



TOWN OF KENTVILLE COUNCIL ADVISORY COMMITTEE June 13, 2022 AGENDA

6:00 p.m.

- 1. CALL MEETING TO ORDER AND ROLL CALL**
- 2. APPROVAL OF THE AGENDA**
- 3. APPROVAL OF THE MINUTES**
 - (a) Council Advisory Committee, May 9, 2021
- 4. PRESENTATIONS**
 - (a) Kentville Inclusion and Access Advisory Committee Update
 - (b) Cornwallis Street Renaming: Presentation of Draft “Street Naming and Renaming Policy”
- 5. DEPARTMENT REPORTS AND RECOMMENDATIONS**
 - (a) Finance
 1. Director’s Report
 2. Temporary Borrowing Resolution – Capital
 - (b) Planning and Development
 1. Director’s Report
 2. Community Economic Development Coordinator’s Report
 - (c) Parks and Recreation
 1. Director’s Report
 - (d) Police
 1. Chief’s Report
 - (e) Engineering and Public Works
 1. Director’s Report
 2. Revised Capital Construction Details

3. 2022-2023 Sanitary Sewer Capital Budget
4. 2022-2023 Sanitary Sewer Operating Budget

(f) Administration

1. Chief Administrative Officer's Report

6. BUSINESS ARISING FROM THE MINUTES/OLD BUSINESS

- (a) **Noise Bylaw**
- (b) Property Assisted Community Energy (PACE) Update
- (c) Town of Annapolis Royal Tidal Proposal
- (d) **Kentville Business Community Active Transportation Session**

7. CORRESPONDENCE

- (a) None

8. NEW BUSINESS

- (a) Street Naming and Renaming Policy
- (b) Town of Kentville Greenhouse Gas Emissions Reduction Strategy
- (c) Appointment of Inspector

9. PUBLIC COMMENTS

10. IN-CAMERA

- (a) Property Matter
- (b) Legal Matter

11. ADJOURNMENT

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**TOWN OF KENTVILLE
COUNCIL ADVISORY COMMITTEE
Meeting Minutes: May 9, 2022
Town Hall, 354 Main Street, Kentville Nova Scotia**

This meeting was held in person in Town Hall and was posted to YouTube with closed captioning after the meeting.

Mayor Sandra Snow called the meeting to order at 6:00 p.m., and Chief Administrative Officer (CAO) Dan Troke reported the following members of Council and staff were present:

1. PRESENT

Council:

- Mayor Sandra Snow
- Deputy Mayor Cate Savage
- Councillor Craig Gerrard
- Councillor Paula Huntley
- Councillor Cathy Maxwell
- Councillor Gillian Yorke
- Councillor Andrew Zebian

Staff:

- Dan Troke, Chief Administrative Officer
- Rachel Bedingfield, Director of Parks and Recreation
- James Butler, Kentville Police Service
- David Bell, Director of Engineering
- Debra Crowell, Director of Finance
- Beverley Gentleman, Director of Planning
- Jennifer West, Recording Secretary
- Geoff Muttart, Solicitor

REGRETS

None.

DECLARATIONS OF CONFLICT OF INTEREST

None.

2. APPROVAL OF THE AGENDA

It was moved by Deputy Mayor Cate Savage and Councillor Paula Huntley

- **Addition:** In Camera, 10.b Personnel – CAO Appraisal.

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That the agenda for the Council Advisory Committee meeting of May 9, 2022 be approved with this addition.

MOTION CARRIED

3. APPROVAL OF THE MINUTES

(a) Council Advisory Committee, Meeting Minutes, April 11, 2022.

It was moved that the minutes from the Council Advisory Committee meeting held on April 11, 2022 be approved.

MOTION CARRIED

4. PRESENTATION

(a) None.

5. DEPARTMENT REPORTS AND RECOMMENDATIONS

(a) Finance

(1) Directors Report

Director Deb Crowell submitted her report for the period ending April 31, 2022. To this date, overall revenue exceeds the benchmark (8.3%) at 34.6% and overall expenditures are slightly below the benchmark at 8%.

See report for more information.

(b) Planning and Development

(1) Director's Report

Director Bev Gentleman submitted her report for April 2022. Highlights included a building valuation of \$14,303,240 for the year thus far. The report also included project updates about municipal flood line mapping project, Hibou Court, and the Heritage Bylaw.

See report for more information.

(2) Community and Economic Development Report

CAO Troke submitted this report for April 2022. Highlights included planning for spring and summer, seasonal tourism marketing, opening of the Visitor Information Centre and for Apple Blossom Festival.

See report for more information.

(c) Parks and Recreation

(1) Director's Report

Director Bedingfield presenter her report for April 2022. Some of the highlights included maintaining fields and trails, invasive species, launching

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summer registration for programs and summer hiring. Director Bedingfield gave an introduction to the 2022-2023 active transportation projects and to the downtown trail project.

See report for more information.

(2) Active Transportation Presentation

Ahmad El-kadri presented the downtown Active Transportation project which will connect the Harvest Moon Trail through the downtown through Justice Way, Station Lane and Webster Street.

See report for more information.

Discussion

- Next steps for Council: Provide concerns or questions about this project to the CAO. Will this come back to Council for approval? If Councillors have grave concerns about a project, they should discuss it with the CAO.

(d) Police Report

(1) Chief's Report

The Police Commission submitted their report with a listing of calls for service, activities, training and meetings, and a financial update.

See report for more information.

(e) Engineering and Public Works

(1) Director's Report

Director Dave Bell submitted his report for April 2022. Some of the highlights included water commission budgets, sewer laterals, patch and paving contracting and capital projects.

See report for more information.

Discussion

- Staff will address unsafe parking issues at Leverett and Klondyke.
- Staff will look into adding sidewalk access near the Canada Post building.

(f) Administration

(1) Chief Administrative Officer's Report

CAO Troke submitted his report for April 2022 and highlights included budget meetings, intermunicipal service agreements, and the municipal boundary review.

See report for more information.

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6. BUSINESS ARISING FROM THE MINUTES / OLD BUSINESS

(a) Mentoring Plus Quarterly Update

Mayor Snow reviewed the update provided by Mentoring Plus, which included an activity report, upcoming initiatives.

See report for more information.

7. CORRESPONDENCE

(a) None.

8. NEW BUSINESS

(a) Municipal Boundary Review

CAO Troke described the municipal boundary review and laid out plans to meet these provincial requirements using existing staff.

See report for more information.

It was moved by Councillor Paula Huntley and Councillor Gillian Yorke

That Council Advisory Committee Recommend

Approval to the May 30, 2022 meeting of Council

That staff coordinate the 2022 Municipal Boundary Review process and bring a report to Council at the October 2022 meeting of Council Advisory Committee.

MOTION CARRIED

Councillors who voted in favour of this motion:

Gerrard, Huntley, Maxwell, Savage, Snow, Yorke and Zebian

(b) Requests for Decisions:

a. Noise Bylaw

CAO Troke reviewed the research and legal advice about this bylaw and presented some clarifications for Council to consider.

Discussion

- Staff will review this discussion and develop a draft document for Council.

See report for more information.

b. Heritage Bylaw

Director Gentleman reviewed current practices around protecting heritage buildings and gave recommendations for a voluntary heritage bylaw in Kentville.

See report for more information.

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Discussion

- Staff will review this discussion and develop a draft document with a number of decision points for Council.

It was moved by Councillor Cathy Maxwell and Councillor Andrew Zebian

That Council Advisory Committee Recommend
Approval to the May 30, 2022 meeting of Council

That Council direct the CAO to pursue drafting a Heritage Bylaw for review by Council.

MOTION CARRIED

*Councillors who voted in favour of this motion:
Gerrard, Huntley, Maxwell, Savage, Snow, Yorke and Zebian*

c. Youth Advisory Committee

Councillor Yorke reviewed her proposal for Council to consider the development of a youth advisory committee.

See report for more information.

Discussion

- Staff will review this discussion and develop a draft document for Council.

d. Planning for Advisory Committee

CAO Troke outlined the idea for a committee of Council providing feedback and advice around planning and sustainability decisions in the Town.

See report for more information.

Discussion

- Staff will review this discussion and develop a draft document for Council.

(c) Snow Gate Plow Report

Director Bell presented his research and a recommendation not to adopt a snow gate plow for the Town’s snow removal. Council supported this recommendation from staff.

See report for more information.

(d) Property Assessed Community Energy Update

CAO Troke discussed some upcoming meetings regarding the PACE program and will bring updates to the next meeting of Council.

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See report for more information.

Discussion

- Staff will meet with PACE Atlantic and Quest to learn more about this program.

9. IN PUBLIC COMMENTS

(a) None.

10. IN CAMERA

(a) Property and personnel matters

It was moved by Deputy Mayor Cate Savage and Councillor Gillian Yorke

That Council move into a closed session at 9:08 pm to discuss confidential matters relating to property and personnel.

MOTION CARRIED

Councillors who voted in favour of this motion:

Gerrard, Huntley, Maxwell, Savage, Snow, Yorke and Zebian

It was moved by Councillor Gillian Yorke and Councillor Paula Huntley

That Council return to open session at 9:44 pm

MOTION CARRIED

Councillors who voted in favour of this motion:

Gerrard, Huntley, Maxwell, Savage, Snow, Yorke and Zebian

11. ADJOURNMENT

There being no further business to discuss,

Council Advisory Committee adjourned at 9:45 p.m.

MOTION CARRIED

Minutes Approved by Town Clerk
Dan Troke

Kentville Inclusion and Accessibility Advisory Committee



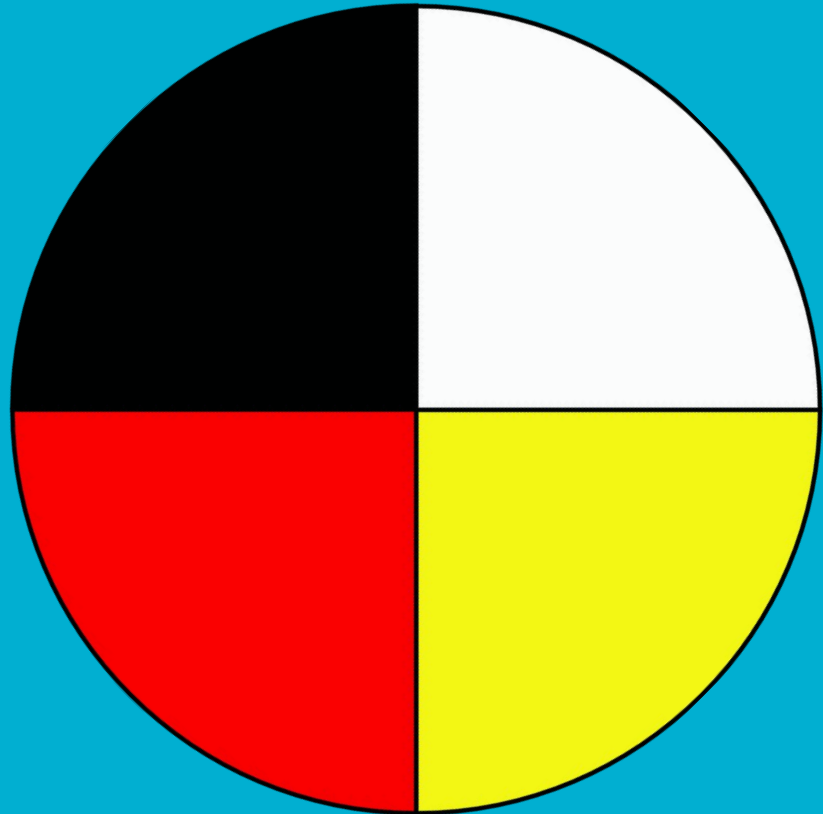
You can just call us KIAAC

Land Acknowledgment

We acknowledge that we are in Mi'kma'ki.
Specifically, we are in Pinoek, at Pineau's Place.
These lands are governed by the Treaties of
Peace and Friendship, signed in 1726.
If you wish to learn more, please visit:

[Mi'kmaq rights](#)

Kentville
A BREATH OF FRESH AIR



Kentvilles' Accessibility Plan

In 2020 we began as a committee to build our towns action plan.

In 2021 we shifted our focus to helping execute the Accessibility plan.

Working with the plan, 9 pillars of accessibility have been identified.

These 9 pillars and their barriers are where we focus our work.

The Plan can be found here: [Accessibility Plan](#)

Who we are

Made from community members, councilors, and staff.

We are dedicated to the ongoing work the town must do, to be a more accessible and welcoming space.

Advocates from a many different groups of people all with their own unique backgrounds.

What we do

We engage in hard conversations.

We look at ways our town is doing great work

We look at ways our town can improve.

Bring in speakers to help us learn about our community and how we can help better support all peoples in our work.

What we have done so far

Learning to look at all from new viewpoints through lived experiences.

Created a task team to review naming policy for our streets

Had speakers in to learn from lived experiences and our community members.

Begun looking at how we can help make our new bridge safer.

Taking Action

Looking at Active Transportation

More conversations

A healing circle

Supportive material for KBC

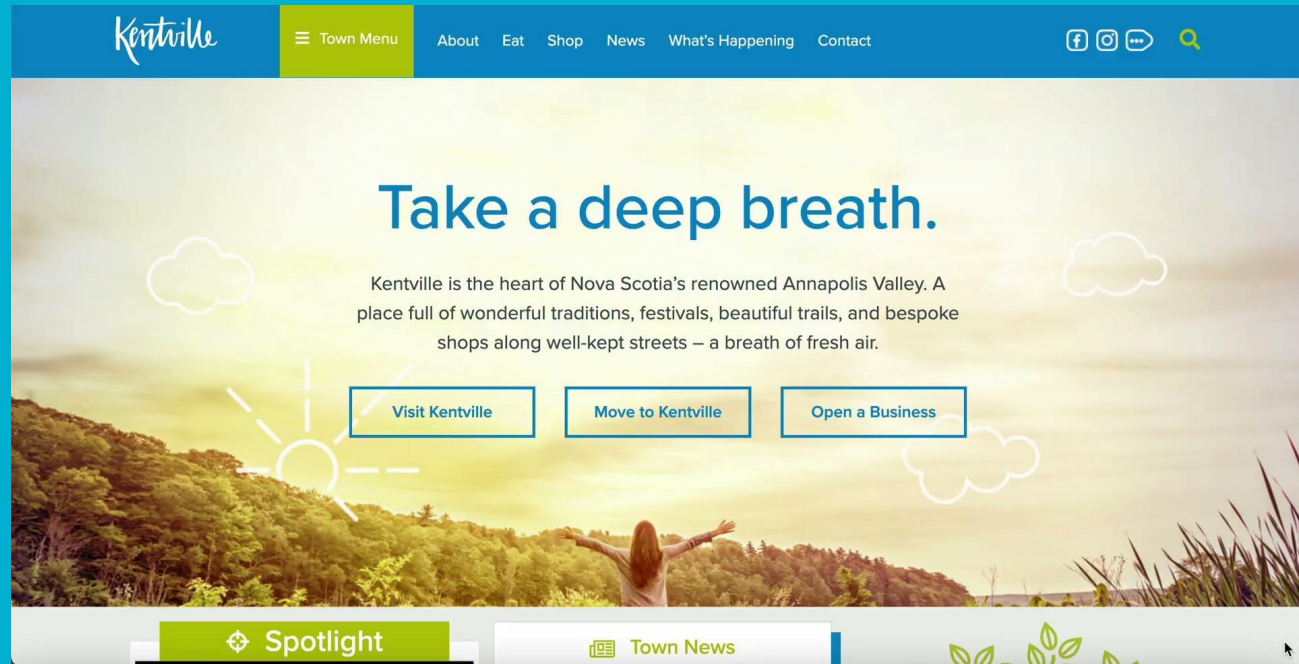
Letters of support

Town Hall Accessibility feasibility study

Where can you find us.

You can find us on the [Town of Kentville Website!](#)

On our main website scroll to the bottom of the page and you will find our plan.





Town of Kentville

Staff Report to Council Advisory Committee

Department of Finance

MAY 31, 2022

Summary:

I am pleased to report from the Finance Department of the Town of Kentville for the month ended May 31, 2022.

- Fourth quarter utility bills were due May 24, 2022.
- Interim tax bills were due May 31, 2022.
- The Investment Advisory Committee met on June 8, 2022 to hear the details of the month ended May 31, 2022.
- The external audit began on May 24, 2022. The audit process should be complete by the end of June. The Audit Committee will convene end of June to hear the results of fiscal 21/22.
- Work has begun on Kentville Volunteer Fire Department year end.

Attachments

- Schedules A & B (Revenue and Expenditures) are included for the month ended May 31, 2022,
- Schedule C (Outstanding Taxation) is attached for the month ended May 31, 2022.
- Schedule D (Sanitary Sewer Area Service) is not included. The next report will be tabled after the first quarter billing for 2022/2023.
- Schedules E and F (Perpetual Investment Fund) are included for the month ended May 31, 2022.
- Schedule G - Capital Investment Plan for 2022/2023 is included for the year ended March 31, 2023.

Analysis

Revenue (see Schedule A)

If revenue were averaged evenly over the year, 16.7% of the budget would be recorded. To May 31, 2022, overall revenue exceeds the average at 35.3% recorded. Items worth noting are:

- **Taxes-** Total taxation is currently reporting at 46.3%. The interim tax bills were due May 31, 2022.
- **Payments in Lieu-** The PILT related to Federal property will be crafted in June. The PILT related to Provincial property is filed in the SOE-A, which has not been released by the Province at this time.
- **Services to other Governments-** One half of library funding has been forwarded to the Municipality of Kings.
- **Sales of Services-** This section records reallocations to other funds and is updated by journal entry. It also records the sales of services by KPS. One month external sales along with two months of local sales are recorded. This section also accounts for the sale of financial services to KVFD. Two months are recorded.
- **Other Revenue-Own Sources-** This section is reporting fines, rentals, interest and miscellaneous revenue. "Fines, fees, and permits" are reporting above the guideline due to receipt of Provincial fines, parking tickets and various fees. "Rentals" will report below the guideline as arena ice rentals account for the larger portion of this section.
- **Unconditional Transfers** records the annual N S Power Corporation grant.

Expenditures (see schedule B)

To date, overall expenditures are slightly above the benchmark at 19.8% expended. Some segments have exceeded the 16.7% guideline due to annual payments and bulk ordering of supplies. Items to note are as follows:

- **General Administration-** exceeds the yardstick as the 1st quarter payment was forwarded to the Province for assessment services. In addition, the 22/23 general insurance premium was paid in full April 1.
- **Protective Services- Police core program-** exceeds the guideline, 100% of the general insurance premium has been paid, the annual payment for PROS was satisfied, as well as the first quarter payment has been made for answering services. **Debt charge** exceeds the benchmark but reflects the debt repayment schedule.
- **Transportation Services– Common Services** exceeds the benchmark due to payment of the general insurance premium. In addition, reallocation of wages to other cost centres has yet to be recorded. **Public Transit** exceeds the benchmark and reflects the first quarterly invoice for the service. **Debt charge** exceeds the guideline but reflects the debt repayment schedule.
- **Environmental Health Services-** exceeds the threshold but reflects the invoicing from Valley Waste Resource.

- **Environmental Development- Planning** exceeds the guideline due to payment of the annual insurance premium.
- **Recreation- Administration** exceeds the guideline due to payment of the annual insurance premium. **Debt charge** also exceeds the guideline but reflects the debt repayment schedule. **Cultural-** exceeds the benchmark as the first quarterly payment was made to the Annapolis Valley Regional Library.
- **Financing and Transfers- Debt Charge** principal exceeds the threshold but reflects the debt repayment schedule.

Summary of Outstanding Taxes (see Schedule C)

Interim property taxes were due May 31, 2022. Current tax levy outstanding at May 31, 2022 is \$485,987 (89.6% collected) (last year-\$338,780 (92.7% collected)). Total property tax outstanding at May 31, 2022 is \$509,648 (89.2% collected) Last year (\$390,864 – 91.7% collected).

Perpetual Investment Fund (see Schedules E and F)

The Investment Advisory Committee (IAC) met on June 8, 2022 to discuss the report for the month ended May 31, 2022.

The Statement of Financial Position (Schedule E) for May shows investments totaling \$13.3 million (at cost) with the breakdown as follows:

	COST	MARKET
Cash and short-term	\$1,329,152	\$1,320,537
Fixed income securities	8,060,463	7,623,370
Common shares	<u>3,912,677</u>	<u>4,951,378</u>
Total investments	<u>\$13,302,292</u>	<u>\$13,895,285</u>

The *Statement of Reserves (Schedule F)* is also attached. At May 31, 2022, dividends paid into the fund total \$107,261; capital losses are \$19,140. At May 31, management fees totaled \$6,066 (last year- \$6,129).

Town of Kentville Capital Investment Plan 2022/2023 (see Schedule G)

The 2022/2023 capital investment plan is disclosed in Section G. Projects are budgeted at \$4.5 million. To date of writing, \$88,103 (1.9%) has been expended.

This concludes the monthly report from the Finance Department for May 31, 2022.

Respectfully Submitted,



Debra Crowell
Director of Finance

Town of Kentville Operating Fund

May 31, 2022

Revenue	Budget Amount \$	Year to Date Amount \$	% consumed
TAXES			
Tax (including Industrial Park)			
Assessable property	9,983,000	4,558,622	45.7%
Resource	48,800	22,626	46.4%
Economic development	120,300	47,721	39.7%
	<u>10,152,100</u>	<u>4,628,969</u>	<u>45.6%</u>
Area rates and frontages			
Area rates	661,100	357,184	54.0%
Special assessments	3,000	-	0.0%
	<u>664,100</u>	<u>357,184</u>	
Based on revenue			
Business property	35,500	34,307	96.6%
TOTAL TAXATION	<u>10,851,700</u>	<u>5,020,459</u>	<u>46.3%</u>
PAYMENTS IN LIEU OF TAXES			
Federal and agencies	387,900	-	0.0%
Provincial and agencies	164,800	-	0.0%
	<u>552,700</u>	<u>-</u>	<u>0.0%</u>
SERVICES TO OTHER GOVERNMENTS			
Provincial government	136,600	-	0.0%
Local government	93,300	21,646	23.2%
	<u>229,900</u>	<u>21,646</u>	<u>9.4%</u>
SALES OF SERVICES			
Agencies	<u>1,040,900</u>	<u>48,736</u>	<u>4.7%</u>
OTHER REVENUE-OWN SOURCES			
Fines, fees, permits	30,100	6,637	22.0%
Rentals	405,300	7,864	1.9%
Interest	92,000	13,937	15.1%
Return on investments	630,000	-	0.0%
Other	46,400	7,633	16.4%
	<u>1,203,800</u>	<u>36,070</u>	<u>3.0%</u>
UNCONDITIONAL TRANSFERS	<u>220,900</u>	<u>8,608</u>	<u>3.9%</u>
CONDITIONAL TRANSFERS	<u>170,400</u>	<u>-</u>	<u>0.0%</u>
FINANCING AND TRANSFERS			
From reserves	280,300	-	0.0%
	<u>280,300</u>	<u>-</u>	<u>0.0%</u>
TOTAL REVENUE 2022/2023	<u>14,550,600</u>	<u>5,135,519</u>	<u>35.3%</u>

May 31, 2022

Town of Kentville Operating Fund

Expenditures	Budget Amount \$	Year to Date Amount \$	% consumed
GENERAL ADMINISTRATION			
Legislative	272,400	45,931	16.9%
General administration	1,523,700	341,054	22.4%
	<u>1,796,100</u>	<u>386,985</u>	<u>21.5%</u>
PROTECTIVE SERVICES			
Police- core program	2,784,400	510,643	18.3%
Police-sales of service	171,600	15,400	9.0%
Law enforcement	205,600	16,477	8.0%
Fire fighting	861,100	49,375	5.7%
Protective service- debt charge	4,200	1,875	44.6%
Emergency measures and other	143,200	4,708	3.3%
	<u>4,170,100</u>	<u>598,477</u>	<u>14.4%</u>
TRANSPORTATION SERVICES			
Common services	1,170,200	275,921	23.6%
Road transportation	774,300	45,553	5.9%
Public transit	300,600	84,847	28.2%
Transportation- debt charge	51,800	18,688	36.1%
Other	94,000	0	0.0%
	<u>2,390,900</u>	<u>425,009</u>	<u>17.8%</u>
ENVIRONMENTAL HEALTH SERVICES			
Solid waste collection and recycling	709,200	241,297	34.0%
PUBLIC HEALTH			
Public health and housing	90,000	-	0.0%
ENVIRONMENTAL DEVELOPMENT			
Planning and zoning	240,200	49,814	20.7%
Other community development	442,300	54,189	12.3%
	<u>682,500</u>	<u>104,004</u>	<u>15.2%</u>
RECREATION AND CULTURAL			
Recreation-Administration	546,300	116,239	21.3%
-Programmes (net)	163,100	3,947	2.4%
-Facilities	668,000	78,186	11.7%
-Debt charge	29,500	11,550	39.2%
Cultural	134,700	25,368	18.8%
	<u>1,541,600</u>	<u>235,290</u>	<u>15.3%</u>
EDUCATION			
	<u>1,622,000</u>	<u>268,314</u>	<u>16.5%</u>
FINANCING AND TRANSFERS			
Debt charge- principal	833,100	617,500	74.1%
Transfers to allowances and reserves	715,100	0	0.0%
	<u>1,548,200</u>	<u>617,500</u>	<u>39.9%</u>
TOTAL EXPENDITURE 2022/2023	14,550,600	2,876,875	19.8%

Town of Kentville Operating Fund

SCHEDULE C

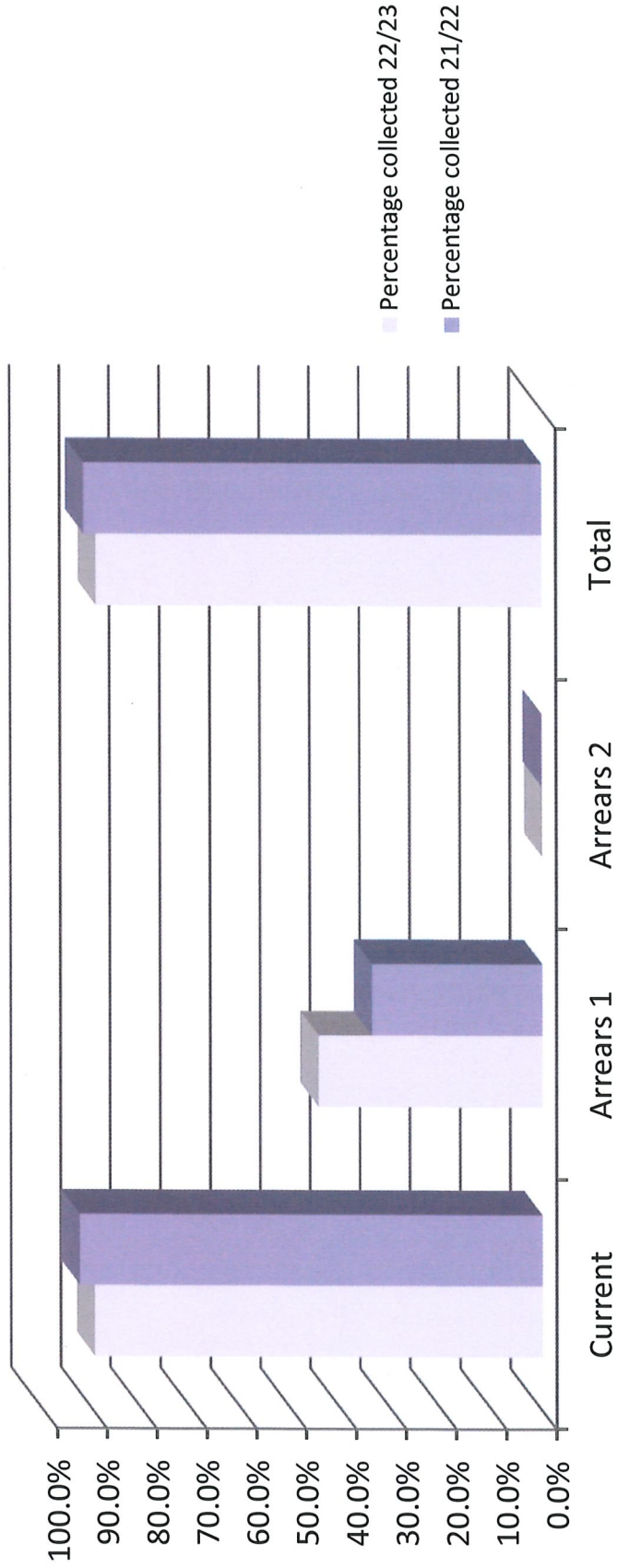
May 31, 2022

Summary of Taxes Collected & Outstanding

This report provides information for Council's perusal concerning outstanding taxes.

