160), shows a substantial early years outlay under Scenario 2 (approx. \$17 million in 2027) compared with other scenarios. This is associated with an estimated \$20,680,000 cost of construction for an off-stream storage ((Hydrosphere report Table 58, page 157 and reproduced below).

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Table 58 shows a total operating cost of \$20,910,000 for Scenario 3. This is associated with the ongoing cost of purchasing bulk water from the regional supplier.

As mentioned earlier in the report, whilst Scenario 1 provides the lowest cost, it cannot be progressed due to the unavoidable risk of not being able to meet the future water supply needs of Mullumbimby.

Further to the original NPV Council through a Mayoral Minute resolved at its Planning Meeting on 1 August 2022 (Res 24-366) the following: -

Resolved that Council receives a report prior to the Ordinary Council meeting on 15 August 2024 which updates the costings in the Hydrosphere report from 2021 so that a more current NPV comparison can be obtained between the off-stream storage/new water treatment plant, and connecting to Rous options.

At the time of compiling this report the revised NPV (as per Res 24-366) was not available and will be provided separately prior to the meeting of 15 August 2024. The NPV being prepared by the consultant will be peered reviewed by Council's Manager Finance and Business Analyst

Preliminary assessment indicates that the NPV outcomes do not change managements recommendation to adopt Scenario 3.

Consultation and Engagement

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The full consultation report can be found in *appendix 2 Mullumbimby Water Supply Strategy*20 *Public Consultation Report July 2024, E2024/80095*

In April 2024, Council retained an external communications consultant to undertake community consultation on the findings of the 2021 Hydrosphere Consulting report ahead of a decision by Council at its 15 August, 2024 meeting.

A stakeholder engagement plan and communications campaign were developed and a community survey was created to provide an opportunity for feedback.

Detailed information about the report and recommendations was published on the Your Say section of Council's website and the survey was open from June 3 to June 30, 2024. The public exhibition and survey were promoted via Council newsletter, social media, print and radio advertising, media releases, market stalls and public information sessions. Stakeholder engagement included media interviews, public information sessions and meetings with representatives of the Mullumbimby Residents' Association and Water Northern Rivers.

Public information sessions and market stalls

Attendance was low at public information sessions held at Council chambers, with 11 people across two sessions on June 18 (12pm and 5.30pm) and 11 people on June 26 (5.30pm). Information stalls were held at Mullumbimby Farmers Market on June 14 and 28 with information given to 90 people.

Results of community survey

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The survey asked participants to respond to five questions and provided two free text fields for further comments. A total of 411 valid submissions were received.

NOTE: The Mullumbimby Residents' Association (MRA) produced a Submission Guide for completing the survey to advocate for Scenario 2. The guide was hosted on the Water Northern Rivers website and distributed in hard copy. A significant proportion of the survey responses to each question align with the responses suggested in the guide.

A copy of the submission guide is included as an appendix in the Public Consultation Report for information.

The questions and responses (in italics) for the online survey were:

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- How important is it to you that the town remains on a separate local water supply? (ranked from Not at all important to Extremely important)
 - For Question 1, of 411 responses, 372, or 91%, ranked remaining on a local water supply as extremely important.
- 2) Which issues are most important for you when considering Mullumbimby's future water supply security of supply, environmental outcome, economic outcome (ranked from Not at all important to Extremely important)
 - For Question 2, security of water supply and environmental outcome ranked similarly, with more than 70% of responses ranking them extremely important. Economic outcome was ranked: Extremely important 25.3%; Moderately important 24.5%; Neutral 37.9%; Slightly important 7.5%; Not at all important 4.6% (results rounded)
- Please indicate your support for the following options for meeting this cost –
 higher water rates in Mullumbimby, cost shared equally across Byron Shire (ranked from Strongly oppose to Strongly favour)
 - Question 3 sought an indication of how the community wished to meet the cost of a separate water supply for Mullumbimby in the event a local supply was the chosen scenario. The most common response was "Neutral", which aligns with the suggested response in the MRA Submission Guide. The Submission Guide described Q3 as "fear-based questions" and recommended answering "Neutral" to both.
 - 4) Do you support the recommendation to connect Mullumbimby to the regional water supply operated by Rous County Council? (options: Yes, Unsure/Neutral, No).
 - Of 411 responses, 366, or 89 percent, did not support the recommendation.
 - A free text field was provided with the request: "Please add any comments to explain your answer".
 - 5) Please rank the scenarios listed below in order of preference (Scenarios ranked from 1 to 4).

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Question 5 asked respondents to rank the four scenarios in order of preference, from 1 for most preferred, to 4 for least preferred. Scenario 2 gathered the highest number of first preference rankings. Scenario 3 gathered the highest number of fourth preference rankings.

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A free text field was provided to respond to the question: "Once a preferred approach has been identified, we will do detailed investigations and design to implement a secure water supply for Mullumbimby. Is there anything else you wish Council to consider?"

10 Summary of free text responses to Q4

There were 307 comments left in the free text field for Q4.

Comments were predominantly in favour of Mullumbimby retaining an independent water supply. Common responses included the phrase "we value our autonomy", a preference for water from Lavertys Gap vs the regional network on quality/taste grounds, a belief that more sources (Lavertys Gap plus emergency connection and/or offstream storage) will increase supply resilience, concern that Rous has insufficient water supplies and concern that connecting Mullumbimby would support the case for Dunoon Dam.

Summary of free text responses to Q5

There were 210 comments in free text responses to Q5. Common themes were concern that connection to the regional supply would support the case for Dunoon Dam, a desire for water security, support for an independent water source or diverse sources, concern about fluoride in the water supply and calls for increased use of water tanks.

A note on common themes in comments and responses offered to common questions is included on page 18 of the Public Consultation Report.

25 Location of respondents

Survey respondents were asked to indicate their suburb or village. The location breakdown is listed below.

Bangalow 1

Billinudgel 2

30 Binna Burra 1

Broken Head 1

Brunswick Heads 23

Byron Bay 17

Coopers Shoot 1

35 Coorabell 1

Ewingsdale 3

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