	<u>CURRENT</u>	<u>ARREARS 1</u>	<u>ARREARS 2</u>	<u>TOTAL OUTSTANDING</u>
	\$	\$	\$	\$
Balance, April 1, 2022	(316,849)	40,082	1,492	(275,275)
Billed 2022	4,986,152	0	0	4,986,152
22/23 net adjustments	<u>0</u>	<u>0</u>	<u>0</u>	<u>-</u>
Total collectible	4,669,303	40,082	1,492	4,710,877
Total collected	<u>4,183,316</u>	<u>17,913</u>	<u>0</u>	<u>4,201,229</u>
Outstanding	<u>485,987</u>	<u>22,169</u>	<u>1,492</u>	<u>509,648</u>
Percentage collected 22/23	89.6%	44.7%	0.0%	89.2%
Percentage collected 21/22	92.7%	34.0%	0.2%	91.7%

Town of Kentville Outstanding Taxes as at May 31, 2022



Town of Kentville Perpetual Reserve Fund

Month ended May 31, 2022

Statement of Financial Position	2022	2021
	Actual	Actual
	\$	\$
FINANCIAL ASSETS		
Cash (at cost)		
Cash and equivalents (net) - (at market- \$1,320,537)	1,329,152	2,030,198
Receivables		
Accrued		
Accrued interest and dividends	24,541	34,043
Due from own funds and agencies		
General operating fund	1,916	1,886
Investments (at cost)		
Long Term		
Fixed income securities (at market- \$7,623,370)	8,060,463	6,475,628
Equities (at market- \$4,951,378)	3,912,677	4,811,632
Total assets	13,328,749	13,353,387
Fund Balance		
Due to Town Operating Reserve		
Reserve	13,328,749	13,353,387
Total fund balance	13,328,749	13,353,387

Town of Kentville Perpetual Reserve Fund

Month ended May 31, 2022

Statement of Reserves	2022	2021
	Actual	Actual
	\$	\$
Balance, beginning of year	13,246,694	13,327,443
Add:		
Interest		
Dividends	107,261	20,687
Capital dividend		11,386
Accrued interest and dividends		
Capital gains		
Equities	(19,140)	
Fixed income securities		
	88,121	32,073
	13,334,815	13,359,516
Less:		
Management fees (net)	6,066	6,129
Due to Town of Kentville operating fund		
Transfer to Town of Kentville operating fund		
	6,066	6,129
Balance, end of year	13,328,749	13,353,387

Town of Kentville Capital Fund

	Budget Amount \$	Year to Date Amount \$	% consumed
PROJECTS			
Gas Tax Infrastructure	976,800	0	0.0%
Green Infrastructure Fund	1,280,100	0	0.0%
General Administration	20,000	0	0.0%
Protection	206,000	69,592	33.8%
Transportation	850,500	18,511	2.2%
Planning/Development	285,000	0	0.0%
Recreation	926,200	0	0.0%
	4,544,600	88,103	1.9%
FUNDING			
OUTSIDE SOURCES			
Other governments			
Federal- Green Infrastructure Funds	512,000	0	0.0%
Provincial- Green Infrastructure Funds	426,700	0	0.0%
Province of Nova Scotia	180,000	0	0.0%
	1,118,700	0	0.0%
Capital Contributions			
Contributions	114,500		
Proceeds	4,000	0	0.0%
	118,500	0	0.0%
INTERNAL SOURCES			
Cash			
Capital fund cash		0	0.0%
Reserves			
Restricted			
Gas Tax Funds	976,800	0	0.0%
Own Sources			
Equipment Capital	50,000	0	0.0%
Town Capital			
General allocation	688,400	84,511	12.3%
Recreation	18,000	0	0.0%
	1,733,200	84,511	4.9%
Operations			
Operations	5,300		0.0%
Capital from revenue- KPS	66,000	3,592	5.4%
	71,300	3,592	5.0%
BORROWING			
	1,502,900	0	0.0%
	4,544,600	88,103	1.9%

Town of Kentville Capital Fund

SCHEDULE G-1

March 31, 2023

GENERAL LEDGER	CANADA COMMUNITY-BUILDING FUND GAS TAX INFRASTRUCTURE		
#	Description	Budget	Actual
	Transportation		
	Local Roads- Paving projects		
05-35-71-200	Macdonald Avenue Subdivision	976,800	0
	Paving-\$693,500		
	Storm Sewer-\$283,300		
	PROJECTS	976,800	0
	FUNDING		
	CASH		
	Reserve- Gas Tax Interest	1,200	
	Reserve- Gas Tax 21-22	596,900	
	Reserve- Gas Tax Current 2022-2023	378,700	0
	TOTAL	976,800	0

Town of Kentville Capital Fund

March 31, 2023

GENERAL LEDGER	GREEN INFRASTRUCTURE GRANT		
#	Description	Budget	Actual
05-35-71-250	West Main Street Pathway	40,000	0
05-35-71-300	Aldershot (Meadowview) Rail Trail	150,000	0
05-35-71-330	Signs, line painting (13 locations) Kentville bridge, Main Street, Leverette Ave, Belscher Street, Route 341/359, Oakdened Ave, Exhibition Street, Main Street, Macdonald/Highland Ave, Prospect Ave, Academy/School, Elizabeth, Macdonald Park/Grant/alicia, Roscoe Drive, Mitchell Ave.	55,100	0
	Harvest Moon Trail Connector	1,000,000	0
	Miner's Marsh Trail	35,000	
	PROJECTS	1,280,100	0
	FUNDING		
	Green Infrastructure Fund (Federal)	512,000	
	Green Infrastructure Fund (Provincial)	426,700	
	Province of Nova Scotia		
	Borrowing	341,400	
	TOTAL	1,280,100	0

Town of Kentville Capital Fund

GENERAL LEDGER	GENERAL ADMINISTRATION		
#	Description	Budget	Actual
	IT INITIATIVE ANNUAL		
05-35-72-200	IT projects 2022-23 IT HRIS My Way	20,000	0
	PROJECTS	20,000	0
	FUNDING		
	CASH		
	Capital Reserve- Town General allocation	20,000	
	Borrowing		
	TOTAL	20,000	0

Town of Kentville Capital Fund

March 31, 2023

GENERAL LEDGER	PROTECTIVE SERVICES		
#	Description	Budget	Actual
	Police services		
	Police vehicles		
05-35-75-650	Vehicles	132,000	69,592
	Technology		
05-35-75-700	TMR Radios	49,000	0
	Building		
05-35-75-600	Building upgrades	25,000	0
	PROJECTS	206,000	69,592
	FUNDING		
	Cash		
	Capital from revenue	66,000	3,592
	Proceeds on sale		
	Capital contribution		
	Reserves	66,000	66,000
	Borrowing	74,000	
	TOTAL	206,000	69,592

Town of Kentville Capital Fund

March 31, 2023

GENERAL LEDGER	TRANSPORTATION SERVICES		
#	Description	Budget	Actual
	Yearly Projects		
05-35-71-100	Equipment	350,000	0
05-35-71-450	Public Works building	58,000	18,511
	Downtown improvements		
05-35-71-350	Belcher Street street lights	10,000	0
	Flood mitigation		
05-35-71-400	Palmeto S/D- \$40,000 Condon Ave- \$15,000	55,000	0
05-35-71-340	Bridge- Pre-Cast Bridge- Meadowview	115,000	0
	Sidewalks	125,000	
05-35-71-490	Park Street		0
05-35-71-500	Prospect Avenue		0
	Streets	110,000	
	Burke top lift- \$90,000 Carmen & Alicia curbing- \$20,000		0
05-35-71-580	Study- Asset Management Storm Sewer CWIP	27,500	0
	PROJECTS	850,500	18,511
	FUNDING		
	CASH		
	Equipment capital reserve	50,000	
	Capital reserve- general allocation	146,000	18,511
	Contributions	114,500	
	Borrowing	540,000	
	TOTAL	850,500	18,511

Town of Kentville Capital Fund

GENERAL LEDGER	DEVELOPMENT SERVICES		
#	Description	Budget	Actual
	Municipal Flood Line Mapping Project	180,000	
	Downtown betterments		
05-35-75-500	Seasonal lighting-\$8,000	8,000	0
05-35-75-450	Bike racks	5,000	0
	Signage		
05-35-75-400	Gateway signage- green spaces	15,000	0
	Beautification		
05-35-75-300	Centre Square (Phase 2)	12,000	0
05-35-75-260	Public art display areas	15,000	0
	Buildings		
05-35-75-250	VIC- \$30,000 66 Station Lane- \$20,000	50,000	0
	PROJECTS	285,000	0
	FUNDING		
	Capital Reserve- Town General	105,000	
	Capital contribution- Province	180,000	
	Borrowing		
	TOTAL	285,000	0

Town of Kentville Capital Fund

GENERAL LEDGER	RECREATION SERVICES		
#	Description	Budget	Actual
	Soccer		
05-35-74-300	Soccer nets	8,000	0
05-35-72-350	Green Places	92,200	0
	Gorge survey/trails \$17,200		
	Kentville Trail bridge- \$25,000		
	Miner's Landing trail- \$30,000		
	Miner's Marsh trail- \$20,000		
	Arena		
05-35-72-500	Drain, rubber flooring	20,000	0
05-35-72-550	Arena canteen upgrade	6,000	0
	Condensor	135,000	0
	Parks/Playgrounds		
	Oakdene Park- Irrigation	20,000	0
05-35-72-600	Memorial Park- Grandstands	350,000	0
05-35-73-200	Memorial Park- Softball field irrigation	20,000	0
05-35-74-400	Memorial Park-Fencing	15,000	0
05-35-73-400	HUB building- Washroom	10,000	0
05-35-73-150	Dog park- east end (CWIP)	125,000	0
05-35-74-700	Equipment- 2 pickups	100,000	0
	Pool	25,000	0
	PROJECTS	926,200	0
	FUNDING		
	Proceeds	4,000	
	Operating fund- Park fees	5,300	
	Capital reserve- General allocation	351,400	
	Capital reserve- Recreation	18,000	
	Borrowing	547,500	
	TOTAL	926,200	0

Memo

To: Dan Troke, CAO

From: Debra Crowell, Director of Finance

Date: June 1, 2022

Re: **Temporary Borrowing Resolution-Town of Kentville Capital 22/23**

BACKGROUND

The attached temporary borrowing resolution (from Department of Municipal Affairs and Housing) relates to the Town's 2022/2023 capital program. This resolution requires Council's authorization before I forward it to the Minister of Department of Municipal Affairs and Housing for ministerial consent.

Once all approvals are in place, funds can be drawn down, as required, to finance (on a temporary basis) the 2022/2023 capital acquisitions for the Town of Kentville.

RECOMMENDATION

I recommend to Council Advisory Committee that it authorizes the temporary borrowing resolution noted below and then forwards this resolution to the next meeting of Town Council for ratification. Following this event, the document will be sent to the Minister of the Department of Municipal Affairs and Housing for Provincial authorization.

ISSUE	PURPOSE	AMOUNT
TBR 22/23-Town	Various purposes-capital projects	\$ 1,502,900

MUNICIPAL COUNCIL OF THE

TEMPORARY BORROWING RESOLUTION

Amount: \$ 1,502,900

Capital Projects: Detailed in Schedule "A"

WHEREAS Section 66 of the Municipal Government Act provides that the Council of the Town of Kentville, subject to the approval of the Minister of Municipal Affairs and Housing, may borrow to expend funds for a capital purpose as authorized by statute;

WHEREAS the Council of the Town of Kentville has adopted a capital budget for this fiscal year as required by Section 65 of the Municipal Government Act and are so authorized to expend funds for capital purposes as identified in their capital budget; and

WHEREAS the specific amounts and descriptions of the projects are contained in Schedule "A" (attached);

BE IT THEREFORE RESOLVED

THAT under the authority of Section 66 of the Municipal Government Act, the Council of the Town of Kentville borrow a sum or sums not exceeding One Million Five Hundred and Two thousand Nine Hundred Dollars (\$ 1,502,900) for the purpose set out above, subject to the approval of the Minister of Municipal Affairs and Housing;

THAT the sum be borrowed by the issue and sale of debentures of the Council of the Town of Kentville to such an amount as the Council deems necessary;

THAT the issue of debentures be postponed pursuant to Section 92 of the Municipal Government Act and that a sum or sums not exceeding One Million Five Hundred and Two thousand Nine Hundred Dollars (\$ 1,502,900) in total be borrowed from time to time from any chartered bank or trust company doing business in Nova Scotia;

THAT the sum be borrowed for a period not exceeding Twelve (12) Months from the date of approval of the Minister of Municipal Affairs and Housing of this resolution;

THAT the interest payable on the borrowing be paid at a rate to be agreed upon; and

THAT the amount borrowed be repaid from the proceeds of the debentures when sold.

THIS IS TO CERTIFY that the foregoing is a true copy of a resolution read and duly passed at a meeting of the Council of the Town of Kentville held on the ___ day of ___, 2022. GIVEN under the hands of the Clerk and under the seal of the Council of the Town of Kentville this ___ day of ___, 2022. Clerk

MUNICIPAL COUNCIL OF THE

TEMPORARY BORROWING RESOLUTION

Amount: \$ 1,502,900

Capital Projects: Detailed in Schedule "A"

SCHEDULE "A"
CAPITAL PROJECTS

		Estimates \$
Heading / Category: Green Infrastructure Grant- AT Plan		
Item	West Main Pathway/Miner's Marsh Trail	20,000
Item	Aldershot Rail Trail	40,000
Item	Bike Lanes signs & marking	14,700
Item	Harvest Moon Trail connector	266,700
Heading Sub Total:		341,400
Heading / Category: Protective Services- Police		
Item	Police building- accessibility upgrades	25,000
Item	Technology- TMR radios	49,000
Item		
Item		
Heading Sub Total:		74,000
Heading / Category: Transportation		
Item	Equipment- Street sweeper	250,000
Item	Streets- Paving-Burke SD, Carmen & Alicia curbing	110,000
Item	Flood mitigation- Palmetter SD, Condon Avenue	55,000
Item	Sidewalks- Main Street and Park Street	125,000
Heading Sub Total:		540,000
Heading / Category: Recreation		
Item	Arena- new condenser	135,000
Item	Memorial Park- grandstands	350,000
Item	Dog Park	62,500
Item		
Heading Sub Total:		547,500
Heading / Category:		
Item		
Item		
Item		
Item		
Heading Sub Total:		0
Heading / Category:		
Item		
Item		
Item		
Item		
Heading Sub Total:		0
TOTAL REQUEST CONTAINED WITHIN THIS RESOLUTION		1,502,900



Town of Kentville - Staff Report to Council Advisory Committee

Department of Planning and Development June 13, 2022, for May 2022.

Activity Report and Permits Report, attached

Programs and Operations

- 26 Permits Issued: Building valuation of \$2,076,660 for a year total of \$16,379,900

Projects

- Municipal Flood Line Mapping Project – The RFP has been posted with a closing date of June 23, 2022. The committee hopes to have a decision made by mid July.
- Hobou Court development is moving along nicely. Discussions are underway for the second phase.
- Public hearing for the rezoning of 294 Main Street was held May 30th. No appeals have been submitted.
- Heritage Bylaw draft
- **Public Engagement**
- Ongoing

Meetings and Events

- CAC
- Senior Management
- Department of Municipal Affairs and Housing
- West Nova Propane
- Vida Living
- PVSC -Permit Data eXchange (PDX) Portal workshop

Respectfully Submitted,
Beverly Gentleman, Director of Planning and Development.

Activity Report

Planning & Development

May 2022



<i>PERMITS</i>	<i>PERMITS ISSUED</i> MAY 2022		<i>PERMITS ISSUED</i> MAY 2021	
	MONTH TOTAL	YEAR TOTAL	MONTH TOTAL	YEAR TOTAL
Number of Permits	26	72	21	72
Total Building Value (\$)	2,076,660	16,379,900	2,736,300	19,629,019
Permit Revenue (\$)	1,624.61	12,731.49	8,591.55	22,739.05

Permits Report

Planning & Development

May 2022



Permit #: 4027	Permit Date: 05/03/2022
Value of Construction: \$35,000.00	Fee: \$33.20
Residential Addition – Adding a single story mudroom/laundry room on the rear of the dwelling.	

Permit #: 4028	Permit Date: 05/03/2022
Value of Construction: \$10,000.00	Fee: \$0.00
New Accessory Construction – Constructing a 6' tall privacy fence.	

Permit #: 4029	Permit Date: 05/03/2022
Value of Construction: \$10,000.00	Fee: \$0.00
New Accessory Structure – Placing a 10' x 16' (160 sq ft) shed in the rear yard.	

Permit #: 4030	Permit Date: 05/03/2022
Value of Construction: \$560.00	Fee: \$21.76
New Accessory Construction – Replacing the step on the front of the dwelling = 8' x 5' (40 sq ft)	

Permit #: 4032	Permit Date: 05/05/2022
Value of Construction: \$8,000.00	Fee: \$0.00
New Accessory Structure – Placing a 10' x 12' (120 sq ft) shed in the rear yard.	

Permit #: 4024	Permit Date: 05/04/2022
Value of Construction: \$25,600.00	Fee: \$149.36
New Commercial Construction – Constructing a 20' x 42' Steel Accessory Building (840 sq ft) in the rear yard	

Permit #: 4033	Permit Date: 05/09/2022
Value of Construction: \$45,000.00	Fee: \$39.07
New Accessory Construction – Constructing a 22' x 19.5' (433.42 sq ft) attached garage.	

Permit #: 4036	Permit Date: 05/10/2022
Value of Construction: \$30,000.00	Fee: \$50.00
Swimming Pool – Installing a 16’ x 26’ above ground swimming pool in the rear yard.	

Permit #: 4035	Permit Date: 05/10/2022
Value of Construction: \$2,500.00	Fee: \$22.11
New Accessory Construction – Constructing a new 8’ x 6’ (48 sq ft) deck adjacent to the swimming pool	

Permit #: 4034	Permit Date: 05/10/2022
Value of Construction: \$5,000.00	Fee: \$0.00
Sign – Installing a 5’ x 3.5’ ground sign with a 6.68 sq ft base.	

Permit #: 4037	Permit Date: 05/16/2022
Value of Construction: \$15,000.00	Fee: \$50.00
Swimming Pool – Installing a 21’ round semi above ground/semi below ground swimming pool	

Permit #: 4038	Permit Date: 05/16/2022
Value of Construction: \$12,000.00	Fee: \$0.00
New Accessory Construction – Constructing a fence in the rear yard to enclose a swimming pool, fence will be 5’ – 8’ tall.	

Permit #: 4031	Permit Date: 05/16/2022
Value of Construction: \$1,000,000.00	Fee: \$523.71
New Residential Construction – Constructing a new Single Family Dwelling, residential space is 4,224 sq ft, with a 144 sq ft 3-season room and garage space is 528 sq ft.	

Permit #: 4040	Permit Date: 05/19/2022
Value of Construction: \$0.00	Fee: \$0.00
Change of Tenant – Changing from retail use to Upholstery Repair.	

Permit #: 4041	Permit Date: 05/19/2022
Value of Construction: \$5,000.00	Fee: \$0.00
New Accessory Structure – Placing a 14’ x 14’ (196 sq ft) shed in the side yard.	

Permit #: 4043	Permit Date: 05/19/2022
Value of Construction: \$10,000.00	Fee: \$0.00
New Accessory Construction – Constructing a 6’ tall fence.	

Permit #: 4042	Permit Date: 05/19/2022
Value of Construction: \$310,000.00	Fee: \$217.49
New Residential Construction – Constructing a new Single Family Dwelling, residential space is 1,582 sq ft and garage space is 533.5 sq ft.	

Permit #: 4044	Permit Date: 05/19/2022
Value of Construction: \$6,000.00	Fee: \$0.00
New Accessory Structure – Placing a 10’ x 12’ (120 sq ft) shed in the rear yard.	

Permit #: 4045	Permit Date: 05/19/2022
Value of Construction: \$4,000.00	Fee: \$0.00
New Accessory Construction – Constructing a 4’ tall chainlink fence.	

Permit #: 4046	Permit Date: 05/19/2022
Value of Construction: \$1,000.00	Fee: \$0.00
New Accessory Construction – Constructing a 10’ x 10’ (100 sq ft) woodshed in the rear of the property.	

Permit #: 4048	Permit Date: 05/30/2022
Value of Construction: \$0.00	Fee: \$50.00
Signage – Installing a 3’ x 18’ (54 sq ft) wall sign.	

Permit #: 4047	Permit Date: 05/30/2022
Value of Construction: \$0.00	Fee: \$0.00
Change of Tenant – Changing from Assembly use to Retail.	

Permit #: 4039	Permit Date: 05/24/2022
Value of Construction: \$88,000.00	Fee: \$213.60
Renovations – Renovating the space to expand the use. Renovations include new fire rated drywall, constructing a fire escape, installing fire doors and constructing some interior walls.	

Permit #: 4052	Permit Date: 05/31/2022
Value of Construction: \$4,000.00	Fee: \$0.00
New Accessory Structure – Constructing a platform deck (6” tall) in the rear yard.	

Permit #: 4053	Permit Date: 05/31/2022
Value of Construction: \$0.00	Fee: \$30.00
Demolition – Demolishing a 16’ x 16’ shed that’s in the rear yard.	

Permit #: 4050	Permit Date: 05/30/2022
Value of Construction: \$450,000.00	Fee: \$224.31
New Residential Construction – Constructing a new Single Family Dwelling, residential space is 1,659 sq ft and garage space is 496 sq ft.	

Total Value of Construction:	\$2,076,660.00	Total Permit Fees:	\$1,624.61
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Town of Kentville

Staff Report to Council Advisory Committee

Community and Economic Development Coordinator

June 2022

Programs and Operations

- The Visitor Information Centre is up and running, and we had a busy week during the Apple Blossom Festival. Numbers have been up overall so far this season, and staff are encouraged by the increased traffic. The Visitor Centre is now on TikTok (@Kentvillevisitor1) and we are excited to see how that might translate into increased traffic.
- Work is beginning on the production of a "Historic Kentville" video that will be used to promote the amenities in town of historical interest to the travelling public. We are working with two local vendors on this project and the video will cover a variety of exciting spots in Kentville that will hopefully draw the "cultural enthusiast" category of visitor which makes up about 1/3 of the total number of visitors that NS welcomes each year.
- Visitor Information Centre staff are working on updating the inside space this season to foster more balanced representation and promote inclusivity. Some small changes implemented so far include the addition of a special interest flagpole on the outside of the building, currently flying the Progressive Pride flag for June. We have another pole on order that will host the Mi'gmaq First Nations Flag full time, next to the Canadian and Nova Scotian flags. More changes underway include a new floor rug, and new art for the walls. We are also looking to expand and diversify the gift shop offerings. Staff are in talks with several vendors from the Blk Women in Excellence cohort as well as some contacts from First Nations communities. More to come!

- We continue to explore options for the comfort station project that will see public bathrooms created downtown, updates will be provided as things progress.

Tourism /Special events

- The Bryan Gibson mural is now hanging proudly on Main Street downtown. The ceremony for Bryan was well attended and the project has received a lot of media coverage. People are invited to come view the mural any time, the public garden is a great place to sit and admire. New lighting is being installed by the property owner so that it can be viewed at night.
- The KBC Mural Festival committee is hard at work lining up all the details for the 2nd annual Kentville Mural Festival in July. The call for artists has now closed, and the jury is evaluating the applications. We have 6 locations lined up for paint this year and will be able to expand festival activities since COVID restrictions are no longer a barrier.
- The Blk Women in Excellence business pop up event in Centre Square during Apple Blossom Saturday was a huge success. Tia Upshaw who ran the event reported that all vendors in attendance sold out, and we are already working together on scheduling other pop-ups for Kentville later in the year. We are also talking with vendors from the Blk Women in Excellence cohort about carrying some of their products at the Visitor Centre Gift Store.

Projects & Beautification

- We have decided to Tender the VIC improvement work as our standard search for a contractor has not been fruitful. We hope to have the work executed in the late fall, towards the end of the season. We will aim for the tender to be issued by the end of June.
- Gateway work is still on the books and in the plans. We are still waiting on some items from the greenhouses. The planning and design phase is already complete for both project locations, the work will be executed by Recreation Park staff.
- Hanging baskets and planters are growing well in the greenhouses and will be ready for installation in a few weeks. We have a lot more hanging baskets on order this year than in previous years, so folks can expect to see flowers everywhere! By the way the KBC Festival of Flowers starts July 11th.

- We have some landscaping work to complete near the Syliboy Mural on Webster Court. Benches are already there but the space is unfinished. The seating area will get a spruce up with the addition of some plants Native to NS, some sweetgrass, some hardscaping, and potentially a bed for annuals. There is a meeting with Museum staff planned for later this week so we can coordinate some ceremony into the official planting. More details to come.

Respectfully Submitted,

Lindsay Young
Community & Economic Development Coordinator



Town of Kentville
Staff Report to Council Advisory Committee
For the Month of May 2022
DEPARTMENT OF PARKS AND RECREATION
PRESENTED ON JUNE 13TH, 2022

Facilities and Operations

- Operations
 - All summer positions have been filled with a number having already started. We currently have a team of six working to keep our parks and trails clean. We are grateful for all of the hard work our parks team does every day to keep our play spaces safe and welcoming for everyone to use.
 - Nick Gerrard has stepped in as the Lead Hand for our Parks team. Nick will be supporting the daily operations of our parks maintenance, including some project management. We are very happy to have Nick in this role.
 - The final interviews for the vacant CUPE Park and Arena support position are now completed. We hope to have this position filled and started as soon as possible.
- Parks and Trails
 - Kentville Ravine remains closed to the public due to unsafe conditions. Our department continues to work with staff at the Research Station to stay abreast of all updates. The Department of Agriculture and Agri-food Canada is taking the lead on all remediation. There are no updates at this time.
 - The Kentville section of the Harvest Moon Trail received some repairs and clean-up, as well as the replacement of one of the bridges located closest to the East end of the trail. This bridge was damaged recently and was deemed unsafe for use, making it a top priority for replacement.
 - The Memorial Park score board remains out of commission. We are looking for a temporary solution to get us through this season, however the larger fix will need to wait until the end of season and may be pushed to the next capital budget cycle.

Programs and Operations

- Operations
 - A formal welcome to Grayson Titcomb and Ryliegh Lake to our team. Grayson and Ryliegh recently started and are tasked with ensuring all programs and events in Kentville this summer are accessible and fun: no small task, but we're confident they are the right ones for the job!
 - Confirmation has been received from Sport Nova Scotia that we will be getting a three (3) year position added to our department. The Sport Equity, Diversity, and Inclusion Navigator (EDI) will focus on working to create a more accessible sport system in our region. This is a fully funded position.
 - Senior Summer Staff Training took place on May 26.

- Programs
 - Summer programs and opportunities continue to be launched. As always, we are working to ensure there is something for everyone this summer, including programming and camps for youth, swimming lessons, workshops, a summer concert series, and more.
 - Our department continues to work with community partners to develop programs and initiatives. This includes issues of food insecurity, poverty reduction, and increased access to recreation and sport.
 - The Kentville Spike Fund continues to be accessed regularly. Recently we have funded camp registrations, pool passes, equipment purchased, art classes and more. As always, this fund would not exist without donations made by the public. We want to thank everyone who donates to the Spike Fund to sport community members in this region to access recreation opportunities.
 - We are continuing to work on re-instating the community garden's at Oakdene. This project is part of a partnership with the Valley Community Learning Association (VCLA).

Community Outreach

- Events
 - The Canada Cup Events Committee continues to meet. Canada Cup will take place August 12th to the 14th.

- We are celebrating Pride month in partnership with KCA school. This event will take place in Centre Square on Friday the 10th from 11am to 1pm.
 - World Environment Day Event took place on June 4th at Oakdene Park in partnership with the Rotary Club of Kentville. Other partners involved in this event included the Valley Community Learning Association, Flying Squirrels, Clean Annapolis River Project, Valley Waste, Blomidon Naturalists Society, Wholesome Refillery, and the Invasive Species Council of NS.

Capital Projects

- Splash Pad
 - Repairs are currently in progress.
- Arena Condenser
 - A new condenser for the arena has been ordered. We are hopeful that it will be installed before the Fall ice season.
- Miners Marsh
 - Work to repair the trail after the extensive damage done by the Spring floods has been completed. This includes repairs to the emergency access road located on the North end.
- Memorial Pool
 - The washroom located on the outside of the building has been renovated. This facility is now accessible and includes a change table.
 - Pool staff change room facilities have been upgraded.

Council Related

- Kentville's Accessibility Action Plan
 - *Kentville Access and Advisory Committee (KIAAC)*: This committee continues to meet regularly. The public is encouraged to contact members of KIAAC with any concerns, suggestions and queries: accessibility@kentville.ca, or visit our website at www.kentville.ca/accessibility for more information.
 - At the last KIAAC meeting we reviewed the Recreation for All policy. This policy was sent back to staff for review and updating. It will then be brought back to the committee for review and approval
 - The KIAAC also requested that the process of engagement used to update the Recreation for All policy follow the same principles used for

engagement as Kentville Accessibility Action Plan. This process would be captured and inform a proposed engagement policy.

- Kentville's Active Transportation Plan
 - Staff continue to update and present on the proposed Active Transportation projects for this fiscal.
 - Staff are continuing to consult with community members about the proposed projects slated for this fiscal, and those slated for next year.
- Regional Recreation Complex:
 - There is no update at this time.

Respectfully Submitted,

A handwritten signature in cursive script that reads "Rachel Bedingfield". The signature is written in black ink and is positioned below the text "Respectfully Submitted,".

Rachel Bedingfield
Director of Parks and Recreation



TOWN OF KENTVILLE
2022/2023 OPERATING EXPENDITURE
POLICE PROTECTION

		2022/2023 BUDGET	April 30, 2022 ACTUAL	% CONSUMED	OVER (UNDER) BUDGET
Remuneration					
122-11-011	Remuneration- Administration	363,500	34,110	9.4%	-90.6%
122-11-012	Remuneration- Sergeant	511,100	39,129	7.7%	-92.3%
122-11-013	Remuneration-Constable	830,600	74,429	9.0%	-91.0%
122-11-014	"Stat" pay	40,000	2,198	5.5%	-94.5%
122-11-015	Overtime-Sergeant	16,000	2,865	17.9%	-82.1%
122-11-016	Overtime-Constable	40,000	2,413	6.0%	-94.0%
122-11-017	Secondment	108,600	10,047	9.3%	-90.7%
122-11-018	M time	5,000	-	0.0%	-100.0%
		<u>1,914,800</u>	<u>165,192</u>	8.6%	-91.4%
Benefits 122-12-02X		<u>394,500</u>	<u>40,197</u>	10.2%	-89.8%
Internal Allocation 122-13-010		<u>-</u>	<u>-</u>	0.0%	0.0%
Office Expenses					
122-14-032	Professional expense	-	-	0.0%	0.0%
122-14-033	Honoraria-Commission	1,200	-	0.0%	-100.0%
122-14-034	Meeting-Commission	2,000	-	0.0%	-100.0%
122-14-036	Director's expense	7,000	400	5.7%	-94.3%
122-14-037	Inspector's expense	3,000	100	3.3%	-96.7%
122-14-039	Training	20,000	215	1.1%	-98.9%
122-14-041	Auxiliary program	4,500	1,250	27.8%	-72.2%
122-14-042	Insurance-liability/E&O	35,000	-	0.0%	-100.0%
122-14-045	Office expense & supplies	15,000	356	2.4%	-97.6%
122-14-048	Telephone	26,000	22,315	85.8%	-14.2%
122-14-051	Equipment rental	3,000	-	0.0%	-100.0%
122-14-058	Other expense	17,000	3,289	19.3%	-80.7%
		<u>133,700</u>	<u>27,926</u>	20.9%	-79.1%
Occupancy-Police Building					
122-15-011	Custodial	8,100	-	0.0%	-100.0%
122-15-042	Insurance	2,200	-	0.0%	-100.0%
122-15-060	Heat	6,500	1,067	16.4%	-83.6%
122-15-061	Electricity	12,000	-	0.0%	-100.0%
122-15-062	Water/sewer	2,400	-	0.0%	-100.0%
122-15-068	Maintenance- Other costs	19,900	127	0.6%	-99.4%
		<u>51,100</u>	<u>1,194</u>	2.3%	-97.7%
Operations-Communication					
122-16-048	Communications	91,900	68	0.1%	-99.9%
122-16-051	Radio license	3,600	-	0.0%	-100.0%
122-16-053	Maintenance	3,000	-	0.0%	-100.0%
		<u>98,500</u>	<u>68</u>	0.1%	-99.9%



TOWN OF KENTVILLE
2022/2023 OPERATING EXPENDITURE
POLICE PROTECTION

	2022/2023 BUDGET	April 30, 2022 ACTUAL	% CONSUMED	OVER (UNDER) BUDGET
Operations-Technology (122-16-148)	<u>28,000</u>	<u>9,297</u>	33.2%	-66.8%
Operations-Vehicle				
122-17-042 Insurance	10,900	-	0.0%	-100.0%
122-17-070 Gasoline	28,000	-	0.0%	-100.0%
122-17-071 Operations & maintenance	20,000	1,133	5.7%	-94.3%
	<u>58,900</u>	<u>1,133</u>	1.9%	-98.1%
Operations-Programmes				
122-18-080 Special projects	22,000	-	0.0%	-100.0%
122-18-081 Community Crisis Navigator project	35,400	-		
122-18-082 Crime prevention/community relations	2,500	295	11.8%	-88.2%
122-18-085 Custody and detention of prisoners	45,000	-	0.0%	-100.0%
	<u>104,900</u>	<u>295</u>	0.3%	-99.7%
TOTAL POLICE PROTECTION	<u>2,784,400</u>	<u>245,301</u>	8.8%	-91.2%
VARIANCE		<u>2,539,099</u>		
TOTAL POLICE PROTECTION (carried forward)	<u>2,784,400</u>	<u>245,301</u>		
LESS: POLICE PROTECTION REVENUE				
Secondment- Province	136,600	-	0.0%	-100.0%
Fines and fees- Province	15,000	1,315	8.8%	-91.2%
Police Miscellaneous		-	0.0%	0.0%
Law enforcement- Province	100,000	-	0.0%	-100.0%
Community Crisis Navigator -Province	35,400	-	0.0%	-100.0%
TOTAL POLICE PROTECTION REVENUE	<u>287,000</u>	<u>1,315</u>	0.5%	-99.5%
NET POLICE PROTECTION	<u>2,497,400</u>	<u>243,986</u>	9.8%	-90.2%
SALES OF SERVICE EXPENDITURE				
Remuneration	147,400	7,657	5.2%	-94.8%
Benefits	24,200	860	3.6%	-96.4%
TOTAL SALES OF SERVICE	<u>171,600</u>	<u>8,517</u>	5.0%	-95.0%
LESS: SALES OF SERVICE REVENUE				
Sales of service- Police	<u>480,000</u>	<u>2,222</u>	0.5%	-99.5%
NET SALES OF SERVICES (EXCESS REVENUE OVER EXPENDITURE)	<u>(308,400)</u>	<u>6,295</u>		



TOWN OF KENTVILLE
2022/2023 OPERATING EXPENDITURE
POLICE PROTECTION

		2022/2023 BUDGET	April 30, 2022 ACTUAL	% CONSUMED	OVER (UNDER) BUDGET
LAW ENFORCEMENT					
PROVINCIAL MANDATORY					
122-22-200	Transfers to Correctional Services	86,600	-	0.0%	-100.0%
OTHER					
122-31-080	Prosecution	8,500	-	0.0%	-100.0%
122-31-082	Legal	10,000	-	0.0%	-100.0%
122-31-084	Other-Crossing guards	30,000	3,091	10.3%	-89.7%
122-31-085	Parking/By law enforcement officer	64,300	5,444	8.5%	-91.5%
122-31-086	Benefits	6,200	574	0.0%	0.0%
		119,000	9,108	7.7%	-92.3%
TOTAL LAW ENFORCEMENT		205,600	9,108	4.4%	-95.6%
VARIANCE			(196,492)		
LESS: LAW ENFORCEMENT REVENUE					
	Taxi Licenses	2,700	100	3.7%	-96.3%
	Parking Tickets	9,000	1,375	15.3%	-84.7%
TOTAL LAW ENFORCEMENT REVENUE		11,700	1,475	12.6%	-87.4%
NET LAW ENFORCEMENT		193,900	7,633	3.9%	-96.1%



Kentville Police Service Bylaw Report April 2022

Municipal Bylaw Investigations	2
Loitering -Warnings	4
Assist Police	6
Taxi Inspections	1
Animal Control	0
Smoking-Charges	10
Smoking-Warnings	0
Parking-Charges	62
Parking- Warnings	78

5/11/2022

Kentville Police Service
At April 30, 2022
"Other Expense" account 01-22-14-058

BUDGET	<u>\$17,000</u>
	\$
Tax payments	536.79
Breathalyzer servicing	1,831.24
Breathalyzer calibration and verification	270.60
Breathalyzer annual inspection	542.50
	<u>3,181.13</u>



Town of Kentville

Staff Report to Council Advisory Committee

Department of Engineering and Public Works

June 13, 2022

Programs and Operations

- **Kentville Water Commission:** The Planning Department continues to receive interest from developers wanting to develop large parcels of land in Kentville. To accommodate this certain growth of our Town, we plan to drill an 8th production well in the West Wellfield this construction season.
- **Sanitary Sewer Area Service:** The sanitary sewer Operating and Capital budgets will be presented this evening to Council.

Projects

- On June 2nd, 2022 tenders closed for this year's largest Infrastructure Capital Works project, the Street and Services Upgrades of MacDonald Avenue Subdivision off of Chester Avenue. We knew during the budgeting process that construction prices would be higher than in previous years, but not to the extent of what the tender results actually came in at. We budgeted increases of 20% (or 1.2x) last year's prices experienced in large projects such as the Burke Subdivision upgrades.

A project of this nature is funded from three Capital Budgets: Kentville Water Commission, the Sanitary Sewer Area Service and the Town's Capital budget for streets & storm sewer. The complete MacDonald Avenue Subdivision project was budgeted at \$1.64M and the lowest tender came in at \$2.61M or nearly one million dollars over budget. What we are seeing is pipe replacement cost nearly double the costs of last year and street rehabilitation (concrete curb, gravels and asphalt) up approximately 50% (or 1.5x) over last years prices.

The street is in dire need of a complete upgrade with MacDonald Avenue in the worst condition as the busiest & most travelled street. My recommendation to CAC is to proceed with the award of the contract as a "Two Year Project" and go as far as the budgeted \$1.64M will take us during this construction season, completing the remaining \$1.0M in work in the 2023 construction season.

If this is acceptable to Council, I will continue negotiations with the contractor that submitted the lowest tender and complete a contract for the two-year project.

- **AT Project** – An update on my June 1st meeting with the KVFD Chief – the department has tested the left hand turn of their largest fire trucks from their north door ramp onto Webster Street and have determined that by widening the entrance adjacent to the Arena (slightly modifying the existing curb & sidewalk), they can successfully make the turn onto Webster Street as illustrated in the latest version of the AT Plan presented at last months Council. We will incorporate this widening into the project.

Public Engagement

- Frequent phone calls and site visits.
- Appointments are now being accepted for in person meetings.
- Letter & email correspondence – As required.

Meetings and Events

- Senior Staff meetings every Tuesday
- May 5th Gaspereau Flood Mapping Meeting
- May 9th Council Advisory Committee
- May 30th Council Meeting – AT Plan Update

Respectfully Submitted,

David Bell
Director of Engineering and Public Works



Memo

To: Dan Troke, CAO

From: Dave Bell, Director of Engineering & PW

CC: Debra Crowell, Director of Finance

Date: June 13, 2022

Re: **SANITARY SEWER AREA SERVICE CAPITAL BUDGET - 2022-2023**

SANITARY SEWER AREA SERVICE CAPITAL BUDGET

The Area Service is seeking capital funding for three projects in 2022/2023 in the amount of **\$390,000**.

Projects

- **MacDonald Avenue Subdivision** (MacDonald, Henry & Braeside Streets)
Sanitary Sewer Replacement – \$330,000
- **Klondyke Street Forcemain Replacement** – \$30,000
- **Kentville Business Park** – Sanitary Sewer Lateral Installation – \$30,000

Infrastructure is failing in both these areas causing continual maintenance by Public Works and service interruptions to customers.

Funding

- **\$60,000** from Sanitary Sewer Reserves
- **\$100,000** from Sanitary Sewer Depreciation Reserve.

- **\$230,000** long-term borrowing

Future years are ratified in principle

RECOMMENDATION

I recommend to Council that it approve the Sanitary Sewer Area Service Capital Budget in the amount of \$390,000 along with its funding sources for the year 2022-2023.

**TOWN OF KENTVILLE
SANITARY SEWER AREA SERVICE
CAPITAL INVESTMENT PLAN
YEARS 2022/23 TO 2026/27
SUMMARY**

	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027
	<u>BUDGET</u>	<u>BUDGET</u>	<u>BUDGET</u>	<u>BUDGET</u>	<u>BUDGET</u>
PROJECTS					
Other sanitary sewer projects					
Braeside/MacDonald Avenue	330,000				
Business Park laterals	30,000				
Klondyke Forcemain (COK tender)	30,000				
Southview/Lavinia		320,000			
Mill Run pumping station upgrades		50,000			
Elm Street			300,000		
Cornwallis Street				250,000	
	390,000	320,000	300,000	250,000	-
Equipment					
	-	-	-	-	-
TOTAL CAPITAL ADDITIONS	390,000	320,000	300,000	250,000	-
FUNDING					
OUTSIDE SOURCES					
Other governments					
Other Proceeds	-	-	-	-	-
INTERNAL SOURCES					
Reserves					
Sanitary Sewer Capital (Restricted)					
General allocation	60,000	50,000	30,000		
Depreciation	100,000	170,000	150,000	100,000	
	160,000	220,000	180,000	100,000	-
Operations					
Capital from revenue- San Sewer	-	-	-	-	-
BORROWING	230,000	100,000	120,000	150,000	-
	390,000	320,000	300,000	250,000	-

Ratified by Town Council _____, 2022

Memo

To: Dan Troke, CAO

From: Dave Bell, Director of Engineering & PW

CC: Debra Crowell, Director of Finance

Date: June 13, 2022

Re: **SANITARY SEWER AREA SERVICE OPERATING BUDGET- 2022-2023**

SANITARY SEWER AREA SERVICE OPERATING BUDGET

Revenue: \$1,357,200

Revenue is increased \$51,200 (3.9%) from last year. Due mostly to residential growth and billing with the Municipality of Kings.

Expenditures: \$1,353,800

Overall expenditures are increased \$49,300 (3.8%) over last year.

Administration

This sector is increased \$8,600 (3.1%) over last year. Significant changes are:

- Administrative salaries are increased \$8,000.

Domestic Sewer Maintenance

This segment has increased slightly by \$1,300 (2.0%) due to wages & benefits.

Pumping Stations

Pumping stations increased \$6,400 (10.6 %) and are due to:

- Increase in wage adjustment (\$700)
- Increase in insurance premium (\$700)
- Increase in Operations (\$5000) due to increases in power rates and radio license fees.

Treatment and Disposal

This section is increased from last year by \$68,800 (8.4%). This section records our share of the jointly funded sewer treatment plant and transmission lines owned by the Municipality of the County of Kings.

Fiscal Services

This sector increases \$4,200 (8.4%) in this budget.

- This is primarily due to increased interest charges on long-term debt issues.

Capital (paid from) Revenue

In previous years the Sanitary Sewer Area Service has budgeted a portion of its capital financing from its operating fund – last year we allocated \$40,000 to Capital and budgeted a small surplus of \$1500. With the \$49,300 increase in expenditures there will be no surplus to transfer to Capital.

Transfer to Reserve

- The Area Service attempts to “tuck away” monies each year to either its Operating Reserve or its Capital Reserve, in order to ensure stabilizing the rates and to provide “pay as you go” capital.

The current rates are no longer sustainable; in future years the Sanitary Sewer Area Service moves into an operating deficit position. We will be completing an internal rate study this summer and bring a recommendation to Council in the early fall based on the study’s findings.

The Sanitary Sewer Area Service is budgeting a small annual surplus of \$ 3,400.

Sanitary Sewer Area Service Reserve Information

	March 31, 2022	Net Deposits/ (Withdrawals)	Projected March 31, 2023
<i>Operating</i>	514,980	24,817	539,797
<i>Capital</i>	140,369	(60,000)	80,369
<i>Depreciation</i>	<u>148,609</u>	<u>42,600</u>	<u>191,209</u>
<i>Total</i>	<u>803,958</u>	<u>7,417</u>	<u>811,375</u>

RECOMMENDATION

I recommend to Council that it approve the Sanitary Sewer Area Service Operating Budget for the year 2022-2023, as follows:

Revenue = \$1,357,200
 Expenditures = \$1,353,800
 Surplus = \$3,400

TOWN OF KENTVILLE-2022/2023 OPERATING BUDGET
SANITARY SEWER AREA SERVICE
2022/2023 REVENUE AND EXPENDITURE BUDGET

	2021/2022 BUDGET	2022/2023 BUDGET	2023/2024 BUDGET	2024/2025 BUDGET
	\$	\$	\$	\$
REVENUE				
148-42-100 Sewer Charges	1,300,000	1,351,200	1,373,100	1,400,400
148-42-150 Interest on overdue accounts	4,000	4,000	4,000	4,000
148-42-160 Bad debts collected	-	-	-	-
148-42-190 Permit- Sewer connections	2,000	2,000	2,000	2,000
Total Revenue	<u>1,306,000</u>	<u>1,357,200</u>	<u>1,379,100</u>	<u>1,406,400</u>
EXPENDITURES				
Administration				
148-42-211 Administrative salaries	93,400	101,400	103,500	105,700
148-42-231 Legal	-	-	-	-
148-42-232 Audit	2,300	2,300	2,400	2,500
148-42-250 Stationary & office supplies	2,300	2,500	2,700	2,900
148-42-260 Common service charge	30,000	30,000	30,000	30,000
148-42-282 Vehicle expense	1,000	1,000	1,000	1,000
148-42-284 Other collection expense	100	100	100	100
148-42-285 Lease of equipment	1,000	1,000	1,000	1,000
148-42-286 Interest on customers' deposits	100	100	100	100
148-42-287 Professional studies	-	-	-	-
148-42-288 Dues and fees	100	500	600	700
148-42-289 Training	1,000	1,000	1,000	1,000
148-42-887 Depreciation	142,600	142,600	142,600	142,600
	<u>273,900</u>	<u>282,500</u>	<u>285,000</u>	<u>287,600</u>
Domestic Sewer Maintenance				
148-42-311 Wages	27,000	28,300	28,900	29,500
148-42-380 Materials and supplies	27,800	27,800	27,800	27,800
148-42-390 Material and supplies- laterals	10,200	10,200	10,200	10,200
	<u>65,000</u>	<u>66,300</u>	<u>66,900</u>	<u>67,500</u>
Pumping Stations				
148-42-411 Wages	15,000	15,700	16,000	16,400
148-42-442 Insurance	14,600	15,300	16,000	17,500
148-42-466 Operations	19,000	24,000	24,000	24,000
148-42-480 Maintenance	12,000	12,000	12,000	12,000
	<u>60,600</u>	<u>67,000</u>	<u>68,000</u>	<u>69,900</u>
Treatment & Disposal				
148-42-581 Agreement-Co. of Kings	815,300	884,100	927,700	973,500
Fiscal Services				
148-42-881 Interest on temporary borrowing	300	900	-	-
148-42-882 Interest	4,100	8,600	8,500	7,100
148-42-884 Principal	45,300	42,600	66,100	89,100
148-42-886 Discount	-	1,800	1,700	1,000
	<u>49,700</u>	<u>53,900</u>	<u>76,300</u>	<u>97,200</u>
Capital from Revenue				
148-42-920 Sewer renewal	40,000	-	-	-
	<u>40,000</u>	<u>-</u>	<u>-</u>	<u>-</u>
Transfer to Reserve				
148-42-950 Transfer to reserve	-	-	-	-
	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Total Expenses	<u>1,304,500</u>	<u>1,353,800</u>	<u>1,423,900</u>	<u>1,495,700</u>
Excess Revenue (Expenditures)	<u>1,500</u>	<u>3,400</u>	<u>(44,800)</u>	<u>(89,300)</u>
Accumulated surplus (deficit), beginning of year	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Transfer to Sanitary Sewer Area Operating reserve	<u>(1,500)</u>	<u>(3,400)</u>	<u>44,800</u>	<u>89,300</u>
Accumulated surplus (deficit), end of year	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

TOWN OF KENTVILLE-2022/2023 OPERATING BUDGET

		DEPT.SANITARY SEWER AREA SERV.			
		REVENUE			
GENERAL LEDGER #	Description	2021/2022 Budget	2022/2023 Budget	2023/2024 Budget	2024/2025 Budget
148-42-100	Sewer charges (consumption)	1,158,400	1,200,000	1,220,000	1,245,000
	2022/2023 2023/2024				
	Metered 1,200,000 1,220,000				
	County Kings* 111,200 113,100	105,600	111,200	113,100	115,400
	Subtotal 1,311,200 1,333,100				
	Surcharges (spill charge)				
	Apple Valley 40,000 40,000	36,000	40,000	40,000	40,000
	1,351,200 1,373,100	1,300,000	1,351,200	1,373,100	1,400,400
	<i>* Doehler Report- Feb 2022 (v. 2)</i>				
148-42-150	Interest on overdue accounts 2% per month (26.8% per annum)	4,000	4,000	4,000	4,000
148-42-160	Bad debts collected	-	-	-	-
148-42-170	Transfer from reserves	-	-	-	-
148-42-190	Permit- Sewer connections Residential and Commercial	2,000	2,000	2,000	2,000

TOWN OF KENTVILLE-2022/2023 OPERATING BUDGET

TOWN OF KENTVILLE		DEPT.SANITARY SEWER AREA SERV.			
		EXPENDITURES			
GENERAL LEDGER #	Description	2021/2022 Budget	2022/2023 Budget	2023/2024 Budget	2024/2025 Budget
	<u>Administration</u>				
148-42-211	Remuneration <i>Purchased service and benefits</i> Public Works Admin section - \$51,800 General Gov't- Admin section- \$49,600	93,400	101,400	103,500	105,700
148-42-231	Legal	-	-	-	-
148-42-232	Audit <i>19% of Town bill or 12 % of entire bill</i>	2,300	2,300	2,400	2,500
148-42-250	Stationary & office supplies	2,300	2,500	2,700	2,900
148-42-260	Common service charge Allocation from Public works Works building-office expenses (see 01-14-13-400 Town Operating)	30,000	30,000	30,000	30,000
148-42-282	Vehicle expense <i>(registrations, fuel, maintenance, etc)</i>	1,000	1,000	1,000	1,000
148-42-284	Other collection expenses	100	100	100	100
148-42-285	Lease of equipment <i>share of folder/insertor</i>	1,000	1,000	1,000	1,000
148-42-286	Interest on customers' deposits	100	100	100	100
148-42-287	Professional studies <i>Rate Study</i>	-	-	-	-
1-48-42-288	Dues and fees	100	500	600	700
1-48-42-289	Training <i>class 1 & 2 certification</i>	1,000	1,000	1,000	1,000
148-42-887	Depreciation expense <i>Depreciation- (est)</i>	142,600	142,600	142,600	142,600
		273,900	282,500	285,000	287,600

TOWN OF KENTVILLE-2022/2023 OPERATING BUDGET

		DEPT.SANITARY SEWER AREA SERV.			
		EXPENDITURES			
GENERAL LEDGER #	Description	2021/2022 Budget	2022/2023 Budget	2023/2024 Budget	2024/2025 Budget
	<u>Domestic Sewer Maintenance</u>				
148-42-311	<p>Wages</p> <p>Purchased service wages and benefits from Public Works crew operation (see 01-14-13-400 Town Operating)</p> <p>(+\$7,000 certification)</p>	27,000	28,300	28,900	29,500
148-42-380	<p>Materials and supplies</p> <p>Manhole repairs, sewer chemicals claims & miscellaneous</p>	27,800	27,800	27,800	27,800
148-42-390	<p>Materials and supplies- laterals</p>	10,200	10,200	10,200	10,200
		65,000	66,300	66,900	67,500

TOWN OF KENTVILLE-2022/2023 OPERATING BUDGET

		DEPT.SANITARY SEWER AREA SERV.																												
		EXPENDITURES																												
GENERAL LEDGER #	Description	2021/2022 Budget	2022/2023 Budget	2023/2024 Budget	2024/2025 Budget																									
	<u>Pumping Station</u>																													
148-42-411	Wages Sales of Service from Public Service crew operation cost wages and benefits	15,000	15,700	16,000	16,400																									
148-42-442	Insurance premium and fees	14,600	15,300	16,000	17,500																									
148-42-466	Operations Electric bills, Radio license	19,000	24,000	24,000	24,000																									
148-42-480	Maintenance Pumps, misc repairs Scada adjustments	12,000	12,000	12,000	12,000																									
148-42-581	<u>Treatment and Disposal</u> Agreement for use of County of Kings pollution control plant	804,800	873,500	917,200	963,000																									
	<table border="0"> <tr> <td></td> <td>2021/2022</td> <td>2022/2023</td> <td></td> <td></td> </tr> <tr> <td>TOK</td> <td>\$804,800</td> <td>\$863,200</td> <td></td> <td></td> </tr> <tr> <td>Co of Kings*</td> <td>\$10,500**</td> <td>\$10,600***</td> <td></td> <td></td> </tr> <tr> <td>STP-(per draft budget Jan 14, 2022)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>815,300</td> <td>884,100</td> <td>927,700</td> <td>973,500</td> </tr> </table>		2021/2022	2022/2023			TOK	\$804,800	\$863,200			Co of Kings*	\$10,500**	\$10,600***			STP-(per draft budget Jan 14, 2022)						815,300	884,100	927,700	973,500				
	2021/2022	2022/2023																												
TOK	\$804,800	\$863,200																												
Co of Kings*	\$10,500**	\$10,600***																												
STP-(per draft budget Jan 14, 2022)																														
	815,300	884,100	927,700	973,500																										
	*Town properties on COK sewer line																													
	**Doehler report- Dec 2020																													
	*** Doehler report- Feb 2022 (v2)																													

TOWN OF KENTVILLE-2022/2023 OPERATING BUDGET

		DEPT.SANITARY SEWER AREA SERV.			
		EXPENDITURES			
GENERAL LEDGER #	Description	2021/2022 Budget	2022/2023 Budget	2023/2024 Budget	2024/2025 Budget
	<u>Fiscal Services</u>				
148-42-881	Temporary borrowing interest \$235,000X2.45%X60 days/365=\$946	300	900		
148-42-882	Interest interest= \$5,000 accrued interest= \$1,700 reverse accrued interest (prior)= (\$1,900) New issue interest= \$2,300 New issue acc'd int= \$1,500	4,100	8,600	8,500	7,100
148-42-884	Principal	45,300	42,600	66,100	89,100
148-42-886	Discount on debenture \$235,000X.75%		1,800	1,700	1,000

TOWN OF KENTVILLE-2022/2023 OPERATING BUDGET

		DEPT.SANITARY SEWER AREA SERV.			
		EXPENDITURES			
GENERAL LEDGER #	Description	2021/2022 Budget	2022/2023 Budget	2023/2024 Budget	2024/2025 Budget
	<u>Capital from Revenue</u>				
148-42-910	<i>Equipment</i>				
148-42-920	<i>Sanitary sewer renewal</i>	40,000			
	<u>Transfer to Reserve</u>				
148-42-950	<i>Transfer to reserve-Capital</i>				



Town of Kentville
CAO to Council Advisory Committee
JUNE 13, 2022

Budget: Sanitary Sewer Budget presented this evening. The rising costs of materials is putting pressure on tendered items. Still long wait times for vehicles.

Human Resource: Human Resources Manual circulated to all staff for review, and training plans for 2022-23 moving forward.

Inter Municipal Service Agreements (IMSA): Meetings with the CAO's are ongoing.

Boundary Review: Staff have begun the boundary review work. Web site has been updated. We have received 28 responses to the survey, please continue to share survey with networks.

Policy & By Law: Feasibility of PACE program, Noise By Law at CaC tonight, Heritage By Law at draft stage internally, and new committee's (RFD's) being put together particularly with housing/ affordability challenges throughout the community.

Meetings: Audit committee, REN Audit Committee, Accessibility committee, Chair of the Police Commission, PACE program executive, and KBC.

Respectfully Submitted,

Dan Troke, CAO Town of Kentville



TO: Council Advisory Committee (CAC)

SUBMITTED BY: Dan Troke, Chief Administrative Officer (CAO)

DATE: June 13, 2022

SUBJECT: Briefing Note: Property Assessed Clean Energy Program (PACE)

ORIGIN

At the March 14, 2022, Committee of Council meeting, Mr. Julian Boyle, P.Eng., President of PACE Atlantic Community Interest Corporation gave a briefing to Council on the Wolfville Switch Program as well as other PACE programs that they administer for municipalities in Nova Scotia and PEI. The presentation outlined how Kentville could benefit from Wolfville’s program and a consortia of Valley municipalities that are also looking to start a PACE program.

BACKGROUND

FCM Community Efficiency Financing (CEF) Program

FCM CEF program provides multiple supports (low-cost loans and grants) to help municipalities de-risk and launch PACE programs. The FCM funding application and approval can take up to a year to secure capital through the capital stream (which has deployed \$150M of \$300M available). The feasibility and design streams typically have a 6-8 week turn-around to approve. Municipalities are generally in a better position to receive FCM capital (up to \$10M) if they have completed a feasibility study or design stage – or have a live program.

Benefits of PACE Programs

PACE programs can operate at no cost to the municipality, through a combination of private and public capital. Through the financing mechanism, all costs associated with the programming, including individual project costs, financing and administration can be recovered under a “user pay model”. This program design has proven to be very successful in Halifax, Colchester County and Wolfville (as well as Charlottetown and Stratford). Almost 5% of the housing stock in the Switch communities are now being retrofitting annually through their PACE programs. By enabling the PACE programming, Kentville can encourage its residents to reduce energy costs through efficiency and renewable energy investments, save money and provide opportunities for local businesses.

The current best practices in PACE program designs offer multiple supports to homeowners and business to help them navigate through complex Federal and Provincial rebate programs, source local contractors and have confidence that their efficiency upgrades will pay for themselves.



Public Engagement

Public engagement is an important aspect of any program design and launch. As part of the anticipated workplan, community and industry engagement would happen, after receiving funds from FCM, between August and October 2022.

Next Steps

The municipality of West Hants' Council has already indicated support for a joint funding application to the FCM CEF program's Design stream to help design and launch a program by Fall 2022.

Subject to Kentville Council's approval of the recommendation, a joint application to FCM will be developed and submitted to FCM before the end of June 2022 by PACE Atlantic CIC on behalf of the two municipalities. The funding application will outline the budget and activities required to launch a PACE program by Fall 2022. The funding application is being developed by PACE Atlantic CIC, who have donated their time to the application process – which is expected to cost \$3,000-\$5,000.

It is anticipated that there will be a request for up to \$180,000 in grant money from FCM to support detailed program design, program legal and financial due diligence, community engagement and program marketing launch activities. Kentville's \$10,000 contribution to the Design work will be matched by a similar contribution from West Hants. A report authorizing the submission to FCM will be brought back to Kentville Council within the next 4 weeks prior for endorsement prior to final submission.

A joint PACE program with Kentville's neighbouring municipalities will help align program marketing, governance and policy decisions associated with a Fall 2022 launch. It will also harmonize opportunities for local businesses in the Valley. By working with West Hants and Wolfville within a collaborative PACE program framework, it also provides a low risk, low cost entryway into PACE programming.

A PACE program supports municipal actions on climate change, while also providing local economic development opportunities.

RECOMMENDATION

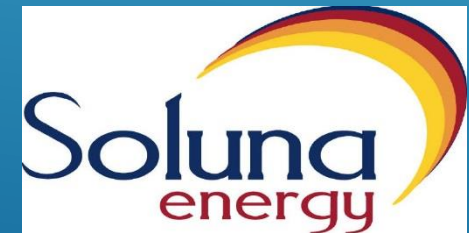
1. That Kentville Council approve a joint application to the Federation of Canadian Municipalities Community Efficiency Financing Program for Feasibility with West Hants.
2. Subject to a successful award from FCM, that Council authorize a maximum \$10,000 contribution to the Design stage work to be undertaken by PACE Atlantic Community Interest Corporation.

Town of Kentville Decision Wheel:



SHALLOW WATER TIDAL ENERGY

A Cost Cutting Innovation
Allowing Coastal
Communities to Deliver
Climate Change Solutions



Horizontal Axis Turbines



Deep water operations require ships, barges, specialized equipment and commercial divers. Most activity restricted to slack tide.



A SHALLOW WATER APPROACH

- ▶ Set the turbine at the low tide mark
- ▶ Replace the horizontal axis turbine with a vertical axis turbine
- ▶ Make the turbine more efficient

RESEARCH AND DEVELOPMENT GRANTS

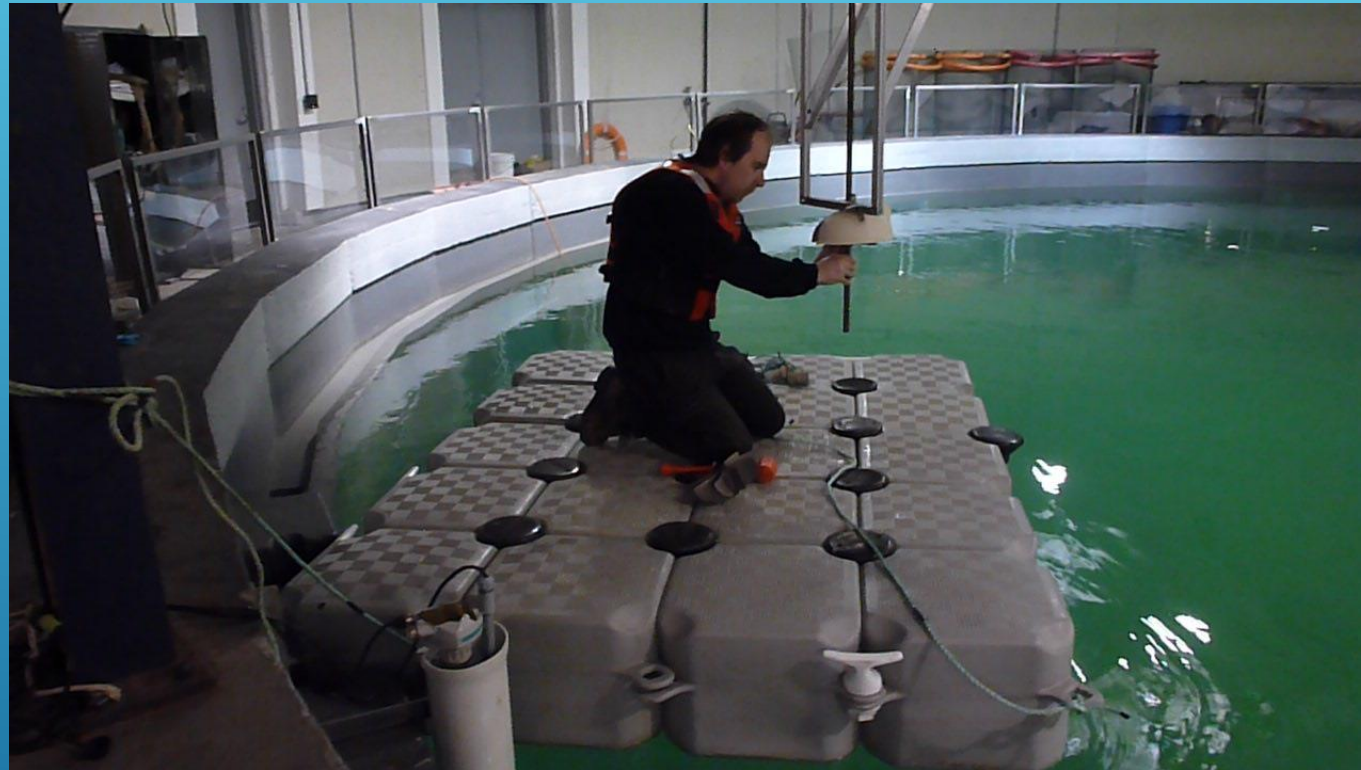
- ▶ 2013-2014 – NS Voucher Program: Tier 1 Level Support: \$15,000 – Dalhousie University, Engineering Dept. – Dr. Sue Molloy
- ▶ 2014-2015 – NS Voucher Program: Tier 2 Level Support: - \$25,000 – Dalhousie Engineering Dept. and Nova Scotia Community College
- ▶ 2017 – IRAP and AIRO Support: \$20,000 Dalhousie Aquatron Testing



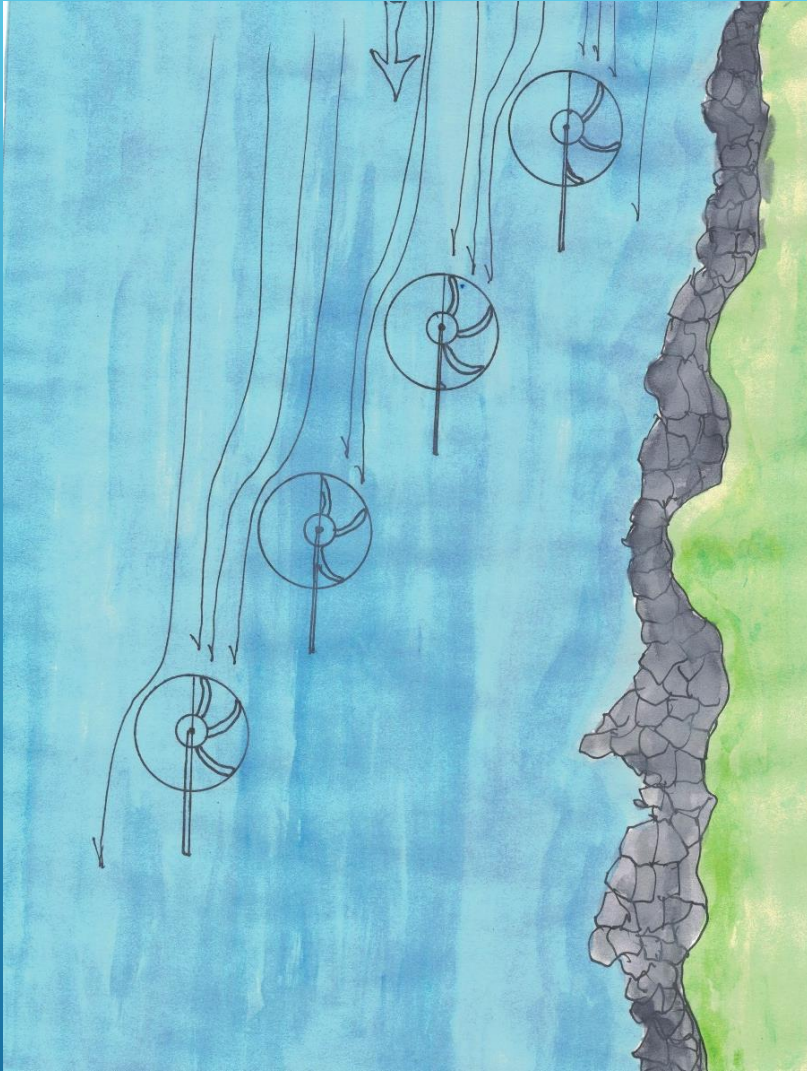
TESTING AT MEMORIAL UNIVERSITY

Tow Tank Simulation of a Tidal Stream

POWER TESTING AT DALHOUSIE UNIVERSITY'S AQUATRON FACILITY



Technician Assembling Prototype




MORE POWER WITH STAGGERED ARRAY

- Researchers at Stanford University find 10-fold increase in power using Vertical Axis Turbines.
- Downstream turbines in a staggered array can capture deflected water to increase power 10 time more effectively that a Horizontal Axis Turbine on a given area.

FEDERATION OF CANADIAN MUNICIPALITIES: GREEN MUNICIPAL FUND

PILOT PROJECT: SIGNATURE INITIATIVE

- ▶ Includes Joint Research Projects for municipalities and companies
 - ▶ Municipalities explicitly recognized as suitable lead
 - ▶ Grants of up to \$500,000 for up to 80% of eligible costs
 - ▶ Other grants available to cover balance of costs
- 
- A decorative graphic consisting of several parallel white lines of varying lengths, slanted diagonally from the bottom right towards the top right, set against the blue background.

CAPITAL PROJECTS

- ▶ **Low Interest Loans of \$5-million to \$10-million**
 - ▶ **Up to 80% of Project Cost**
 - ▶ **Grant available for 15% of loan amount**
- 
- A decorative graphic consisting of several parallel white lines of varying lengths, slanted upwards from left to right, located in the bottom right corner of the slide.

DEVELOPMENTAL TIDAL FEED-IN TARIFF PROGRAM

- ▶ Approved by NS Utility and Review Board
- ▶ Developer can sell electricity produced while testing into the grid at 53 cents per kilowatt- hour
- ▶ Term can be up to 15 years.
- ▶ A ten-turbine array of 50 kilowatt generators could yield \$1.5-million per year.

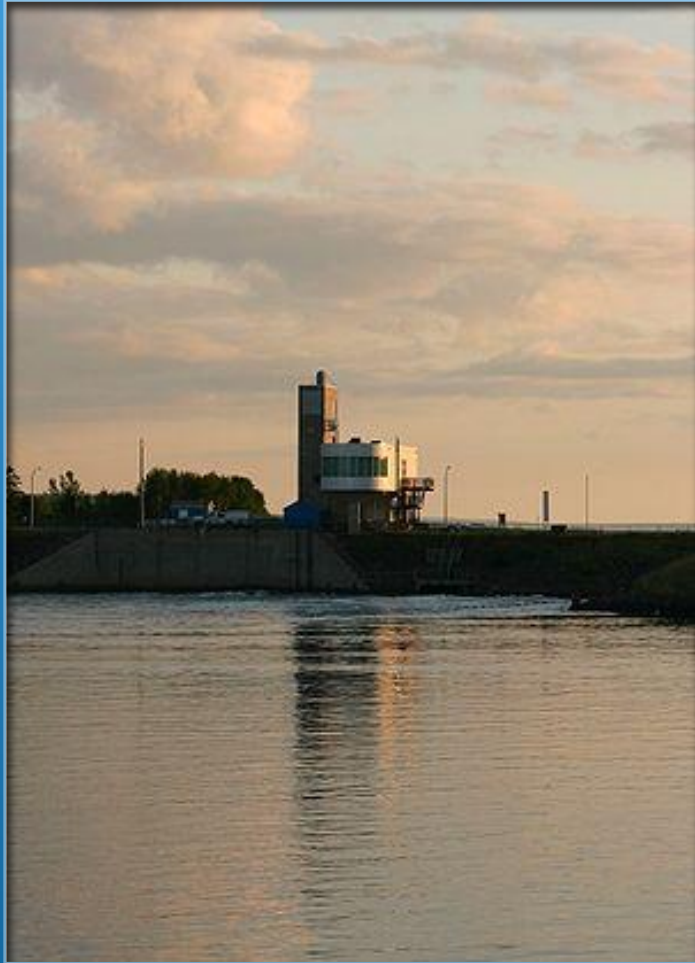


**Alternative Resource Energy Authority (AREA)
Includes Berwick, Antigonish, and Mahone Bay
Owners of Ellershouse Wind Farm**



ENVIRONMENTAL CONSIDERATIONS

Fish and marine mammals free to avoid turbine
Less potential impact as blades turn with current
Low tide access allows inspection and/or rescue
Cleared by DFO: no threat to endangered species



DECOMMISSIONING ANNAPOLIS ROYAL TIDAL POWER PLANT

- Technical Studies
- Negotiations between Province and NS Power Inc.
- Public acceptance of reuse for power production

SHALLOW WATER TIDAL ENERGY

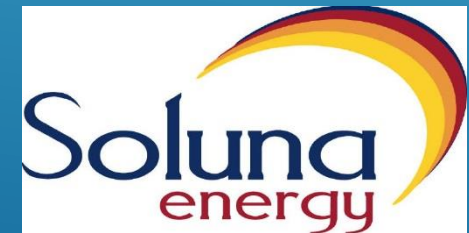
Projected Outcome:

Manageable Scale

Financial Support

Guaranteed Revenue

Community Asset



FEASIBILITY STUDY FOR SMALL SCALE COMMUNITY TIDAL POWER PRODUCTION



Project Leader: Sandi Millett- Campbell,
Chief Administrative Officer, Town of Annapolis Royal

Technical Manager: Bill Crossman,
President, Soluna Energy Inc.

Scientific Advisor: Dr. Sue Molloy,
Adjunct Professor of Engineering, Dalhousie University

Financial Advisor: Melony Robinson, MBA, CPA, CMA
Director of Finance, Town of Annapolis Royal

Electrical Engineer: Jeff McKinnon, P.Eng., PE, JMK Engineering

Project Start Date: April 1, 2022

Project End Date: September 20, 2023

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1 – PROJECT DESCRIPTION

This tidal power pilot project seeks to overcome the inordinate cost of capturing renewable energy from tidal currents. Present tidal energy technology is almost entirely based on turbines designed to only work in deep water. The cost of working in deep water has put tidal energy technology in an uncompetitive position, with tidal being about six times as expensive as onshore wind.

There is an opportunity to avoid these deep-water costs by taking advantage of the normal, twice-daily rise and fall of the tides. By placing a vertical axis turbine at the low water mark maintenance staff will have two hours of water-free access during the twice-a-day low tides. This would be the operational equivalent of land-based wind turbine maintenance.

This pilot is necessary to establish the optimum power and physical size of the turbines and to determine the number and configuration of the turbines in an operational array. With a reliable estimate of the total power production potential, the Town and its partners can do a cost/benefit analysis of the financial viability of a larger capital project leading to the establishment of a municipal electrical utility based on renewable energy.

This project is part of the Town of Annapolis Royal's commitment to the development of renewable energy to offset the existential threat of climate change. The objective of the project is to establish and operate an array of three or more tidal turbines to demonstrate an innovative technology that will lower capital and operating costs making tidal power competitive with wind and solar power.

The feasibility of this technological approach has been studied in phases as research grants have been secured over a number of years, with the rate of progress being dependent on the success of grant applications. Among the supporting documents of this application are three engineering reports by Dr. Sue Molloy, Adjunct Professor at Dalhousie University.

2 – RESULTS OF TESTING

The initial research was conducted under a Province of Nova Scotia Tier 1 Productivity and Innovation Voucher Program in which Soluna Energy Inc. was able to access Dalhousie University's engineering expertise to assess the technological concept and explore the feasibility of using 3D printing to produce a first prototype. The Soluna turbine design was deemed worthy of further investigation at model scale based on a report by Dr. Sue Molloy on March 31, 2014¹. As a result of the progress made under the Tier 1 grant, Soluna Energy was awarded an additional grant under the Tier 2 program for further testing².

Under the Tier 2 grant, Soluna Energy engaged Dalhousie University and the Nova Scotia Community College to develop a new prototype using a metal 3D printer to produce a series of stainless-steel drive heads having three, six and nine bladed designs. The results of the testing, carried out at Memorial University's Engineering Department's tow tank facility, are contained in Dr. Molloy's March 16, 2015 Engineering Report. They demonstrated the value of the 6 and 9-blade over the 3-blade turbine in a no-load application. The report also showed the value of the cowling in the design. The report recommended further testing to determine power production.

In 2017, Soluna Energy was able to secure funding grants from the federal Industrial Research Assistance Program and a local investment fund, Annapolis Investments in Rural Opportunity.

Further testing of power production was carried out at Dalhousie University's Aquatron water tank facilities, with results and recommendations contained in Dr. Molloy's Engineering report of March 8, 2017³.

The testing showed what at first appeared to be disappointing results, but on further examination, there appear to be new opportunities to increase power production and efficiencies by making modifications to the design. Although with the three-bladed drive head there was a fivefold increase in power when the cowling was attached while running under an electrical load, there was no increase in the six-bladed drive head and an actual decrease in power production from the nine-bladed drive head when the cowling was attached.

The results with the six and nine bladed drive heads appears to be due to pressure buildup under the cowling where water accumulation results in a "pumping" effect. It might be possible to offset this effect by reducing the coverage of the cowling by cutting it in half so it only covers a quarter of the drive head. This modification is part of the planning for our next round of testing (see Section 4).

3 – FINANCIAL FEASIBILITY

Although this project has higher, more urgent objectives made necessary by the existential threat of climate change, in essence it is an attempt to demonstrate a low-cost method of generating revenue through the sale of electricity. And the path to that revenue is clear. The Nova Scotia Public Utility and Review Board has approved a Developmental Tidal Feed-in Tariff Program which sets out a Power Purchase Agreement for renewable energy projects like ours that guarantees a rate of 53 cents per kilowatt-hour for electricity fed into the provincial grid. The term of the agreement is 15 years.

The Nova Scotia Utility and Review Board created the above FIT Program in 2015 as a means of encouraging tidal power developers to establish test project in the province.

The tariff applies to instream tidal single device projects or arrays greater than .5 megawatts (500 kilowatts).

The Board developed two rates -Developmental and Testing:

- Developmental (15-year term): \$530 per megawatt hour (MWh) for projects producing less than 16,640 MWh or \$420 for projects producing greater than 16,640 MWh.
- The Testing rate has two 'paths':
 - o Path 1 is offered for 3 years: \$575 for projects of less than 3,330 MWh of \$455 for projects greater than 3,330 MWh
 - o Path 2 is offered for 15 years and follows Path 1: \$495 for projects less than 16,640 MWh OR \$385 for greater than 16,640 MWh

Although these terms exceed the expected 18-month length of this pilot project, the Town could apply to participate in the FIT Program as soon as the pilot project indicates that it is feasible to develop an and ongoing tidal power municipal utility.

The Town could qualify for the FIT program by expanding its pilot program into an ongoing developmental program by increasing turbine sizes or adding more turbines to increase the array to a capacity of .5 megawatts. Since the long-term goal is to have an array of up to 20 megawatts, this expansion would be feasible given the possibility of a substantial revenue stream from the FIT Program that could amount to millions of dollars.

In addition, the Town of Annapolis Royal will also benefit from Nova Scotia's Cap-and-Trade system. With an electrical utility based entirely on renewable energy, the Town would have no CO2 emissions to regulate. In the future, when the system tightens up on all ancillary emissions, the Town would be able to make use of carbon credits from its electrical utility to offset emissions from sources like vehicles and space heating.

The creation of an electrical utility should create other economic benefits including local employment, private investment, business optimism, property tax options, and population growth.

The need for economic security is particularly acute for the Town of Annapolis Royal as it faces the loss of tax revenues resulting from the decommissioning of the existing Nova Scotia Power Corporation tidal power plant located within the Town's boundaries.

If the pilot is successful, The Town and its partners could have access to the revenues that could be generated from the production of 20 megawatts.

Finally, in terms of commercialization, Innovation, Science and Economic Development Canada has developed a description of 9 Technology Readiness Levels⁴. It is estimated that the community tidal power project is at Level 7: "A prototype is ready for demonstration in an appropriate operational environment."

4 – TECHNICAL FEASIBILITY

The levelized Cost of Electricity (LCOE) is a metric which matches cost per unit of power produced, typically dollars or cents per kilowatt or megawatt hour of production. This measure can be used to compare the effectiveness of disparate technologies including wind, solar, etc. Because vertical axis turbines are inherently less efficient than horizontal axis turbines there is uncertainty that our design will lead to a sufficiently low LCOE to make it more competitive than competing designs.

To offset the uncertainty related to power production, we propose the following controlled testing at the Dalhousie University Aquatron facility.

Modifying the deflector by reducing it to a quarter cover, thereby reducing the "pumping" effect that is created under the cover by pressure build up. This may allow us to achieve higher power production with the six and nine bladed drive heads with the smaller cover in place.

Testing a change in blade design. We will change the cross section of the blades to make them more cuplike along the length and accentuating the lower half into a gradual sweep so the blade will force water under the cover downward reducing the pumping effect created by water piling up against the blades.

We will paint the back of the blades on the outside curvature using a new nanoparticle hull paint developed in Nova Scotia and used on boats to reduce fuel consumption by 20% and lower vessel noise by 6 to 7 decibels. For our project, this could lead to a 20% increase in power production.

Introducing compressed air under the cover while the turbine is operating will test the power production with reduced water density under the cover created by an injecting of bubbles. This may induce a “supercavitation effect.” Military research has shown large increases in underwater projectile velocities as a result of creating a low density “skin” of air separating the projectile for the denser water. If this phenomenon can be applied to the surface of tidal turbine blades it would be an innovative break through.

The above technological testing could be the basis of patent applications by Soluna Energy Inc., so must be kept in strict confidence since any public disclosure will disqualify any inventions resulting from the research.

Operating in Shallow Water: Because almost all existing tidal turbine projects involve operating in deep water, the power potential of tidal currents in shallow water is not well known. Because we want to make use of the natural rise and fall of the tides to allow us to work on the turbine during low tide when the ocean bottom is exposed, we must stay close to shore. Confining our operations to the intertidal zone (between high and low tide) introduces a variety of uncertainties.

There will be more turbulence from the current closer to shore that may decrease power production. This may be rectified by a judicious selection of turbine site locations, something that can only be determined by on site testing during the project. There may also be more debris and plant material to interfere with the turbine close to shore. Salt water is generally resistant to freezing in winter in Nova Scotia, but there is still a threat during exceptional weather that drifting ice caught in the current may damage the turbines. Protective grids or cages may have to be installed for part of the year to offset the risk and uncertainty.

At low tide there may be longer periods of nonoperation of the turbine while the returning current reaches a sufficient height to contact the blades. The velocity of tidal currents varies during the tidal cycle, including a complete stop at low and high tide. Immediately after low tide the current recovery may be so slow that power production may be hampered. But we do know that the fastest part of the current is in the top third of the water column, which is encouraging since the shallow inshore range of the tide will always be in the top third.

Once we confirm all costs throughout the project, we will be able to calculate a new LCOE for the technology and estimate its viability.

5 – ENVIRONMENTAL BENEFITS

5.1 Susceptibility to climate change impacts

According to local scientist Hague Vaughan, as long as the installation can be moved, the project will not be susceptible to changes in sea level rise.

5.2 Potential to contribute to the displacement of fossil fuels

As a renewable energy source tidal power's principal benefit is the displacement of fossil fuels and its attendant reduction of greenhouse gases, primarily carbon-dioxide and methane. On the assumption that the production of one kilowatt-hour of electricity from a fossil fuel fired power plant will generate a little over one pound of carbon-dioxide, we can expect a tidal turbine of 50-kilowatts will displace 50 pounds of carbon-dioxide for every hour it is generating power. Tidal streams stop flowing four times a day at "slack" tides, two low tides and two high tides. In the Bay of Fundy these slack tides last about two hours each, leaving about 16 hours available for full production. Under ideal conditions, a 50- kilowatt turbine running at full power for 16 hours would displace about 800 pounds of carbon-dioxide per day.

This technology is designed to fill a void in the availability of tidal power for smaller coastal communities by keeping size and costs within their financial capabilities. But it does not mean the amount of greenhouse gas emissions reduction must remain modest since scaling up can be achieved by installing arrays of multiple units as communities gain confidence in their use. A corresponding reduction in greenhouse gas emissions would be achieved with each new turbine, allowing for a substantial contribution to the fight against climate disruption.

5.3 Ocean floor and fish habitat

Shallow water installation means less cabling which will result in less disturbance of the ocean floor and fish habitat.

The Department of Fisheries and Oceans has reviewed Soluna's tentative plans and has cleared the project as being of no significant threat to endangered species.

The proposed turbine design has already been assessed by the Department of Fisheries and Oceans as not posing a threat to marine life, which should allay public fears of continuing the fish kills caused by the existing plant.

CONCLUSION

According to the description of nine Technology Readiness Levels¹ developed by Innovation, Science and Economic Development Canada, we have a small-scale community tidal power project involving a prototype that is ready for demonstration in an appropriate operational environment. This pilot project will provide the information necessary to establish the optimum power and physical size of the turbines and to determine the number and configuration of the turbines in an operational array. With a reliable estimate of the total power production potential, the Town and its partners can do a cost/benefit analysis of the financial viability of a larger capital project leading to the establishment of a municipal electrical utility based on renewable energy.

Appendices and reference pages

Appendix A Innovation, Science and Economic Development Canada description of 9 Technology Readiness Levels¹

Appendix B Engineering Report by Dr. Sue Molloy, Adjunct Professor of Engineering, Dalhousie University, March 31, 2014

Appendix C Engineering Report by Dr. Sue Molloy, Adjunct Professor of Engineering, Dalhousie University, March 16, 2015

Appendix D Engineering Report by Dr. Sue Molloy, Adjunct Professor of Engineering, Dalhousie University, March 8, 2017

Technology readiness levels

Many programs fund or otherwise support projects at different stages of development. These are the 9 technology readiness levels, with 1 being the least ready and 9 being already used in real-life conditions.

Level 1: Basic principles of concept are observed and reported

Scientific research begins to be translated into applied research and development. Activities might include paper studies of a technology's basic properties.

Level 2: Technology concept and/or application formulated

Invention begins. Once basic principles are observed, practical applications can be invented. Activities are limited to analytic studies.

Level 3: Analytical and experimental critical function and/or proof of concept

Active research and development is initiated. This includes analytical studies and/or laboratory studies. Activities might include components that are not yet integrated or representative.

Level 4: Component and/or validation in a laboratory environment

Basic technological components are integrated to establish that they will work together. Activities include integration of "ad hoc" hardware in the laboratory.

Level 5: Component and/or validation in a simulated environment

The basic technological components are integrated for testing in a simulated environment. Activities include laboratory integration of components.

Level 6: System/subsystem model or prototype demonstration in a simulated environment

A model or prototype that represents a near desired configuration. Activities include testing in a simulated operational environment or laboratory.

Levels 7 through 9 represent the pre-commercialization gap for innovations. These are the three levels where innovations are eligible for the Build in Canada Innovation Program.

Level 7: Prototype ready for demonstration in an appropriate operational environment

Prototype at planned operational level and is ready for demonstration in an operational environment. Activities include prototype field testing.

Level 8: Actual technology completed and qualified through tests and demonstrations

Technology has been proven to work in its final form and under expected conditions. Activities include developmental testing and evaluation of whether it will meet operational requirements.

Level 9: Actual technology proven through successful deployment in an operational setting

Actual application of the technology in its final form and under real-life conditions, such as those encountered in operational tests and evaluations. Activities include using the innovation under operational conditions.

Source Innovation Canada, Date modified: 2018-01-23



**DALHOUSIE
UNIVERSITY**

FACULTY OF ENGINEERING

Soluna Energy Tidal Turbine Model Testing Report

Submitted to: NSCC, NS Voucher Program
March 16th 2015

Dr. Sue Molloy
Adjunct Professor
Mechanical Engineering Dept.
Faculty of Engineering
Dalhousie University

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Introduction

Dr. Sue Molloy and students from the Faculty of Engineering at Dalhousie University have been working over the past 2 years with Soluna Energy to help develop their tidal turbine model designed to be deployed in the intertidal zone. The first project involved the construction of a 3D model and the development of engineering drawings with a basic analysis of the system. This project is an expansion of the work done previously and the scope of this project was to have a larger model built at NSCC Waterfront, Dartmouth using the metal 3D printer and then to test that model in the towing tank at Memorial University of Newfoundland (MUN).

NSCC produced 3 different models and a test frame with a removable cowling to allow the models to be tested with and without the cowling cover. Figure 1 shows the 3D printed 6-blade turbine before it was removed from the printing base. The 3 different models used in the test varied in the number of blades only. 3, 6 and 9 blades were tested and a cowling or cover was designed to cover the part of the turbine away from the flow of the tide. The cowling was made from fiberglass and is shown with the 3-blade turbines in Figure 2.

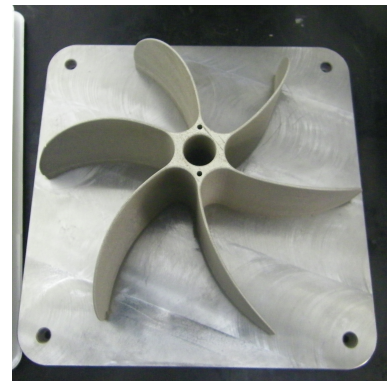


Figure 1 3D printed turbine



Figure 2 Model Turbines 3 blades with cowling, 6 blades and 9 blades

The goals of the tests were to investigate answers to the following questions.

- Did the model produce power with any efficiency?
- Which blade configuration was more efficient?
- Did the cowling improve the performance of the turbine?

The tests were originally going to happen over a week with an experienced student. Difficulties with booking tests and a subsequent personal incident with the experienced

student meant that a last minute change was required. Alexis Dunphy pinch-hit and did an extraordinary job in acquiring data for this test program.

Methodology

Set up

NSCC built a test frame to be installed on the Tow Tank Carriage at MUN, Figure 3.



Figure 3 Testing Frame with model

The tow carriage ran in the 54m tow tank, dragging the model and simulating inflow to the blades.



Figure 4 Tow tank and frame

Originally the plan was to use the opens boat at MUN, which is a multi-dimensional dynamometer capable of measuring torque and thrust loads as well as drag and shaft speed. The team at NSCC was unable to design the system to work with the opens boat so a back up solution was found; other researchers have used generators in the past to measure the performance of tidal turbines, the details were provided in Kahn et al, 2008. The system proved challenging to replicate so a system was devised at NSCC that would provide a generated voltage reading when the turbine rotated as it was moved through the towing tank.

Estimates of the possible power were made to allow the measurement system to be appropriately sized. A standard power equation was used to estimate the amount of power at different Coefficients of Power (C_p) or efficiencies. The turbine is a vertical axis turbine and the area facing the flow was taken as the rectangle of the maximum height of the blades times the diameter of the turbines, Table 1.

Table 1 Power equation for estimating turbine power

Power	$P=1/2*C_p*\rho*A*V^3$		kgm^2/s^3
C_p	Power Coefficient (table below)		
Density ρ	1000	kg/m^3	
A	Area facing flow		
V	Velocity of the flow		
Dimensions			
Diameter	9inches	0.2286	m
Height	3inches	0.0762	m
Area - facing flow		0.01741932	m^2

The C_p values chosen were based on experience of the researcher in the field and it was expected that the efficiency of the turbine would be below 20%, Table 2.

Table 2 Estimated power coefficients

Estimated C_p Values	
C_{p1}	0.1
C_{p2}	0.12
C_{p3}	0.14
C_{p4}	0.16
C_{p5}	0.18

The power was then calculated using the power equation in Table 1 and the C_p values in Table 2. These values could then be used to determine the specifications of the test equipment needed to measure the power output of the turbine.

Table 3 Estimated Power based on different Cp values

Velocity	Power (Watts)				
	Cp1	Cp2	Cp3	Cp4	Cp5
0.2	0.01	0.01	0.01	0.01	0.01
0.4	0.06	0.07	0.08	0.09	0.10
0.6	0.19	0.23	0.26	0.30	0.34
0.8	0.45	0.54	0.62	0.71	0.80
1	0.87	1.05	1.22	1.39	1.57
1.2	1.51	1.81	2.11	2.41	2.71
1.4	2.39	2.87	3.35	3.82	4.30
1.6	3.57	4.28	4.99	5.71	6.42
1.8	5.08	6.10	7.11	8.13	9.14
2	6.97	8.36	9.75	11.15	12.54
2.2	9.27	11.13	12.98	14.84	16.69
2.4	12.04	14.45	16.86	19.26	21.67
2.6	15.31	18.37	21.43	24.49	27.55
2.8	19.12	22.94	26.77	30.59	34.42
3	23.52	28.22	32.92	37.63	42.33
3.2	28.54	34.25	39.96	45.66	51.37
3.4	34.23	41.08	47.93	54.77	61.62
3.6	40.64	48.76	56.89	65.02	73.14
3.8	47.79	57.35	66.91	76.47	86.02
4	55.74	66.89	78.04	89.19	100.34
4.2	64.53	77.43	90.34	103.25	116.15
4.4	74.19	89.03	103.87	118.71	133.55
4.6	84.78	101.73	118.69	135.64	152.60
4.8	96.32	115.59	134.85	154.11	173.38
5	108.87	130.64	152.42	174.19	195.97

Calibration

The test equipment read in measurements in volts and these values need to be converted into velocity, force and power measurements. The turbine was rotated with weights and the number of volts for each weight was recorded. A series of weights and volts resulted in a straight-line curve with a slope and constant that correlated the volts and weights. The acquired data could then be converted using this calibration curve. The details of this work are included in the Testing notes found in Appendix A.

Testing

The model test matrix was designed as shown in Table 4 for each of the 3 different turbines; one time each with the cowling in place and one time each without the cowling in place.

Table 4 Test Matrix per configuration

Configuration #1 (cowling on/off):						
Model #1 (# of blades):						
Wait time between runs:						
Run #	Carriage Velocity goal	Actual velocity	Shaft Speed	Voltage Output	Torque	Power
1	0.4					
	0.7					
	1					
2	2.5					
3	4.8					
4	3.3					
5	1.3					
6	3.9					
7	1.6					
8	2.2					
9	4.2					
10	3					
11	2.7					
12	4.5					

The 3-blade model was tested first followed by the 6 then the 9. There were complications with the model testing, as the cowling system did not allow the turbine to rotate. Modifications were made to the system and testing was started. The power measurement system did not perform as expected so it was abandoned for this test program. A static torque force measurement system was set up and an approximation of the force on the system was measured for each configuration.

It was then decided that the shaft speed of the turbines could be used to compare the turbines and estimate the possible power performance.

Model tests were completed for all 3 turbines with and without the cowling and the RPS was recorded for each shaft speed. A set of torque tests were also completed where a rod was placed against the turbine shaft and restricted it from rotating then that resistive force was measured at a range of carriage speeds.

Results

The first set of tests measure the shaft speed for different carriage velocities with the turbine rotating freely in the flow. In this case rotating freely means there was no attempt to capture the potential power. The results of these tests were inconclusive (see Figure 5) and did not give the researcher confidence in this data for showing the performance of the system. The freely rotating with no cowling data were disregarded, if this scenario is to be tested in the future it would be valuable to complete a wider range of tests with repeat runs.

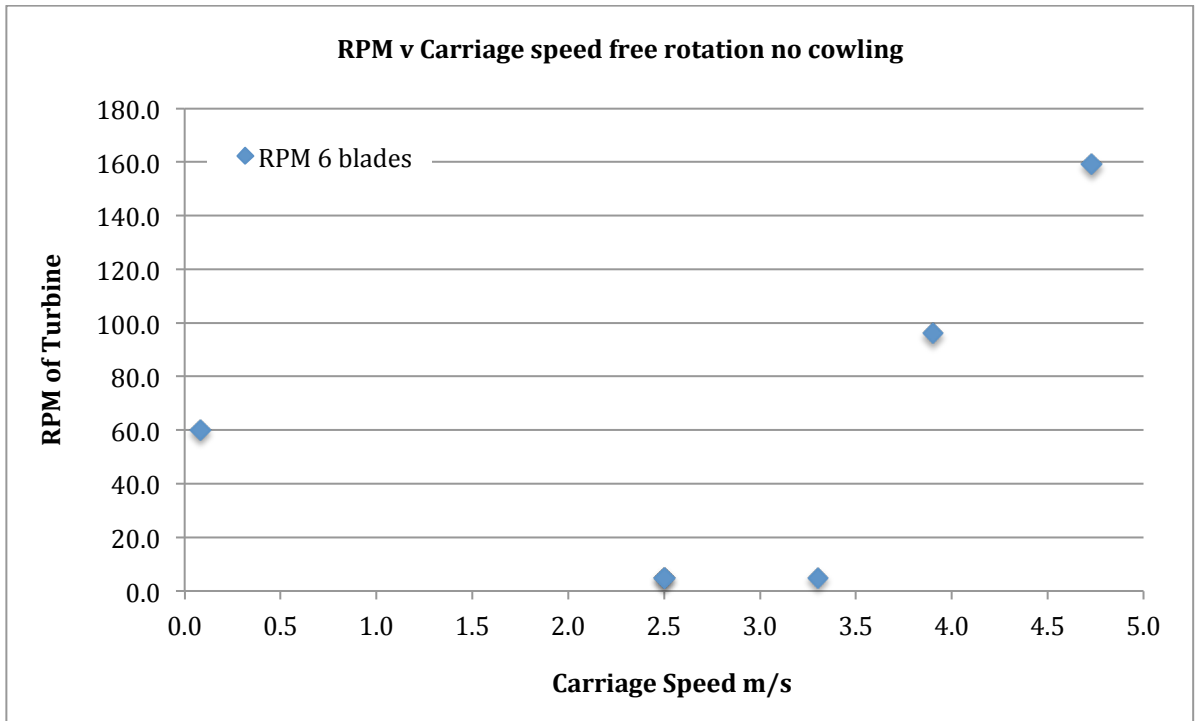


Figure 5 Model test of the 6-blade turbine freely rotating with no cowling

Observations during the tests did note that the 9 blade turbine did not move at all when tested without the cowling but then was observed to perform the best of the three turbines when the cowling was in place.

The second set of tests was the tests completed with the turbine rotating freely with the cowling. These tests proved much more promising and gave clear trend lines showing the difference in performance of each of the turbines.

The data is plotted in Figure 6 shows the performance of the 3 turbines with the cowling and when the cowling is in place the data is consistent and shows clear trends. The raw scatter data is presented and a trend line for each data set is included. The trends show the performance of the 6 and 9-blade turbine is significantly improved over the 3-blade

turbine. The 9-blade turbine appears to have faster rotations over the 6-blade but the data has some scatter and this would need to be repeated to clearly state that one is better than the other. Observations during testing did see a significant difference in the performance of the 9 blade over the 6 blade so this should be investigated further.

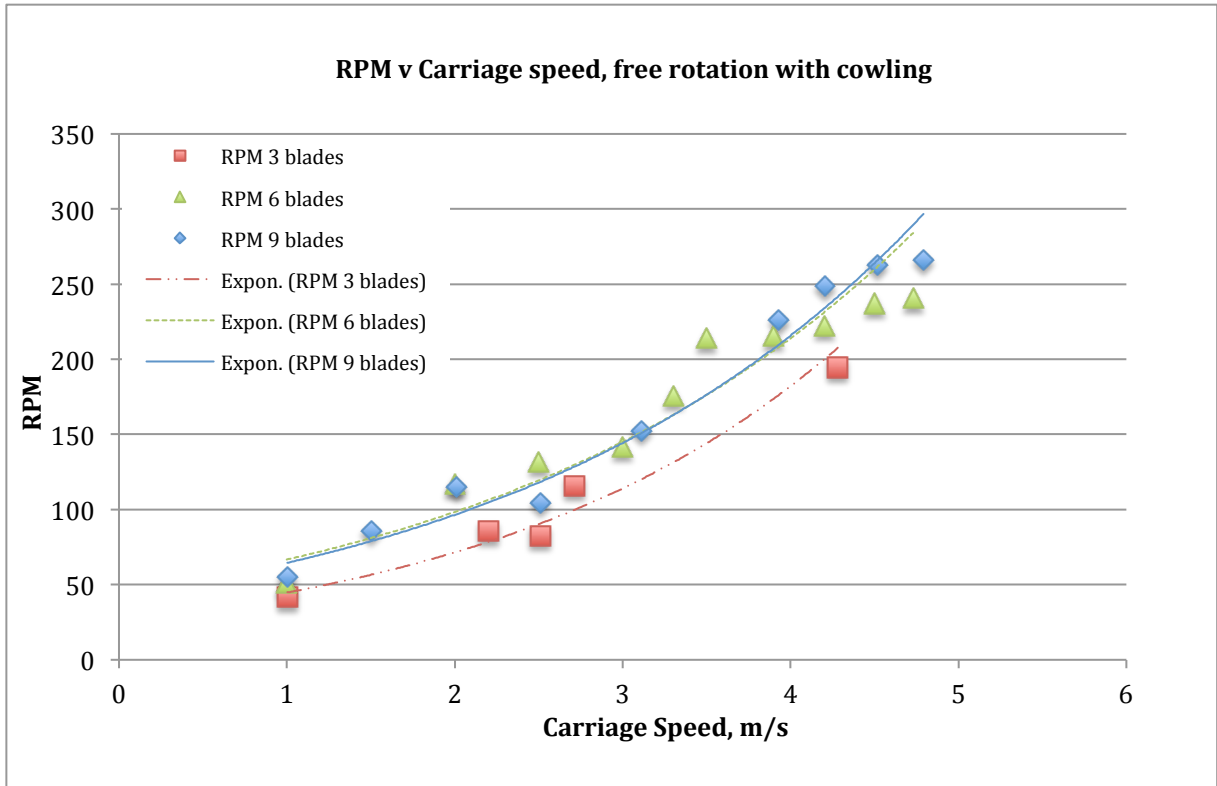


Figure 6 Model test of the 3 turbines freely rotating with cowling

The Torque testing was a test of the resistance of the shaft to rotation at different carriage speeds. This was not an estimate of the power but showed the variation in the forces on the shaft at various speeds for each of the turbines. These tests were only performed with the cowling in place.

The data is presented as raw scatter data in Figure 7 and trend lines are added to each data set. While the trend line for the 6-blade turbine data appears to show the performance of the 6 blade being a significant improvement over the 9-blade it is not so clear when the raw data is studied. Again there is a lack of clarity in the difference between the 6 and 9-blade turbines and more tests with more repeats would clarify this.

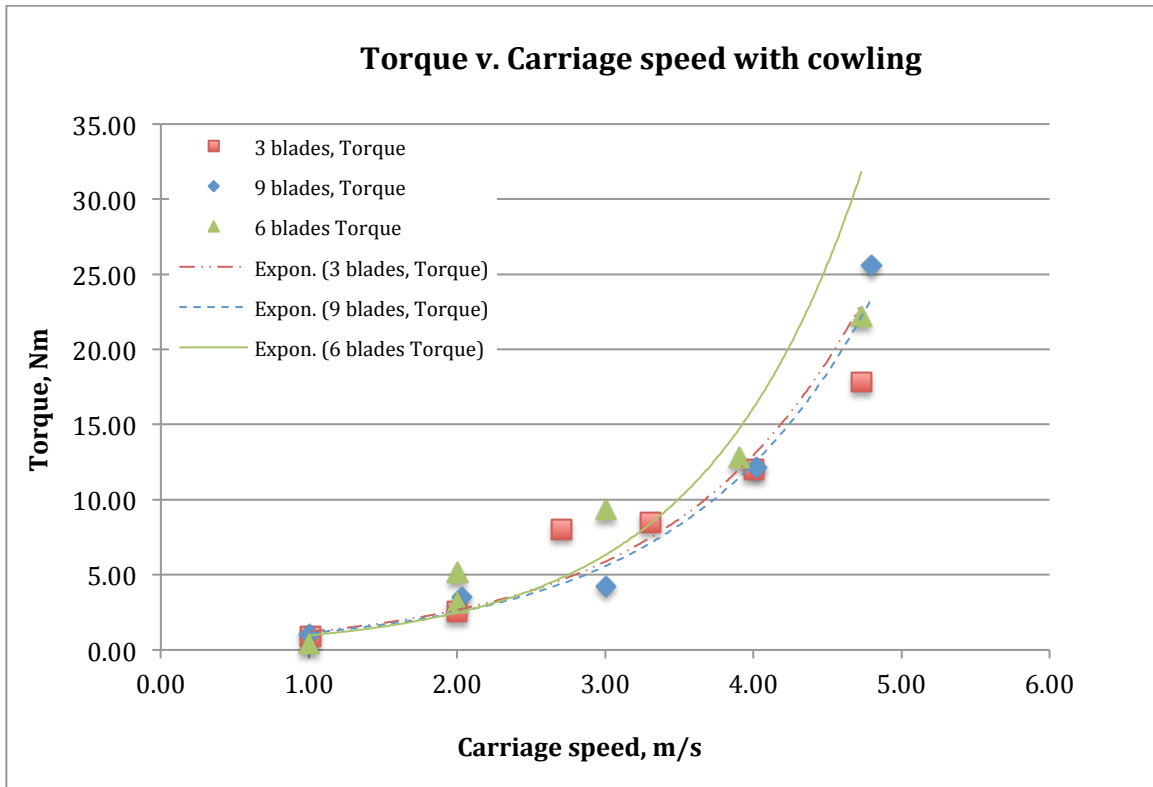


Figure 7 Shaft torque measurements for model turbines at varying carriage speed

Using the measured torque a power can be calculated. This cannot be relied upon as the operational power as no power was produced but it gave a representative power can be estimated.

A comparison of the power produced from the measured torque with the power possible from the flow for this size turbine the results are presented in Table 5. The results are not encouraging and seem anomalous at low values as they predict highest efficiencies at 1m/s carriage speed.

It is not recommended that these power comparisons be used to estimate the power potential of this turbine. Additional tests measuring the output with a dynamometer or a generator should be completed before drawing any conclusions.

Table 5 possible efficiencies from model turbine

Flow velocity/carrriage speed	Potential power, Watts	Measured power, Watts	Efficiency, %
3 Blades			
1.01	8.97	0.452726001	5%
2.00	69.74	1.286811437	2%
2.70	171.97	4.066237832	2%
3.30	313.44	4.31987319	1%
4.00	558.04	6.113877978	1%
4.73	921.07	8.968144786	1%
6 Blades			
1.00	8.77	0.210106336	2%
2.00	69.92	2.61108976	4%
2.00	69.98	1.608658635	2%
3.00	235.98	4.769832688	2%
3.90	518.26	6.528997702	1%
4.73	920.88	11.14303028	1%
9 blades			
4.80	962.12	12.97730648	1%
4.02	565.41	6.165902622	1%
3.00	236.02	2.150443483	1%
2.03	73.30	1.773465212	2%
1.00	8.80	0.524945141	6%

Recommendations

The tests were successful in identifying the differences in the performances of the 3 types of turbine and in demonstrating the effectiveness of the cowling design. The cowling design gave some surprising results in that it took a turbine (9-blade) that would not rotate to being the fastest rotating turbine at top speeds. There is some value in the cowling and this should be investigated further.

The power results were inconclusive, as they did not measure the actual power being produced, just the maximum torque on the system in the various flow regimes/carrriage velocities. Before determining the performance of the system or making decisions about the value of the design additional tests that measure the power when rotating should be performed.

The tests were successful in showing the value of the 6 and 9-blade over the 3-blade and in showing the value of the cowling. The metal models can be used again in repeated test and would be robust enough for testing in situ or in a towing tank. While the model is small, the benefits of this size for in situ testing are that it will be inexpensive to install and the required generator will be small. The full scale values are challenging to predict at this point but work is underway to develop guidelines for powering prediction of tidal turbines.

Acknowledgements

Alexis Dunphy went last minute to MUN to participate in testing and was a valuable part of the analysis team.

Trevor Clark was the technician at MUN and provided guidance and troubleshooting throughout the testing.

Morteza Mehrzadi went last minute to MUN and participated in the testing and collection of data.

Darrell Leudey from NSCC built the system for testing.

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Molloy, S. (2014) Nova Scotia Voucher Program Project Dalhousie University & Soluna Energy In-Stream Tidal Turbine

Kahn, J., Iqbal, T., Quaiocoe, J., (2008) Tow Tank Testing and Performance Evaluation of a Permanent Magnet Generator Based Small Vertical Axis Hydrokinetic Turbine, IEEE

Appendix A

Test notes from Alexis Dunphy

Tow-Tank Testing of Turbine Cowling

Submitted by: Alexis Dunphy

Testing Day 1: March 3rd, 2015

Shipment of Turbine delayed due to high winds preventing cargo-plane doors from safely being opened.

Testing will begin the following day

Testing Day 2: March 4th, 2015

Turbine delivered at 9:30am

Observations of turbine when it arrived with 3-blade propeller and cowling attached showed stiffness in rotation. This prevented free movement of system. It was noted that the components cold to the touch. All points of contact were loosened to determine restricting component, but none were found to be the cause. Testing was attempted with system intact

Trial Run: 3-Blade Propeller with Cowling: first attempt

Trial	Carriage Speed	Rotation Observed	Observation
Trial #1	1.0 m/s	0	The shaft did not rotate
Trial #2	1.0 m/s	0	Generator belt was removed
Trial #3	2.0 m/s	0	Belt was not attached
Trial #4	3.0 m/s	<10° of motion	Shaft rotated slightly, but not significantly

After this test, the system was removed from the carriage and all points of contact were rechecked. It was determined that the restricting component was the bearing housing of the cowling which had seized. The cowling and its components were removed and a trial run was performed to ensure free motion

Trial Run: 3-Blade Propeller, No Cowling: rotation confirmation

Trial	Carriage Speed	Rotation Observed	Comments
Trial #1	0.58 m/s	Free rotation	Shaft rotated after manual excitation
Trial #2	1.5 m/s	Free rotation	Shaft spun freely

Test Design

It was first decided that three measurements: the rotational shaft speed, the torque generated in the shaft, and the voltage output of the generator.

The rotational speed was gathered using a sensor pointed at reflective tape on the shaft. The reading was to be transmitted to two locations. One was to the data collection system which would give a detailed measurement of the shaft speed as a function of time along with the carriage speed. The second was a visual reader which would allow the observers to estimate an average. As this reading was empirical, it was used more as an indication of trends for the observer versus usable data. This is recorded in the subsequent testing notes as it gives an indication of trends and a comparison for the collected data.

The torque would be calculated using a force meter collecting reading from an arm attached to the shaft. The force applied would be transmitted to the same collection system for rotational speed (with the carriage speed and time also plotted) and could be converted to torque. The length of the arm was 4.487 inch from center of shaft to center of contact. To calculate this, first the force gauge was calibrated finding a conversion equation from voltage (Volts) to weight (kg)

$$\text{Voltage} = 15.981 * \text{weight} + 0.3537$$

The voltage output of the generator was taken by observing a hand-held voltmeter. It could not be connected to data collection system as potential high voltages could damage the system.

Trials were done to practice taking these recording techniques

Trial Run: 3-Blade, No Cowling: testing of equipment

Trial	Carriage Speed	Data recorded	Observations
Trial #1	1.0 m/s		Rotated freely Non-uniform speed
Trial #2	1.5 m/s		Rotated freely
Trial #3	2m/s	19-27 mV	Large range of voltages

After this trial run, it was determined that the range of recorded voltages was too large to maintain certainty in the data. Instead it was decided that only the rotational speed and torque were recorded.

Testing: 3-Blade Propeller, no Cowling

Free-Rotation Testing

To determine rpm as a function of time and approximate average rpm

Test	Carriage Speed	RPM	Observations
Test #1	1.0 m/s	35	Slight shake in frame Gallop of frame A lot of cavitation Continued movement of frame Cavitation Bracing was added to the frame Frame rocking continued, but was much reduced
Test #2	2.3 m/s	92	
Test #3	4.729 m/s	170	
Test #4	3.3 m/s	125	
Test #5	4.729 m/s	170	
Test #6	3.3 m/s	120	
Test #7	3.9 m/s	137	
Test #8	2.2 m/s	85	
Test #9	4.2 m/s	150	
Test #10	3.0 m/s	110	
Test #11	2.7 m/s	105	
Test #12	4.5 m/s	160	

Torque Testing

Here the contact arm would be moved to a position as far from the force meter as possible. Therefore the carriage would reach closer to its intended speed before contact was made. However, this meant that there would be a large initial force due to the moment of the arm prior to leveling off at the force applied by the turbine.

Test	Carriage Speed	Observations
Test #1	1.0 m/s	No rotation Arm did not contact the force meter
Test #2	2.5 m/s	Need manual excitation before rotating Rebounded three times before maintaining contact
Test #3	4.729 m/s	Frame shook once during run
Test #4	3.3 m/s	
Test #5	3.9 m/s	
Test #6	2.2 m/s	
Test #7	4.2 m/s	
Test #8	3.0 m/s	
Test #9	2.7 m/s	
Test # 10	4.5 m/s	

Attempt to Attach Cowling

The cowling with the damaged bearing housing, but not directly attached to the frame. It was hoped that the fin of the cowling would keep it in position without putting additional constraint on the frame.

Trial Run: 3-Blade Propeller with Cowling: test for rotation

Trial	Carriage Speed	Rotation	Observation
Trial #1	3.3 m/s	< 10 degrees	Did not complete one full rotation
Trial #2	3 m/s	None	Did not rotate at all

It was found that the cowling bearing housing was seized and would prevent the shaft from rotating freely. In interest of making the most of the testing time, the cowling was removed and the 6-Blade Propeller was attached.

Testing: 6-Blade Propeller, no cowling**Free-Rotation Testing**

Test	Carriage Speed	RPM	Observations
Test #1	1.0 m/s	0	No rotations Attempted manual excitation, no results
Test #2	2.5 m/s	44	Required manual excitation
Test #3	2.5 m/s	50	Attempted again Required manual excitation to rotate
Test #4	4.729 m/s	90	
Test #5	3.3 m/s	38	
Test #6	3.9 m/s	15	

Initial observations suggested that the 6-Blade was less effective than the 3-Blade

Torque Testing

Test	Carriage Speed	Observation
Test #1	4.729 m/s	Did not maintain contact with the force meter
Test #2	4.729 m/s	Test was repeated Rebounded once, but did not maintain contact
Test #2	2.5 m/s	Did not maintain contact Hit meter once

Testing Day 3: March 5th, 2015

It was found that the 9-Blade Propeller was missing a shaft collar. One screw hole had a piece of a tap broken off inside it. An attempt to resize the hole was done, but with no success. The 9-Blade was abandoned.

Testing: 3-Blade Propeller with Cowling

Free-Rotation Test

Test	Carriage Speed	RPM	Observations
Test #1	1.0 m/s	41	Required manual excitation Speed appeared more uniform
Test #2	2.5 m/s	88	Required manual excitation Large turbulence around cowling
Test #3	4.729 m/s	0	No rotation Could have been cause by blade position
Test #4	4.729 m/s	0	Attempted manual excitation, but could not be rotated

After Test #3, the shaft could no longer be rotated easily. It was insured that one blade was perpendicular to the flow of the water, but it did not rotate. When the shaft was rotated manually, it was found that the blades were making contact with the front most portion of the cowling. The system was removed and the propeller was moved down in hopes this would prevent it from contacting the cowling

Trial: 3-Blade Propeller with Cowling: lowered propeller

Test	Carriage Speed	RPM	Observation
Test #1	1.0 m/s	40	No manual excitation need
Test #2	2.5 m/s	0	Manual excitation attempted Expected contact with Cowling

After this attempt, additional bracing was added between the front of the cowling and the frame in hopes it would resist the forces of the water. The following testing was done in slowly increasing intervals to slowly introduce stronger forces on the cowling. It was feared the cowling would still seize at higher speeds

Testing: 3-Blade with Cowling

Free-Rotation Testing

Test	Carriage Speed	RPM	Observations
Test #1	1.0 m/s	35	No manual excitation needed Slightly unsteady rotation
Test #2	1.5 m/s	62	
Test #3	2.2 m/s	91	
Test #4	2.5 m/s	105	
Test #5	2.7 m/s	110	
Test #6	3.0 m/s	115	
Test #7	3.3 m/s	141	
Test #8	3.9 m/s	188	
Test #9	4.2 m/s	210	
Test #10	4.5 m/s	225	

Test #11	4.729 m/s	240	
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Torque Testing

Test	Carriage Speed	Observations
Test #1	1.0 m/s	Slight rebound on contact
Test #2	2.0 m/s	No rebound
Test #3	2.7 m/s	Forgot to reset the position Moved and contacted during test

Test Summary

Carriage Speed	3-Blade, no cowling	3-Blade with cowling	6-Blade no cowling
1.0 m/s	35 rpm	35 rpm	0 rpm
1.5 m/s		62 rpm	
2.2 m/s	85 rpm	91 rpm	
2.5 m/s	92 rpm	105 rpm	50 rpm
2.7 m/s	105 rpm	110 rpm	
3.0 m/s	110 rpm	115 rpm	
3.3 m/s	120 rpm	141 rpm	38 rpm
3.9 m/s	137 rpm	188 rpm	15 rpm
4.2 m/s	150 rpm	210 rpm	
4.5 m/s	160 rpm	225 rpm	
4.729 m/s	170 rpm	240 rpm	

Appendix B

Notes from Morteza Mehrzadi



APPLIED

Industrial Technologies®

6 blades / w cooling / Free / 2 angles
fixture

Speed = 1 m/s

shaft speed = 49 rpm

speed = 2 m/s

" " = 108 rpm

" = 2.5 "

" " = 128 "

" = 3.0 "

" " = 141 "

" = 3.3 "

" " = 175 "

" = 3.9 "

" " = 213 "

" = 4.2 "

" " = 222 "

" = 4.5 "

" " = 237 "

" = 4.729 "

" " = 245 "

It was surprisingly improved
while 6 blades even did not
rotate without cooling at
lower speeds!

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6 blades / w coating / Torque / 2 angles
Fixture

$$\text{Speed} = 1 \text{ m/s}$$

$$T \approx 0.1 \text{ kg} \times (d)$$

$$\text{"} = 2 \text{ m/s}$$

$$T \approx 0.3 \times (d)$$

$$\text{"} = 3 \text{ "}$$

$$T \approx 0.8 \times (d)$$

$$\text{"} = 3.9 \text{ "}$$

$$T \approx 2 \times (d)$$

$$\text{"} = 4.729$$

$$T \approx 2.2 \text{ kg} \times (d) \quad \underline{\quad} \quad ?$$

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9 blades / w cowling / Free / 2 angles
Fixture

speed = 1.0 m/s	shaft speed = 53 rpm
" = 2.0 m/s	" " = 112 rpm
" = 2.5 m/s	" " = 140 rpm
" = 3.0 "	" " = 150 "
" = 3.3 "	" " = 182 "
" = 3.9 "	" " = 227 "
" = 4.2 "	" " = 244 "
" = 4.5 "	" " = 257 "
" = 4.729 "	" " = 265 "



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(780) 624-4771
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(306) 757-5667
Saskatoon
(306) 934-3366
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(418) 968-5577
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(418) 386-3898
Stratford
(519) 271-3130
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Vancouver
(604) 523-2662
Williams Lake
(250) 392-2388
Winnipeg
(204) 786-1167
Winnipeg - Ag
(204) 786-1976

9 blades / w coating / Torque / 2 angles
Fixture

$$\text{Speed} = 1 \text{ m/s}$$

$$T \approx (0.1 \text{ kg})(d)$$

$$" = 2 \text{ m/s}$$

$$T \approx (0.25 \text{ kg})(d)$$

$$" = 3 "$$

$$T \approx (0.45 \text{ kg})(d)$$

$$" = 3.9 \text{ m/s}$$

$$T \approx (1 \text{ kg})(d)$$

$$" = 4.729 "$$

$$T \approx (2 \text{ kg})(d)$$



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- Williams Lake (250) 392-2388
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- Winnipeg - Ag (204) 786-1976

9 blades / Free ~~shaft~~

speed = 1 m/s shaft speed = 0

I rotate turbine manually
at the middle of test.

speed = 3 m/s " = 12 rpm
" = 4.729 " = 55 rpm

6 and 9 blades do NOT work
properly without cowling



**DALHOUSIE
UNIVERSITY**

Inspiring Minds

Nova Scotia Voucher Program Project
Dalhousie University & Soluna Energy
In-Stream Tidal Turbine

Dr. Sue Molloy
Adjunct Professor
Faculty of Engineering
Dept. Mechanical Engineering
Sue.Molloy@dal.ca
902.233.3265

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Soluna Energy In Stream Tidal Turbine Project

Authors:

Dr. Sue Molloy, Ph.D., M.Eng., B.Eng., B.Sc.

Cris Seaton, B.Eng., B.Sc.

Introduction

Voucher Program

A "productivity and innovation voucher" is a credit note that small and medium-sized enterprises (SMEs) can use to acquire help from Nova Scotia universities and colleges to make their businesses more innovative and productive.

Requirements of the program for this project

1. Design a 3D model on Solid edge so Soluna has a computer file for the model
2. Build a prototype of the model using rapid prototyping (this may require a second build with design iterations if you're not happy with it - but should be covered in the 3d computer model)
3. Dependent on remaining time & funds run a number of tests in the tow tank to get some idea on the performance options.

Technical background

The basic design was a rotary ventilation style turbine that will be installed in the intertidal zone, allowing access for repair and maintenance between tides (figure 1).

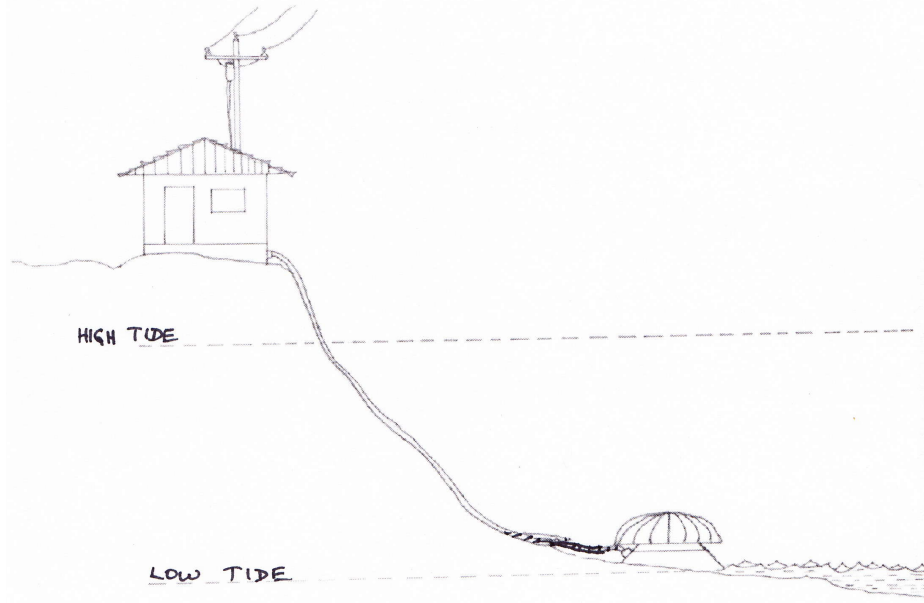


Figure 1 Installed turbine

The system is a vertical axis turbine with 12 blades to be made from a light material (figure 2). The design when installed will have baffles that guide the flow and allow it to run similar to a Pelton Wheel.

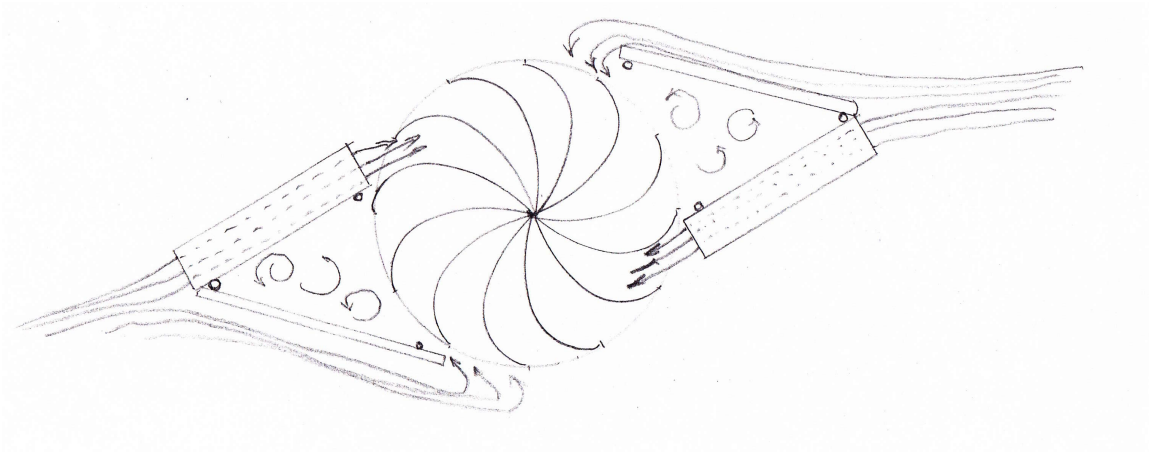


Figure 2 Turbine with baffles

The design also includes a half cowling that will move with the tide and cover the part of the turbine facing away from the flow.

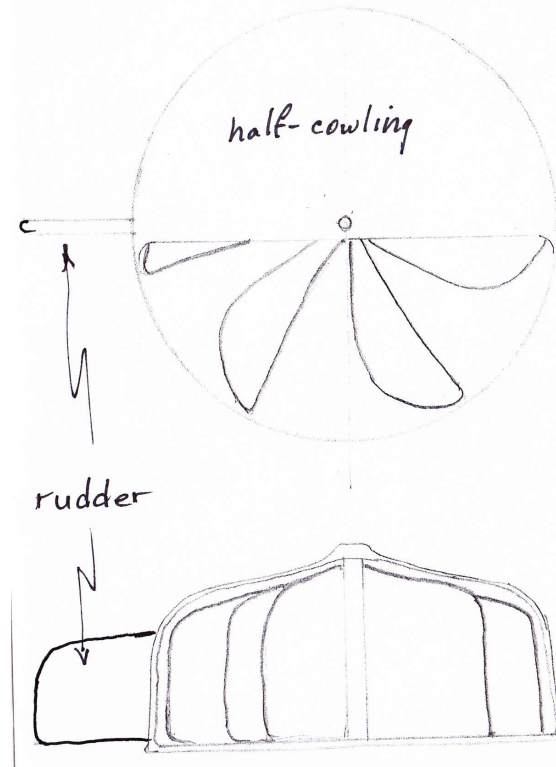


Figure 3 Turbine with Cowling

Vertical Axis turbines

The proposed Soluna turbine is closest in form to the Savonius style turbine (see figure 4) with its solid curved blades. Clearly there are significant differences because the blades all bend and merge at the top surface of the turbine, but after completing a university library database search there is limited data found on rotary ventilator performance so comparison with the performance of a Savonius style turbine is a first step.

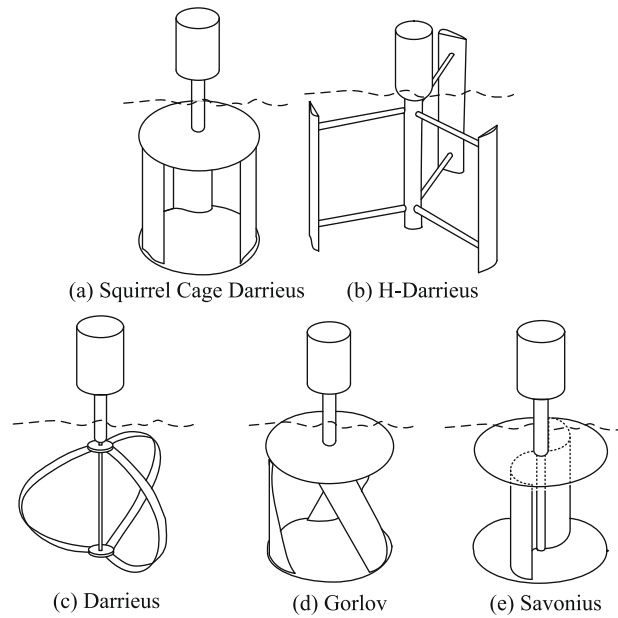


Figure 4 Vertical Axis turbines (Kahn et al., 2009)

There is a wealth of information available on the performance of Savonius turbines as they have been used in the wind industry for many years. Figure 5 shows that the C_p or power coefficient in wind of the Savonius turbine is low when compared to some other styles however the C_p value is just one factor when making a decision on a turbine. Figure 6 indicates that when considering the performance of a Savonius turbine in wind to date fewer blades seems to give higher C_p values. The authors of the paper suggest that the reason is that the drag on the additional blades is proportionally higher than the additional power gained.

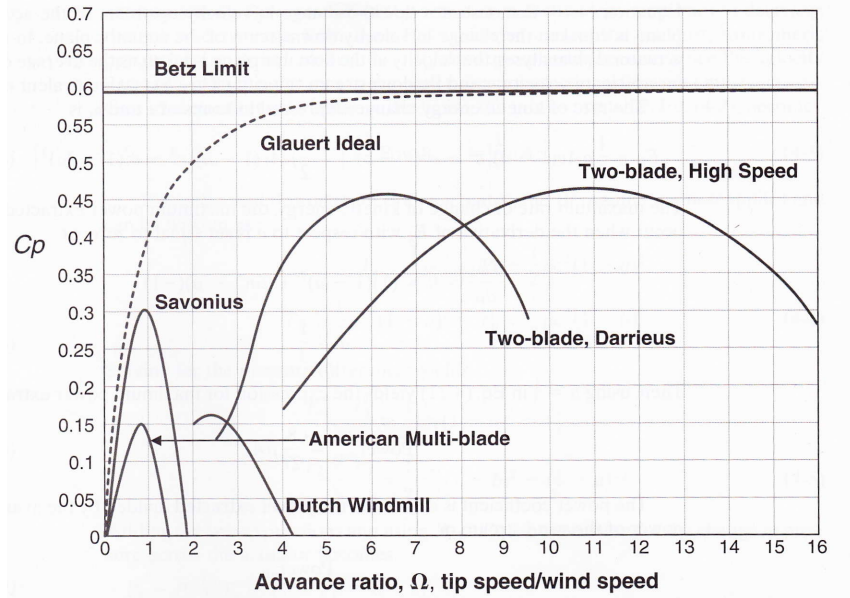


Figure 5 Power coefficient versus advance ratio for different wind turbine configurations (Hodge, 2010)

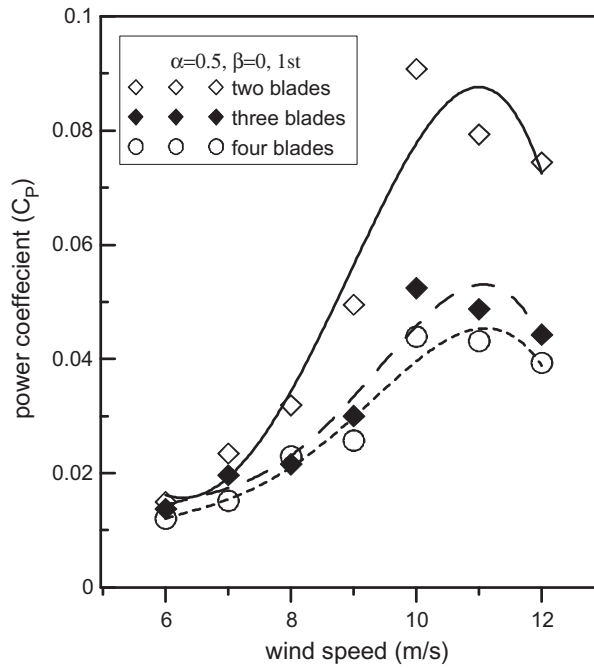


Figure 6 Relation between power coefficient and wind speed for Savonius rotors with 2, 3 and 4 blades (Mahmoud et al., 2012)

Recommendations for turbine performance evaluation

Given this information on the Savonius style turbine, further evaluation of the design from Soluna should consider the following steps.

1. Testing of the original design in a towing tank, flume tank, cavitation tunnel or wind tunnel
2. Testing of a model with 2, 4 and 6 blades to compare performance with the original model
3. CFD or numerical modeling of all model options if available
4. Investigation into material and construction options
5. Testing of most efficient design at 8th or higher scale
6. Investigation of support structure options
7. Investigation of silt and sedimentation impact on performance

Soluna Turbine Model

The basic design premise conveyed by Soluna Energy was to marry a rooftop chimney vent with a pelton wheel for application in the intertidal zone. The turbine would experience a varying degree of time spent both out of water and submerged throughout operation. Interests in the design extended beyond just the turbine to include a half-cowling that would block impedance of the rotor on the upstroke from the flowing water. The cowling would be passively positioned by the water flow via a rudder positioned at the rear of the cowling.

A rotor diameter of 190 mm was used in order to accommodate the limitations of the 3D rapid prototype printer at Dalhousie University. In hopes of utilizing Dalhousie's dynamometer and carriage rig for use in the towing tank, a shaft diameter of 5/8" was used. The blade profile was taken from the top curve of a NACA 9420 airfoil. The profile exhibited a 9.5% max camber, 40% max camber position and 20% thickness. Total blade length was taken as 77mm (radius – shaft diameter – 10mm cylindrical wall for support around shaft). The thickness of the rotor blade was 5mm, extended from the upper edge of the curve. The rotor is made up of a total of 12 blades rotated at equal spacing around the geometric center of the base plate. The model design is shown in figure 7.

Table 1 Turbine particulars

Diameter	190mm
Number of Blades	12
Blade profile	NACA 9420
Blade length	77mm
Blade thickness	5mm
Shaft diameter	15.875mm

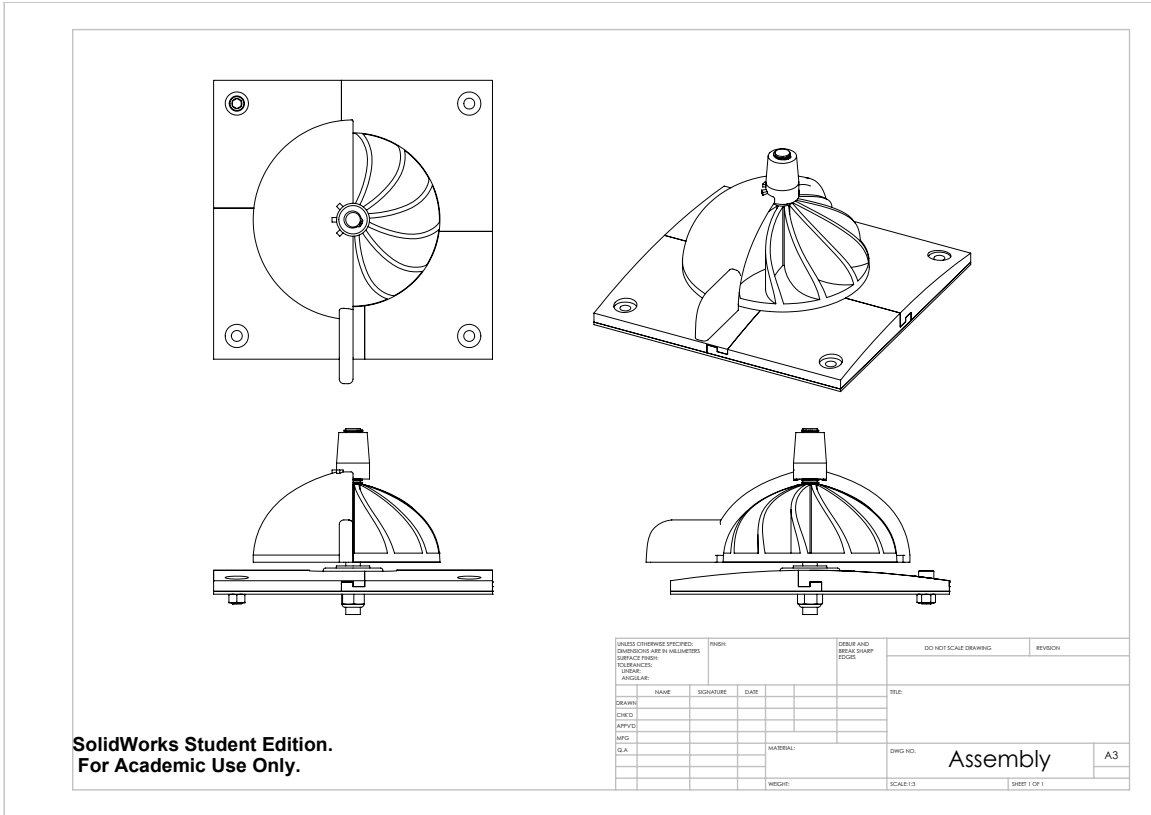


Figure 7 Engineering Drawing of Model Turbine

The bellowing shape of the side profile of the rotor was chosen arbitrarily in order to match the design drawings. Final design decisions for the rotor included how to maintain position on the shaft during operation. Keyhole positions on the interior of the shaft spacing were made to support a keyed shaft to keep the rotor in position radially. Retaining rings were used to keep position vertically.

The cowling was built to mirror the side profile of the turbine rotor with a 5mm gap between the rotor and the cowling. The cowling remains in vertical position and retains this gap through the use of retaining rings. A shaft extension was incorporated into the design to resist unwanted rotation in the horizontal axis.

The final assembly was designed to be rugged and submersible; using only high quality stainless steel parts to prevent ceasing and corrosion should the unit be used on exhibition in a marine environment for an extended period of time. An extreme-environment cast iron mounted graphalloy bearing was the only metal component not stainless steel.

The final model was handed over to Bill Crossman of Soluna Energy, see figure 8.

PICTURE TO COME

Recommendations for design considerations

1. Cowling design should be refined to have a more aerodynamic shape.
2. An additional bottom layer for a lower start up torque may be required.

Conclusions

The design from Soluna is of interest because the design addresses access, installation and material. The tidal industry is facing the challenge to bring the cost of tidal energy down to be comparable with offshore wind. Turbines are the lowest cost element in installation projects. Cables, mobilization of vessels capable of working in high flow and operational windows comprise the majority of the cost. The Soluna design is intended for small-scale community level power production and to be uncovered during low tide, which will allow for installation from the beach. The style and size of the blades opens up a range of options for materials because the forces will be spread over a large surface area. While the efficiency of the turbine performance will be low compared to a 2-4 bladed horizontal axis turbine, the additional factors may outweigh that issue. It is unlikely that there will be a high capacity factor from this turbine but it is most important that the turbine can produce significant kW of power. The quantity of power produced on a regular predictable schedule with the potential pairing of an energy storage system may prove to be an attractive option for off grid and community scale projects.

It is worthwhile investigating this option further at model scale.

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Soluna Energy Tidal Turbine Aquatron Model Testing Report

Submitted to: ILI, Margaret Palmeter
March 8th 2017

Dr. Sue Molloy, Ph.D., P.Eng.
Adjunct Professor
Faculty of Engineering
Dalhousie University
Sue.molloy@dal.ca

Aaron MacNeil, M.Eng, PhD Candidate
Researcher
JMK Engineering

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Introduction

As previously reported, Dr. Sue Molloy, students from the Faculty of Engineering at Dalhousie University and staff at the Aquatron have been working in various capacities with Soluna Energy over the past to help develop their tidal turbine model designed to be deployed in the intertidal zone. The first project involved the construction of a 3D model and the development of engineering drawings with a basic analysis of what can be expected from the turbine system. The second project was an expansion of work done and progressed with the fabrication of 3 different robust models built at NSCC Waterfront, Dartmouth using the metal 3D printer and then those models were tested in the towing tank at Memorial University of Newfoundland (MUN). Only the rpm was reported from the MUN tests because the torque measurement system failed during the experiments. This third project was set up to acquire the missing torque/power and was designed to test the 3 NSCC built models in lab produced tidal flow at a range of speeds and the power produced from each turbine was measured and reported.

A comparison of the power performance of the tidal turbines and cowlings is presented along with some recommendations for progressing this project.

Turbine

NSCC produced 3 different metal models and a test frame with a removable cowling to allow the models to be tested with and without the cowling cover. The 3 different models used in the test varied in the number of blades only. 3, 6 and 9 bladed turbines were tested (figure 1) and a cowling or cover was designed to cover the part of the turbine away from the flow of the tide. The cowling was made from fiberglass and is shown with the 3-blade turbine in Figure 1.



Figure 1 Model Turbines 3 blades with cowling, 6 blades and 9 blades

Unfortunately, in the first stage of testing at the Aquatron, due to wear on the cowling, water ingress caused the cowling to disintegrate and it was unusable for the testing.

To address this potential setback, the 3d files from NSCC were acquired and a 3D high density plastic printed cowling (figure 2) was used in place of the fibreglass one. The cowling performed very well and the the testing continued as planned.

The goals of the tests were to investigate answers to the following questions.

- Which blade configuration produced the most power in the same flow?
- Did the cowling improve the performance of any of the 3 turbines?



Figure 2 3D printed Cowling

JMK Engineering researcher Aaron MacNeil performed the tests at the Aquatron Facility at Dalhousie University with the assistance of Aquatron staff and Dr. Molloy. Dr. Molloy guided the design of the experiments, built the plan and provided the report. The data was processed by Aaron MacNeil and analysed by Dr. Molloy and Mr. MacNeil.

Methodology

Set up

Using the NSCC built test frame the system was installed at the Aquatron facility.

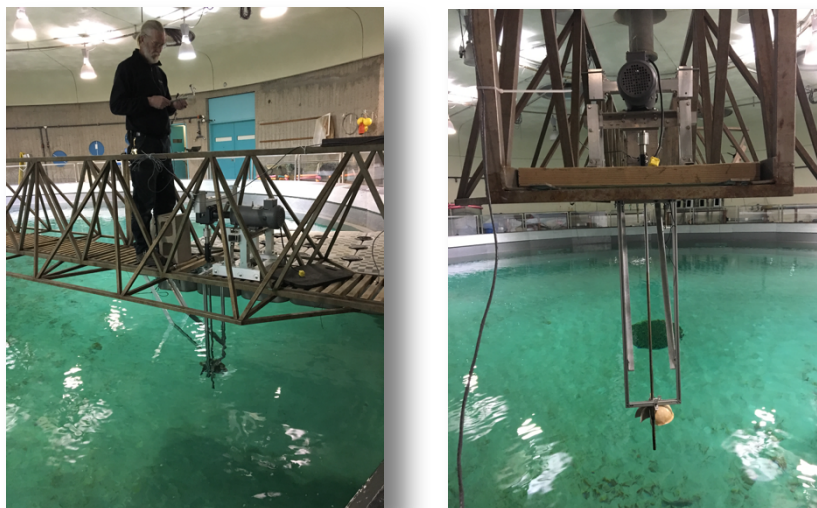


Figure 3 Testing Frame with model

The flow at the Aquatron varies from 1-2.4m/s and the turbine with and without the cowling was tested at 0, 0.6, 1.2, 1.8 and 2.4m/s. The shaft speed was varied and the power was measured at each shaft speed and inflow velocity.

The turbine was built to turn clockwise and the motor was adjusted from rotating in a counterclockwise direction to provide torque in that direction.

The motor was used to begin the rotation of the turbine and the flow was turned on. Once both the turbine and the flow were active the reduction in power required to rotate the turbine using the motor was the power produced by the turbine.

Calibration testing was completed to measure the mechanical losses in the system and resulted in the calibration equation shown in figure 4.

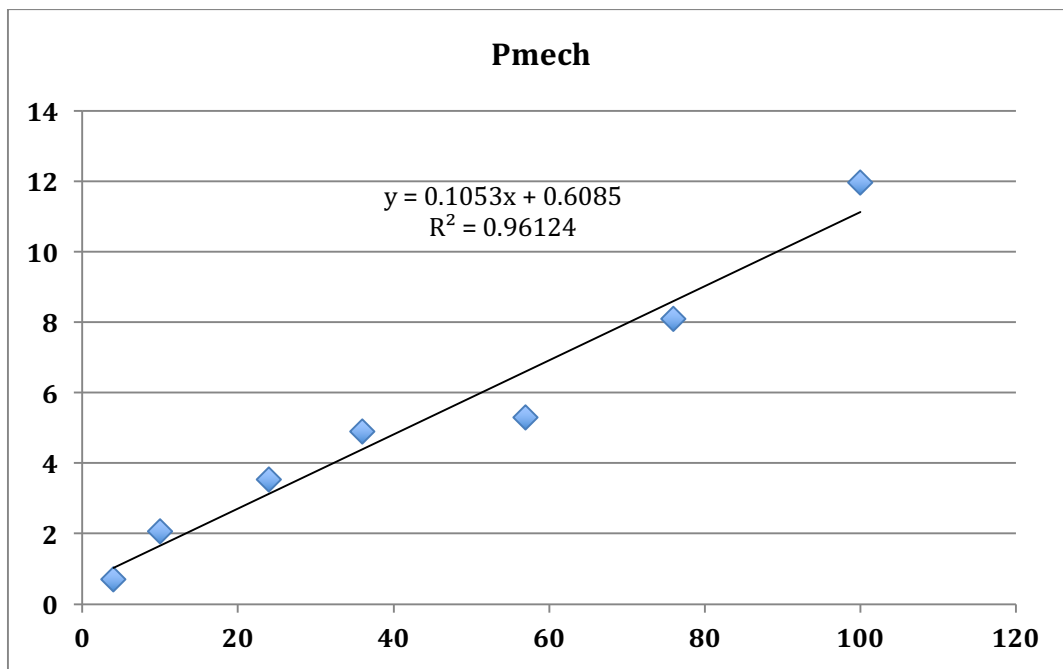


Figure 4 Mechanical losses in power measurement system

The flow was measured in m/s using a flow meter that was correlated with the pump outputs.

The following turbine power related components were measured:

1. the electrical losses of the permanent magnet motor used to turn the turbine;
2. the mechanical losses as a function of angular speed of rotation;
3. the power required to turn each of the turbines in still water to give a reference point for how much power is required to spin the turbine.

Then the mechanical power of the system that was produced by the turbine being spun at various water flow rates and rpm was calculated.

The power produced by the turbine, which is displayed as the mechanical power in the figures with the turbine data was calculated as follows:

$$P_{no\ flow}(\omega) - [VI - I^2R - (\alpha + \beta\omega)] = P_{mech}$$

This equation yields the power produced by each of the turbines in each scenario.

$P_{no\ flow}(\omega)$ is the mechanical power required to spin the turbine in water with no water flow present.

V is the terminal voltage of the motor

I is the armature current of the motor

R is the armature resistance of the motor

$\alpha + \beta\omega$ is the constant speed dependent friction/mechanical losses associated with the motor and gearbox assembly

P_{mech} is the mechanical power produced from the water flow by the turbine

The armature resistance was obtained from the motors datasheet as well as measurement from a digital multimeter. Voltage and current were measured from an Accuenergy AcuDC 243 DC Power & Energy Meter. The angular speed was measured from a shaft mounted encoder disk and optical sensor.

Each of the turbines was positioned in the same location in the water flow for each test. After each experiment, the cowling was examined for internal damage due to scratching from any imbalance of the rotation of the turbine. This theoretically may have occurred at the higher water flow rates where there was more vibration of the system although, there was no evidence of any turbine-cowling contact during the entire experiment. Due to the fine tolerance of the cowling and the asymmetry of the turbine blades, the cowling was positioned slightly offset from center of the turbine. This allowed the turbine to avoid contact with the cowling. It was noted that the turbine shaft was not made from stainless steel and that in the short time the shaft was in the water, rust had developed and spread up the turbine shaft. The rust was not observed to have spread to the turbine bearing and thus is not expected to have had any effect on the results.

Regarding future testing, it is recommended that a stainless-steel shaft be used, that there is a gap between cowling and turbine and that the cowling is 3d printed or metal without a core that might disintegrate with any wicking or ingress of moisture.

Results

The 3-blade turbine was tested first without at cowling. The results (figure 5) showed the performance was not clearly defined between speeds. When the cowling was added the results (figure 6) show that there is a marked improvement in the quality of the data and a more than tripling of performance at the higher flows.

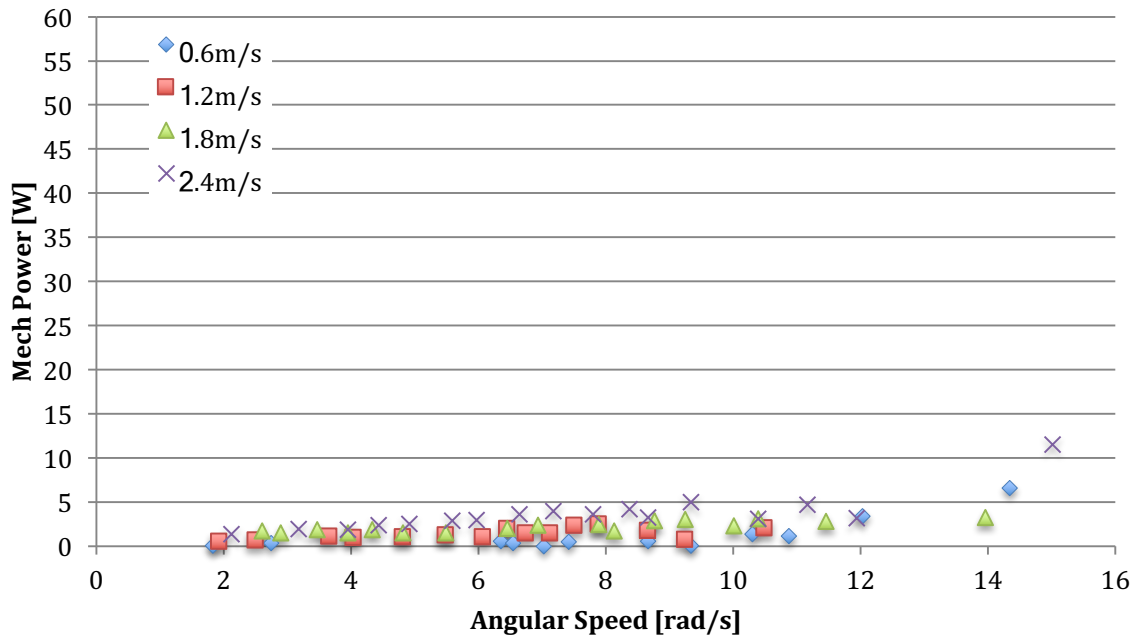


Figure 5: 3 Blade Turbine, without cowling

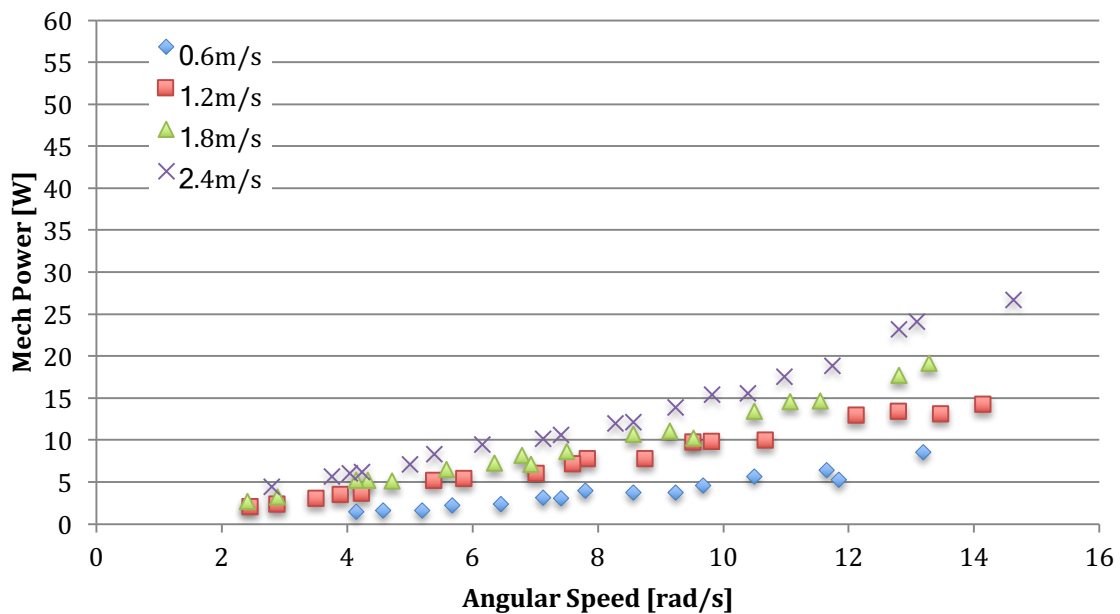


Figure 6: 3 Blade turbine with cowling

The 6-blade turbine without the cowling had much more organized data (figure 7) and significantly improved performance over the 3-blade turbine. The low speed performance of the turbine without the cowling was the best performing data in this set. Once the cowling was added however the data (figure 8) showed that the performance dropped substantially. There was a larger than 50% decrease in the power output at number of angular and inflow velocities while at some inflow velocities there was little difference between the performance of the turbine with and without the cowling. The cowling did not create consistent changes through all inflow velocities for the 6 Blade turbine.

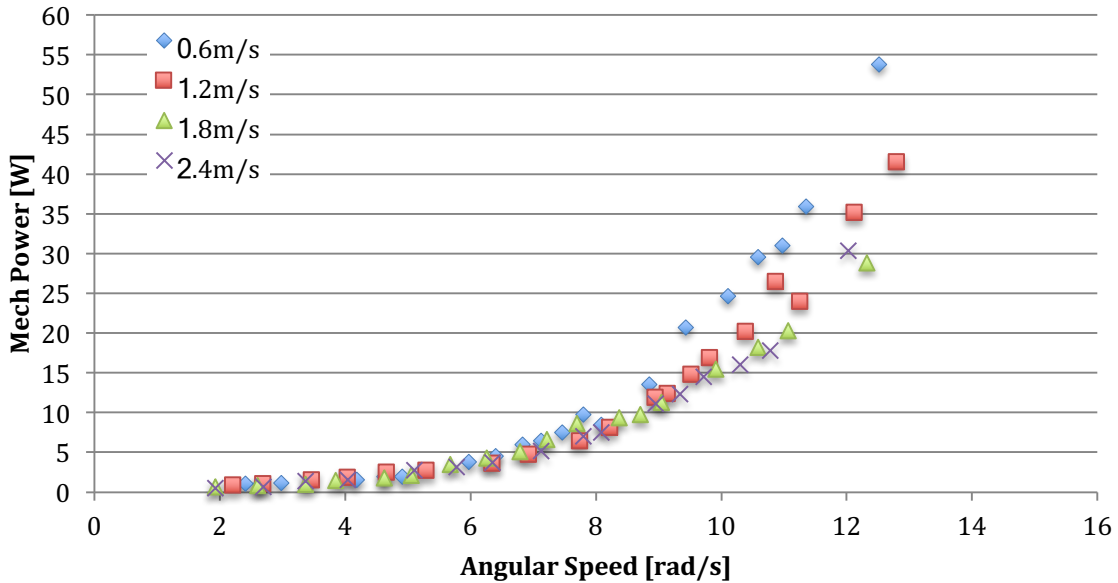


Figure 7: 6 Blade turbine without cowling

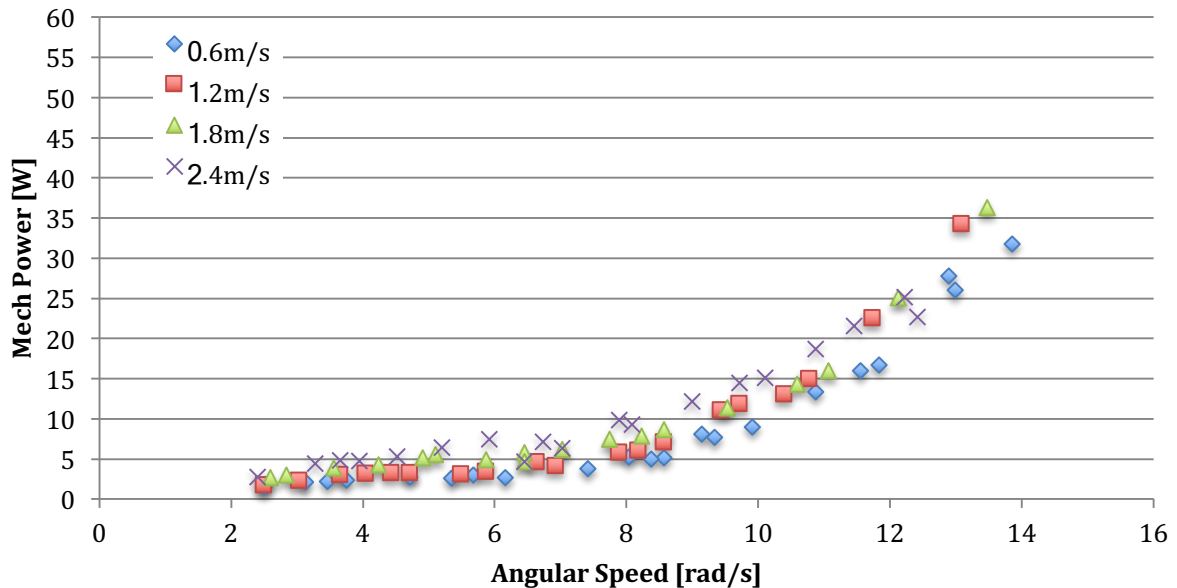


Figure 8: 6 Blade turbine with cowling

The 9 Blade turbine produced the most of power of the 3 turbines without the cowling, (figure 9) and then when the cowling was added the power was reduced (figure 10) as with the 6-blade turbine. The data for the 9-blade turbine is presented for 3 inflow velocities, the 4th inflow velocity data was corrupted and unusable here.

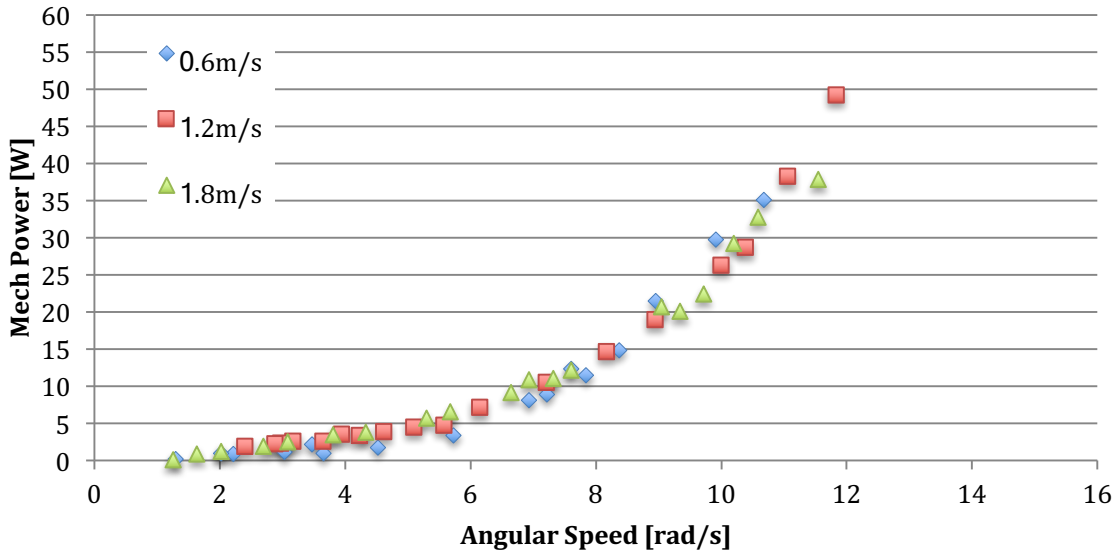


Figure 9: 9 Blade turbine without cowling

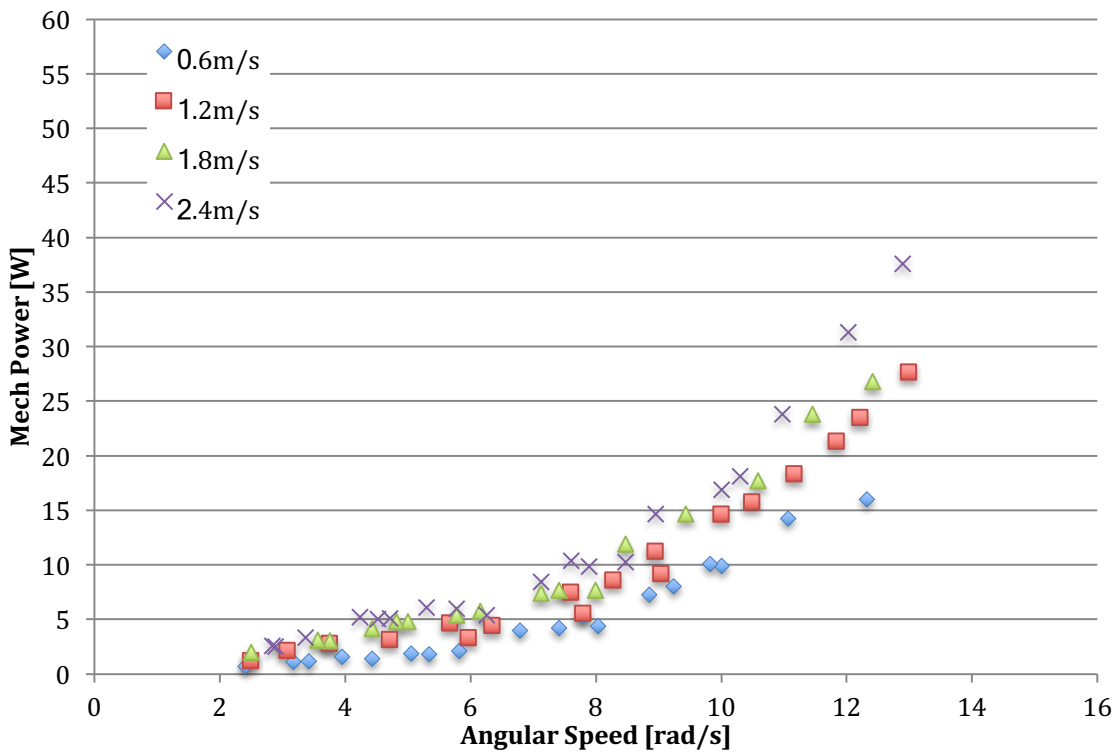


Figure 10: 9 Blade turbine with cowling

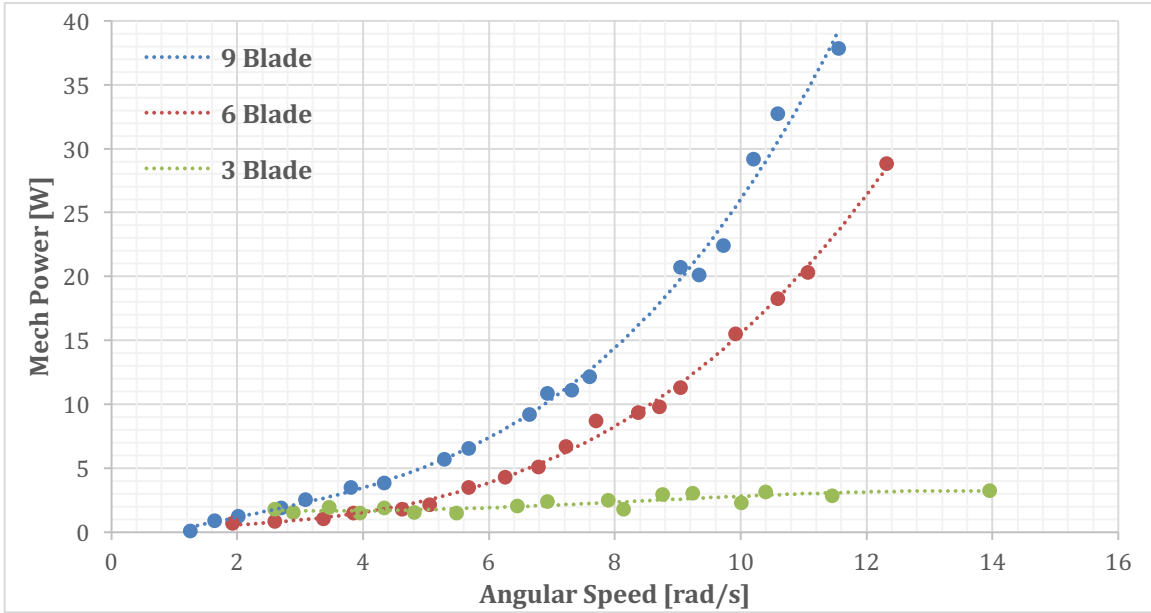


Figure 11: Comparison of all 3 turbines without cowling at 1.8m/s

When the 3 different turbine power performances without the cowling are compared for 1.8m/s (figure 11) it is clear that the 9-blade turbine had the best power performance. When the performance of the 3 turbines with the cowling is compared (figure 12) it is clear again that the performance of the 3-blade turbine is much improved, the 6-blade turbine is very similar to the performance without the cowling but the 9-blade turbine clearly produced less power with the cowling, more than 25% less at the highest rotational speeds.

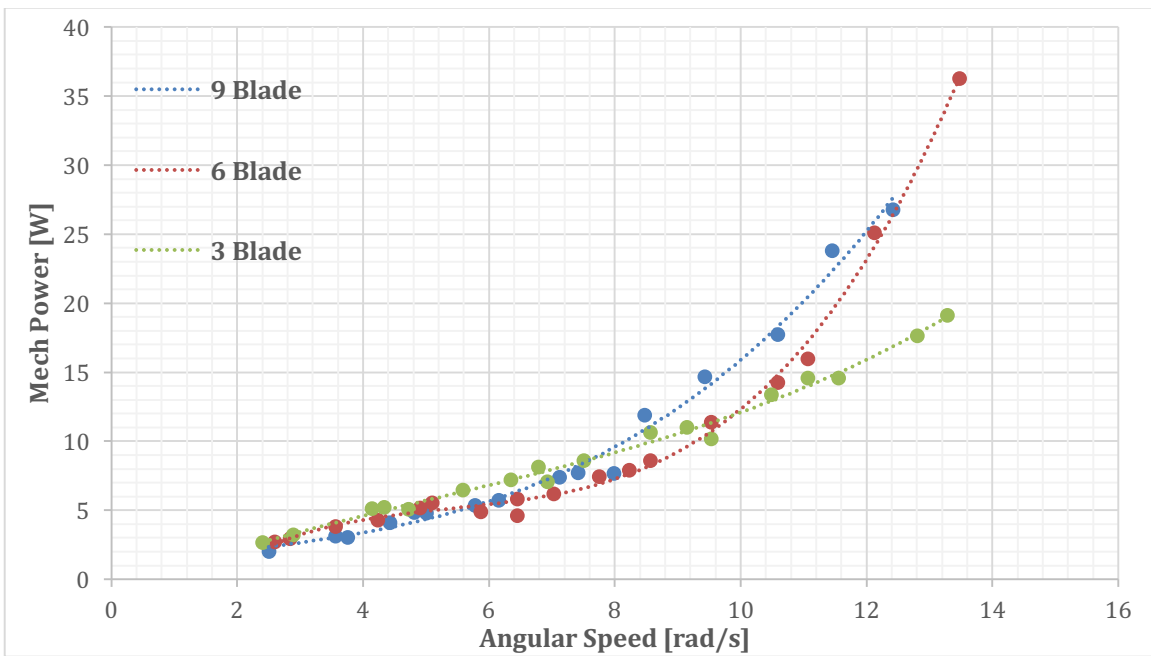


Figure 12: Comparison of all 3 turbines with cowling at 1.8m/s

The final comparison of the 3 different turbines with and without cowlings shown together on a single plot (figure 13) clearly shows the change in power performance for the 3 blade (improved) and the 9 blade (reduced).

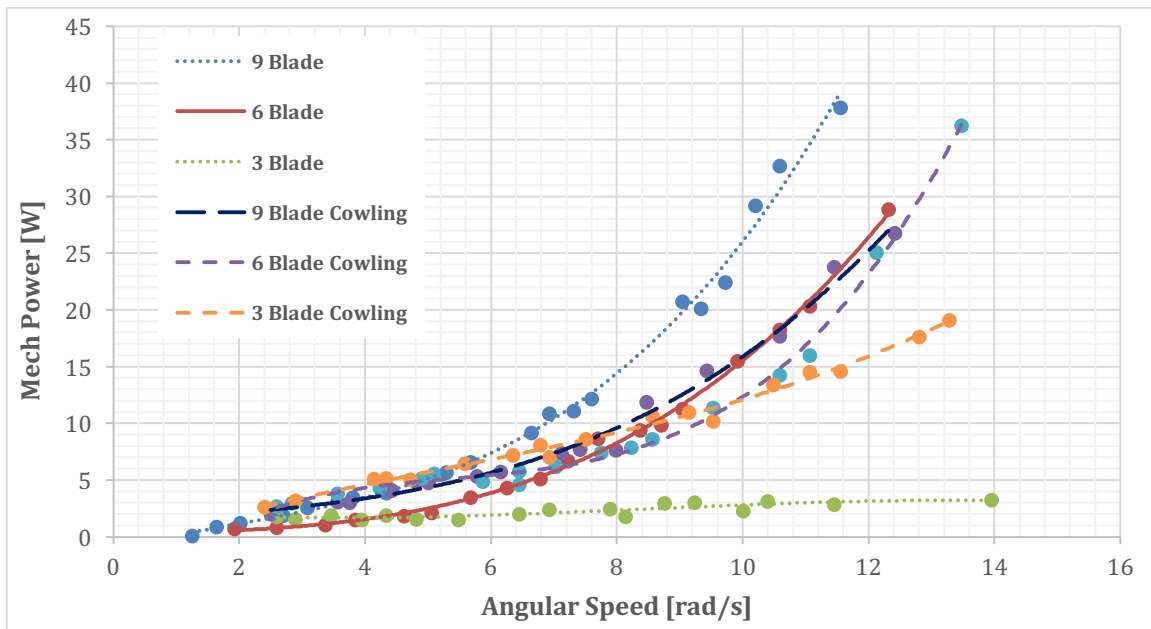


Figure 13: Comparison of 3, 6 and 9 blade turbines with and without cowling at 1.8m/s inflow

Recommendations

The tests were conducted successfully and all issues dealt with in a timely fashion. The team worked hard to produce the presented results.

The results show the following:

- For the 3-blade turbine the cowling smooths the performance and produces higher power at a range of shaft speed for higher inflow velocities than without the cowling.
- For the 6-blade turbine the performance was much smoother and consistent than the performance of the 3 blade turbine both with and without the cowling in place. The power from the 6 blade turbine was not noticeably increased by the addition of the cowling and at low speeds it produced significantly less power with the cowling than without.
- The 9-blade turbine alone produced substantially more power than the other two turbines without a cowling.
- For the 9-blade turbine the power produced is significantly reduced by the addition of the cowling.

It can be concluded that the cowling is a positive addition for the 3 blade and not of value for the other turbines. It is possible that when producing power, the impact of the pressure and drag that builds up inside the cowling is greater than the advantage offered by blocking the flow to the drag side of the turbine. When free-wheeling the turbine is not under load and the pressure doesn't build up so any negative impact of the cowling is not seen. It was anticipated that the significant increase in rpm may prove to also be a significant increase in power but this is not the case under load. Again, it is expected that this is due to pressure and drag.

As a next step Soluna could investigate the comparative cost of the 3-blade and 9-blade turbines. If there is significant difference then perhaps using the 3 blade with a cowling might prove to be a positive option. If not the 9-blade without a cowling would be the preferred turbine. Fewer moving parts on a tidal turbine system are also preferred in installations as there are fewer parts to break, this should also be considered when moving forward.

All the data from the tests is attached in an excel spreadsheet - Soluna Turbine Testing – Aquatron_Molloy_MacNeil

Acknowledgements

The staff at the Aquatron went above and beyond in working on this project. The 3D printing lab in Dalhousie Engineering printed a much needed part with haste.

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TO: Council Advisory Committee

SUBMITTED BY: Kentville Inclusion and Access Advisory Committee

DATE: June 13, 2022

SUBJECT: Street Naming and Renaming Policy

ORIGIN

There has been significant community interest in changing the name of Cornwallis Street in Kentville, particularly following the forced removal of a statue of Edward Cornwallis in Halifax in 2018.

“Since the 1980s the existence of the [Edward Cornwallis] statue has generated significant controversy. For some Mi’kmaq leaders, the statue had come to symbolize the violence and injustices they had suffered through the colonial period, and up to the present day. To many other Nova Scotians, the statue represented the founding of the city and had local historical value. Historian John G. Reid writes that the conflicting viewpoints centred on the issue of historical memory, that is, “how the past should be publicly remembered.”

In 2018, the statue and pedestal were removed on order of the Halifax Regional Council, citing safety concerns and concerns about the statue being vandalized. A committee has been struck by the Council to determine its future disposition.” (Wikipedia)

Similar discussions by residents in Kentville, Truro and Sydney Nova Scotia about Edward Cornwallis have occurred, where street names and other areas attributed to Cornwallis exist.

BACKGROUND

On June 29, 2020, Council approved a motion to rename Cornwallis Street. At the July 2020 meeting, Council approved the formation of an Ad Hoc committee to consider this name change, however this committee was not immediately launched to accommodate the October 2020 municipal election.

At the June 14, 2021 meeting of Council Advisory Committee, Council voted to give the task of renaming the street to the newly-formed Kentville Inclusion and Access Advisory Committee (KIAAC). This committee developed a structure of creating ad hoc committees or Teams to explore and give recommendations on specific issues of concern. It was recommended by the committee that a task team be established to explore the best way to rename Cornwallis Street and any other offensive or contentious street name.

The terms of reference for Task Teams was approved by the KIAAC in August 2021 and the Street Naming and Renaming Task Team first met in February of 2022.

DISCUSSION

The mandate of the Street Naming and Renaming Task Team was not to determine a new name for Cornwallis Street, but to *explore the process of naming and renaming streets in Kentville*. The Task Team met four times in 2022 and developed a process based on a master list of words and names that can be used by developers and by the Town to apply to new or existing streets. The resulting process has been reviewed and approved by staff and with the Kentville Inclusion and Access Advisory Committee.

The Task Team recommends the naming process be applied not just to streets but to any municipal asset in the town. For example, a new street, trail, park, building, or facility.

- Option 1: Street Naming and Renaming Policy
- Option 2: Municipal Assets Naming and Renaming Policy

POLICY IMPLICATIONS

- Option 1: Street Naming and Renaming Policy
- Option 2: Municipal Assets Naming and Renaming Policy
- Policy Statement G67 Recognition of Community Contributions
 - o This policy describes a number of ways that a person who has made significant contributions to the Town can be celebrated, including having a street named after them, or having some other municipal asset named after them. Under this new naming process, this policy would need to be repealed and re-written.

BUDGET IMPLICATION

There is no increased cost associated with naming a municipal asset. If a street like Cornwallis is renamed, there may be costs associated with civic numbering for businesses affected by this change.

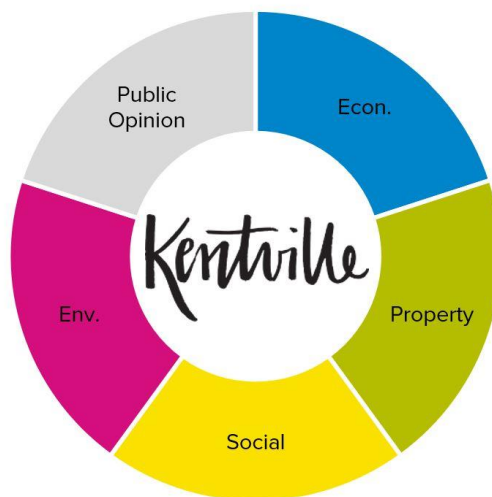
ATTACHMENTS

- Option 1: Street Naming and Renaming Policy
- Option 2: Municipal Assets Naming and Renaming Policy

RECOMMENDATION

That Council approve the Municipal Assets Naming and Renaming Policy and apply this process to the renaming of Cornwallis Street.

Town of Kentville Decision Wheel:



TOWN OF KENTVILLE POLICY STATEMENT GX

STREET NAMING AND RENAMING POLICY



1.0 PURPOSE

- 1.1 The Town of Kentville is committed to providing a fair, consistent and efficient process towards the naming/renaming municipal streets. The naming process defined in this bylaw is the responsibility of the Street Naming Committee.

2.0 DEFINITIONS

- 2.1 Street Type Definitions are outlined in Schedule A.

3.0 SCOPE

- 3.1 The main objectives of this policy are to establish:
 - 3.1.1 The timely application process that assesses a proposed name for a street.
 - 3.1.2 Community engagement and consultation with Indigenous, African Nova Scotian, and other equity-seeking communities for proposed names.
 - 3.1.3 One list of acceptable names for streets grouped by themes and priorities.
 - 3.1.4 The approval process and the committee responsible for review and approval of names for this list or for streets.

4.0 PROCEDURES

- 4.1 The Street Naming Committee has a mandate to:
 - 4.1.1 Review and screen all suggestions and requests for changing a street name, or naming a street;
 - 4.1.2 Organize the Names Master List into themes and prioritize the names for selection within each theme;
 - 4.1.3 Delegate maintenance of the Names Master List to appropriate staff;
 - 4.1.4 Notify the nominator and/or family when a name is selected for use;
 - 4.1.5 Provide street name recommendations to Council.
- 4.2 To name a street or to rename a street, members of the public, committees, organizations and developers may submit a proposal to name or rename a street by emailing names@kentville.ca. The proposal must include at a minimum:
 - 4.2.1 The rationale for
 - 4.2.1.1 Removing the name of a street; or
 - 4.2.1.2 Proposing a name for a specific street, or for an unspecified street; or
 - 4.2.1.3 Removal of a name of a street and suggestion for a new name for the same street.

- 4.2.2 The relevance of the proposed name to the street and to the Town.
 - 4.2.3 Documented support, including but not limited to petitions and support letters from the community.
 - 4.2.4 A map or an illustration, including major intersections of a street to be renamed.
- 4.3 Words are reviewed and approved for the Street Name Master List by the Street Naming Committee.
- 4.4 Words appropriate for the Street Names list are defined as follows:
- 4.4.1 Words celebrating the diversity and history of Kentville.
 - 4.4.2 Words reflecting an event or community contributing significantly to the area, cultural diversity, and historical relevance of the area.
 - 4.4.3 Words recognizing native wildlife, flora, fauna, or natural features.
- 4.5 Words not appropriate for the Street Names list are defined as follows:
- 4.5.1 Duplicates of an existing name.
 - 4.5.2 Words that sound similar, even if they have a different suffix (e.g. Orchard Street and Orchard Road).
 - 4.5.3 Cumbersome, corrupted, modified names, or discriminatory names from the point of view of race, sex, colour, creed, political affiliation or other factors.
 - 4.5.4 Words with any sexual overtones, inappropriate humour, parody, slang or double meaning.
 - 4.5.5 Words with a secondary or negative connotation.
 - 4.5.6 Words spelled differently but sounding alike (e.g. Crosby and Crosbie).
 - 4.5.7 Words with hyphens, apostrophes or dashes are considered on a case-by-case basis.
 - 4.5.8 Words which advertise a particular business including paid sponsorships.
- 4.6 The Street Naming Committee will review suggested names according to the definitions of this policy and approve or deny addition to the Street Name Master List.
- 4.7 The Street Naming Committee will assess adding names to the Master List names following these steps:
- 4.7.1 Confirmation that words meet the naming criteria.
 - 4.7.2 Reference checks (if applicable) for people's names.
 - 4.7.3 Discussions with the applicant, applicable departments, and applicable community groups.
 - 4.7.4 Public consultation for a 90-day period including public meeting, newspaper article/post, online survey and any other appropriate engagement.

4.7.5 Recommendation report provided to Council by the appropriate Department Head (ex. for a park name, Director of Parks and Recreation).

4.8 The Street Naming Committee will assess changing the name of a street following these steps:

4.8.1 Confirmation that an existing street name does not meet the naming criteria in this policy.

4.8.2 Discussions with the applicant, applicable departments, and applicable community groups.

4.8.3 Public consultation for a 90-day period including public meeting, newspaper article/post, online survey and any other appropriate engagement.

4.8.4 Recommendation report provided to Council by the appropriate Department Head (ex. for a street name, Director of Planning and Development).

4.9 Proposed words that portray indigenous significance or are after an Indigenous individual, organization or event will require consultation with the Glooscap First Nation and the Annapolis Valley First Nation. Proposed words related to the African Nova Scotia community, or other cultural group, will require consultation with appropriate and representative organizations that group.

4.10 Policy Statement G67 which outlines the previous street naming process is hereby repealed.

5.0 ASSOCIATED DOCUMENTS

5.1 Schedule A, Street Type Definitions

6.0 POLICY REVISION HISTORY

Date Created:

Revisions:

Chief Administrative Officer, Dan Troke

**SCHEDULE A
STREET TYPE DEFINITIONS**

Street Type & Abbreviation	Similar to	Definition
Alley		A narrow passage between or behind buildings without sidewalks, curb and gutter usually used by pedestrians and in an urban setting.
Avenue (Ave.)		A wide street or thoroughfare, often lined with trees, predominantly straight, normally with sidewalks, leading through residential or commercial development.
Boulevard (Blvd.)	Parkway	A broad street often tree-lined and landscaped, sometimes with a median down the centre, usually used for arterials or collectors.
Circle (Cir.)	Loop, Place Cul-de-Sac	Normally residential, terminates at the same point where it originates.
Connector	Crossing	A road that connects other areas and acts as an arterial.
Court (Crt.)	Cul-de-sac Place, Loop	A short, dead-end street, constructed with a turn around area at the end and referred to as a cul-de-sac.
Crescent (Cres.)		Normally a residential road that travels in a circular pattern, but does not end at the same point that it begun.
Crossing	Connector	
Drive (Dr.)		Used in residential and commercial developments, usually not as straight as an avenue or street.
Lane		A narrow street, originally found in rural areas. (i.e. country lane)
Plaza	Square	A public square, or similar open area
Place	Run	A short street
Promenade (Prom.)	Esplanade	A long, open, level thoroughfare, usually next to a body of water, used most frequently by pedestrians.
Road (Rd.)		A thoroughfare for public transportation, connecting two places.
Street (St.)		A route for both vehicles and pedestrians, usually paved and with sidewalks.
Terrace (Terr.)	Bluff Ridge Knoll Hill	An street, extending above the surrounding terrain, usually with no continuity.
Vale	Hollow Dell Glen Grove	A short street with an elevation below the surrounding terrain, (valley) often treed and with no continuity.
Way		Mostly in residential developments, an arterial road, path or highway affording passage from one place to another.

TOWN OF KENTVILLE POLICY STATEMENT GX

MUNICIPAL ASSET NAMING AND RENAMING POLICY



1.0 PURPOSE

- 1.1 The Town of Kentville is committed to providing a fair, consistent and efficient process towards the naming/renaming municipal assets. The naming process defined in this bylaw is the responsibility of the Municipal Asset Naming Committee.

2.0 DEFINITIONS

- 2.1 Street Type Definitions are outlined in Schedule A.
- 2.2 Municipal Assets: Streets, parks, and parts of parks, trails, facilities, and parts of facilities, development areas, pedestrian and cycling infrastructure belonging to or under the control of the Town of Kentville.

3.0 SCOPE

- 3.1 The main objectives of this policy are to establish:
 - 3.1.1 The timely application process that assesses a proposed name for a municipal asset.
 - 3.1.2 Community engagement and consultation with Indigenous, African Nova Scotian, and other equity-seeking communities for proposed names.
 - 3.1.3 One list of acceptable names for municipal assets grouped by themes and priorities.
 - 3.1.4 The approval process and the committee responsible for review and approval of names for this list or for municipal assets.

4.0 PROCEDURES

- 4.1 The Municipal Asset Naming Committee has a mandate to:
 - 4.1.1 Review and screen all suggestions and requests for changing a street name, or naming a municipal asset;
 - 4.1.2 Organize the Names Master List into themes and prioritize the names for selection within each theme;
 - 4.1.3 Delegate maintenance of the Names Master List to appropriate staff;
 - 4.1.4 Notify the nominator and/or family when a name is selected for use;
 - 4.1.5 Provide street name recommendations to Council.
- 4.2 To name a municipal asset or to rename a municipal asset, members of the public, committees, organizations and developers may submit a proposal in writing to Town Hall or through email to names@kentville.ca. The proposal must include at a minimum:
 - 4.2.1 The rationale for

- 4.2.1.1 Removing the name of a municipal asset; or
 - 4.2.1.2 Proposing a name for a specific municipal asset, or for an unspecified municipal asset; or
 - 4.2.1.3 Removal of a name of a municipal asset and suggestion for a new name for the same municipal asset.
 - 4.2.2 The relevance of the proposed name to the asset and to the Town;
 - 4.2.3 Documented support, including but not limited to petitions and support letters from the community; and
 - 4.2.4 A map or an illustration, including major intersections of a street to be renamed, or the location of the asset.
- 4.3 Words are reviewed and approved for the Municipal Asset Names Master List by the Municipal Asset Naming Committee.
- 4.4 Words appropriate for the Municipal Asset Names Master List are defined as follows:
- 4.4.1 Words celebrating the diversity and history of Kentville.
 - 4.4.2 Words reflecting an event or community contributing significantly to the area, cultural diversity, and historical relevance of the area.
 - 4.4.3 Words recognizing native wildlife, flora, fauna, or natural features.
 - 4.4.4 Family names or persons first and last names may be considered for some select municipal assets.
- 4.5 Words not appropriate for the Municipal Asset Names Master List are defined as follows:
- 4.5.1 Duplicates of an existing name.
 - 4.5.2 Words that sound similar, even if they have a different suffix (e.g. Orchard Street and Orchard Road).
 - 4.5.3 Cumbersome, corrupted, modified names, or discriminatory names from the point of view of race, sex, colour, creed, political affiliation or other factors.
 - 4.5.4 Words with any sexual overtones, inappropriate humour, parody, slang or double meaning.
 - 4.5.5 Words with a secondary or negative connotation.
 - 4.5.6 Words spelled differently but sounding alike (e.g. Crosby and Crosbie).
 - 4.5.7 Words with hyphens, apostrophes or dashes are considered on a case-by-case basis.
 - 4.5.8 Words which advertise a particular business including paid sponsorships. No municipal building shall take the name of a person or company, but the building name may be followed by “Sponsored by [company]” or “In Memory of [name]” or “In Celebration of [name]”.
- 4.6 The Municipal Asset Naming Committee will review suggested names according to the definitions of this policy and approve or deny addition to the Names Master List.

4.7 The Municipal Asset Naming Committee will assess adding names to the Names Master List names following these steps:

- 4.7.1 Confirmation that words meet the naming criteria.
- 4.7.2 Reference checks (if applicable) for people's names.
- 4.7.3 Discussions with the applicant, applicable departments, and applicable community groups.
- 4.7.4 Public consultation for a 90-day period including public meeting, newspaper article/post, online survey and any other appropriate engagement.
- 4.7.5 Recommendation report provided to Council by the appropriate Department Head (ex. for a park name, Director of Parks and Recreation).

4.8 The Municipal Asset Naming Committee will assess changing the name of a street or other asset following these steps:

- 4.8.1 Confirmation that existing name does not meet the naming criteria in this policy.
- 4.8.2 Discussions with the applicant, applicable departments, and applicable community groups.
- 4.8.3 Public consultation for a 90-day period including public meeting, newspaper article/post, online survey and any other appropriate engagement.
- 4.8.4 Recommendation report provided to Council by the appropriate Department Head (ex. for a street name, Director of Planning and Development).

4.9 Proposed words that portray indigenous significance or are after an Indigenous individual, organization or event will require consultation with the Glooscap First Nation and the Annapolis Valley First Nation. Proposed words related to the African Nova Scotia community, or other cultural group, will require consultation with appropriate and representative organizations that group.

4.10 Policy Statement G67 which outlines the previous street naming process is hereby repealed.

5.0 ASSOCIATED DOCUMENTS

5.1 Schedule A, Street Type Definitions

6.0 POLICY REVISION HISTORY

Date Created:

Revisions:

Chief Administrative Officer, Dan Troke

**SCHEDULE A
STREET TYPE DEFINITIONS**

Street Type & Abbreviation	Similar to	Definition
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Way		Mostly in residential developments, an arterial road, path or highway affording passage from one place to another.

TO: Council

SUBMITTED BY: Dan Troke, Chief Administrative Officer

DATE: June 13, 2022

SUBJECT: Town of Kentville Greenhouse Gas Emissions Reduction Strategy

ORIGIN

In January 2020, municipal staff from the Towns of Berwick, Kentville, and Wolfville, and the Municipality of the County of Kings, began meeting to explore opportunities for meaningful regional climate action. In September 2020, this group (through the Town of Wolfville) received a \$60,000 grant to complete a regional greenhouse gas (GHG) emissions reduction opportunity study. The study is now complete and is available for Council and residents to read.

BACKGROUND

Kentville has the potential to substantially reduce its greenhouse gas emissions- which can help to slow the effects of climate change. The Regional Greenhouse Gas Reduction Opportunities Study (2022) offers some important information about the largest sources of GHGs in Kentville, and municipal actions which can reduce these emissions.

Where are most of our greenhouse gases coming from?

- 54% of our current greenhouse gas emissions come from our buildings. We have many residential, commercial and industrial buildings which waste heat in the winter and waste cooled air in the summer (page 21).
- 22% of our current greenhouse gas emissions come from the many cars and trucks on the road.

How can we reduce our greenhouse gas emissions?

- The study provides a list of recommended actions for the near term, medium term and long term to reduce our greenhouse gas emissions (page 32-33). Some of the actions that apply to Kentville include implementing the PACE program; requiring new commercial buildings to be net-zero energy; increased public transit usage; and increased adoption of electric vehicles.

What is our goal for reducing greenhouse gas emissions?

- This study recommends a goal of 45% reduction in greenhouse gas emissions by 2030, and net zero emissions by 2050. This is the target adopted by the Town of Wolfville, the Canadian government and the Intergovernmental Panel on Climate Change (IPCC).

The study gave three recommendations for reaching the 2050 target for greenhouse gas emissions and these are discussed below.

- Recommendation 1. Develop a regional climate action plan.
- Recommendation 2. Adoption of the greenhouse gas targets by all municipal partners.
- Recommendation 3. Create a fully funded regional climate action coordinator position and a regional climate planning committee.

DISCUSSION

Recommendation 1. Develop a Regional Climate Action Plan.

ACTION 1: The study suggests that staff develop a plan for Kentville to achieve town-specific high priority recommendations from this study, including timelines, responsible departments, budgeting and identification of appropriate grants.

DETAILS: Until the municipalities develop and adopt a regional municipal framework for climate action (see Recommendation 2), the Town of Kentville should proceed with the development of a town-focused plan. There are a number of recommendations (p. 35-36) which the Town of Kentville can incorporate into operations and its Capital Plan: promoting the use of low-cost energy improvements in the residential sector, including heat pumps and solar hot water systems, through policies and incentives; improving the rider experience on public transit to reduce dependency on personal vehicles; vehicle electrification, both through electric fleets and through the installation of car charging stations. These and other recommendations can be prioritized and assigned to appropriate departments for activation in Kentville in the near future.

Recommendation 2. Set a target.

ACTION 2: Recognizing that different mitigation actions require varying levels of time, resources and support, the study suggests that Council commit to reducing greenhouse gas emissions from 2016 levels to 45% by 2030, and to net zero emissions by 2050.

DETAILS: A municipal climate action plan, and a regional climate action plan, both depend on a goal for greenhouse gas emissions. Many municipalities have set goals for GHG reductions, and this study suggests that this target is largely achievable through municipal actions. Regional collaboration will be easier if all partners have the same goal.

Kentville is a member of the Federation of Canadian Municipalities “Partners for Climate Progress” program which offers support to municipalities in reducing their greenhouse gas emissions. Council adoption of the greenhouse gas reduction targets will complete the second step of this framework. Municipalities across Canada submit their climate plans, targets and progress to this program and receive guidance and support for their greenhouse gas mitigation programs. Members in this program are listed on their website ([link](#)). At least 23 municipalities in Nova Scotia are currently participating in this program. Halifax and Annapolis Royal have achieved the highest milestone (implementation and evaluation). In New Brunswick, at least 52 municipalities are participating in this program, and 15 have achieved the highest milestone.

Recommendation 3. Regional Collaboration

ACTION 3: The CAO should continue to work to formalize an intermunicipal service agreement (IMSA) around greenhouse gas reduction (mitigation) which includes sharing of resources and staff. This IMSA should include a regional climate action plan and a GHG reduction target.

DETAILS: This study identified that reducing greenhouse gas emissions will be difficult to achieve by municipalities working alone. The priority actions can be achieved more effectively, efficiently and economically by collaboration – by sharing resources such as staff. Chief Administrative Officers (CAOs) from the four municipalities have been working on an intermunicipal service agreement to achieve this goal.

POLICY IMPLICATIONS

None at this time.

BUDGET IMPLICATION

None at this time.

ATTACHMENTS

The full report is available on the Council website and online at kentville.ca/town-hall/municipal-plans-and-projects

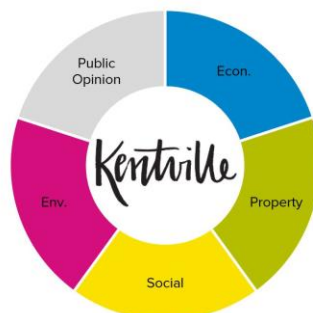
RECOMMENDATIONS

1. That Council direct staff to develop a plan for Kentville to achieve town-specific high priority recommendations from this study, including timelines, responsible departments, budgeting and identification of appropriate grants.
2. Recognizing that different mitigation actions require varying levels of time, resources and support, Council should commit to reducing greenhouse gas emissions below 2016 levels.
3. That Council direct the CAO to continue to work to formalize an intermunicipal service agreement (IMSA) around greenhouse gas reduction (mitigation) which includes sharing of resources and staff. This IMSA should include a regional climate action plan and a GHG reduction target.

Ongoing work on climate action:

- While staff were working on this study, it became clear that one of the most significant sources of greenhouse gases is from buildings. Kentville is now participating in the Building Energy Road Map project – a collaboration between the Towns of Kentville, Berwick and Wolfville, Equilibrium Engineering, Nova Scotia Community College and Quest. Starting in April 2022, four town-owned buildings have been measured and modeled for energy efficiency. This will be used to develop a plan and budget for deep building retrofits.
- The study also recommended adoption of the Property Assessed Community Energy (PACE) program as a means to reduce the use of fossil fuels when heating homes. Council and staff continue to learn about the PACE Atlantic model for heat pumps and energy retrofits in residential buildings.
- In April 2022, the Town received a grant toward the updating measuring and modeling of floodline mapping. The Planning Department is leading a regional committee with a consultant who will create a high-resolution map of potential flood prone areas along the Cornwallis River (Gaspereau Primary Watershed).
- Finally, the Town secured a grant for the installation of an electric car (EV) charging station. This station will be installed on the Town Hall parking lot, to the east of the Kentville Recreation Centre.

Town of Kentville Decision Wheel:



June 13, 2022

Mr. David Hayes
Inspection & Enforcement Division
Municipality of the County of Kings
181 Coldbrook Village Park Dr.
Coldbrook, NS
B4R 1B9

Dear Mr. Hayes:

Under the powers granted to me as **CAO under section 31(2) (b) of the Municipal Government Act (MGA) under Part II (Administration), which states:**

The Chief Administrative Officer may – **appoint, suspend, and remove all employees of the municipality, with power to further delegate this authority.**

In addition, pursuant to Section 19 (1)(b) of the Fire Safety Act, a municipality shall: **appoint a municipal fire inspector who shall carry out the inspections.**

Accordingly, I hereby appoint you, effective today's date, Municipal Fire Inspector for the Municipality of the County of Kings.

Congratulations on your appointment as Municipal Fire Inspector.

Sincerely,

Dan Troke
Chief Administrative Officer (CAO)