

NORTHBROOK PUBLIC LIBRARY BOARD MEETING

1201 Cedar Ln., Northbrook, IL 60062

Livestream: <https://youtu.be/eFBmG7Ubus8>

Regular Monthly Meeting Agenda September 23, 2021 | 7:30 p.m.

- 1 Call Regular Meeting to Order – Mr. Jay Glaubinger
- 2 Board of Trustees Roll Call – Ms. Jennifer McGee
- 3 Consent Agenda – Mr. Jay Glaubinger
 - 3.1 Approval of the Agenda
 - 3.2 Approve Regular Session Minutes – August 19, 2021
 - 3.3 Approve Cash Balances & Income Statement August 2021
 - 3.4 Approve Bills and Charges from August 2021
 - 3.5 Approve 2022 Closing Schedule
 - 3.6 Approve Updated Library cards policy
 - 3.7 Approve Updated Community Displays and Exhibits policy
- 4 Annual Audit presentation from Ed Tracy, Selden Fox
- 5 Public Comments
- 6 Staff Reports – Ms. Kate Hall
 - 6.1 Reopening Plan Update
- 7 Board Member Reports
- 8 Unfinished Business
 - 8.1 Climate Action Plan adoption
 - 8.2 Fiction & Media Construction Project Update
 - 8.3 Illinois Libraries Present IGA
- 9 New Business
 - 9.1 FY23 Levy Draft
 - 9.2 New board member appointment
- 10 Closed Session

5 ILCS 120/2(c)3 The selection of a person to fill a public office, as defined in this Act, including a vacancy in a public office when the public body is given power to appoint under law or ordinance, or the discipline, performance, or removal of the occupant of a public office, when the public body is given power to remove the occupant under law or ordinance.
- 11 Agenda Building

12 Adjourn

FINAL VOTE OR ACTION MAY BE TAKEN AT THE MEETING ON ANY AGENDA ITEM SUBJECT MATTER LISTED ABOVE, UNLESS THE AGENDA LINE ITEM SPECIFICALLY STATES OTHERWISE.

The Northbrook Public Library is subject to the Requirements of the Americans with Disabilities Act of 1990. Individuals with disabilities who plan to attend any meetings of the Board and who require certain accommodations in order to allow them to observe and/or participate in this meeting, or who have questions regarding the accessibility of these meetings or the facilities are requested to contact 847-272-7074 promptly to allow the Northbrook Public Library to make reasonable accommodations for those persons. Hearing impaired individuals may establish TDD contact by calling 847-272-7074.

**NORTHBROOK PUBLIC LIBRARY
CASH BALANCES
8/31/2021**

		Beginning Balance	Cash Receipts	Expenditures	Ending Balance
<u>Operating</u>					
	General	7,366,330.19	9,569.44	474,995.49	6,900,904.14
	Restricted	325,969.60	52,673.75	11,202.63	367,440.72
	IMRF	656,449.81		30,671.72	625,778.09
	Fica	161,156.08		22,274.45	138,881.63
	Total Operating	<u>\$ 8,509,905.68</u>	<u>\$ 62,243.19</u>	<u>\$ 539,144.29</u>	<u>\$ 8,033,004.58</u>
<u>Capital Improvement</u>		<u>\$ 4,134,573.07</u>	<u>\$ 348.67</u>	<u>\$ 12,992.15</u>	<u>\$ 4,121,929.59</u>
<u>Debt Service</u>		<u>\$ 9,242.33</u>			<u>\$ 9,242.33</u>

Cash Detail	Operating	Capital Improvement	Debt Service
NB&T - Checking	159,530.00	9,299.50	8,924.23
PayPal	6,897.01	-	-
GSB - Money Market	226,124.02	-	-
Fifth Third - Checking/Money Market	7,633,519.85	4,107,471.51	-
US Bancorp	659.38	511.37	-
IMET	5,479.32	4,647.21	318.10
Petty Cash	795.00	-	-
Total	<u><u>\$ 8,033,004.58</u></u>	<u><u>\$4,121,929.59</u></u>	<u><u>\$ 9,242.33</u></u>

NB&T = Northbrook Bank & Trust

GSB = Glenview State Bank

IMET = Illinois Metropolitan Investment Fund

USB = US Bancorp

Northbrook Public Library
Income Statement
8/31/21

	PY Month	CY Month	PY YTD	CY YTD	CY Budget	33.3%
01 - General Operating Fund						
Revenues						
Undesignated Revenue						
Property Tax Levy	\$1,652,745.00	\$0.00	\$6,600,022.89	\$3,992,682.35	\$7,289,188.00	54.78%
Replacement Tax	\$0.00	\$0.00	\$0.00	\$0.00	\$125,000.00	0.00%
Impact Fees	\$529.51	\$0.00	\$529.51	\$4,056.57	\$0.00	0.00%
Fines, Fees & Rentals	\$23.14	\$2,225.85	\$659.23	\$17,585.59	\$25,000.00	70.34%
Interest Income	\$1,584.50	\$513.97	\$8,492.54	\$2,455.73	\$25,000.00	9.82%
Other Income	\$11,684.39	\$4,813.40	\$12,195.57	\$20,816.84	\$100,000.00	20.82%
Total Undesignated Revenue	\$1,666,566.54	\$7,553.22	\$6,621,899.74	\$4,037,597.08	\$7,564,188.00	53.38%
Designated Revenue						
Gifts & Other Designated Income	\$677.34	\$45,454.55	\$2,735.03	\$62,498.83	\$100,000.00	62.50%
Designated Interest Income	\$28.70	\$19.20	\$97.14	\$75.56	\$0.00	0.00%
Total Designated Revenue	\$706.04	\$45,473.75	\$2,832.17	\$62,574.39	\$100,000.00	0.00%
Total Revenues	\$1,667,272.58	\$53,026.97	\$6,624,731.91	\$4,100,171.47	\$7,664,188.00	54.21%
Expenses						
Undesignated Expenses						
Materials & Services						
Books	\$57,245.15	\$56,615.24	\$264,077.44	\$317,828.96	\$949,000.00	33.49%
Audio Visual	\$50,345.30	\$46,018.86	\$246,362.37	\$288,626.82		
Videos/DVDs	\$3,257.96	\$6,095.62	\$7,039.67	\$16,342.03		
Programs	\$3,641.89	\$4,500.76	\$10,675.40	\$12,860.11		
OCLC	\$6,986.55	\$9,610.04	\$14,136.85	\$40,353.23	\$117,000.00	34.49%
OCLC	\$1,687.50	\$15.50	\$8,537.03	\$9,389.47	\$22,000.00	42.68%
CCS Shared Costs	\$0.00	\$198.29	\$33,292.21	\$33,042.33	\$80,000.00	41.30%
Total Materials & Services	\$65,919.20	\$66,439.07	\$320,043.53	\$400,613.99	\$1,168,000.00	34.30%
Human Resources						
General Salaries and Wages	\$307,676.76	\$289,705.03	\$1,222,756.71	\$1,169,645.55	\$3,869,725.00	30.23%
Maintenance Salaries & Wages	\$14,638.78	\$12,253.68	\$58,007.26	\$49,206.86	\$168,975.00	29.12%
Group Insurance	\$54,727.45	\$53,149.16	\$211,465.42	\$218,820.96	\$695,000.00	31.49%
Unemployment/Worker's Comp	\$738.00	\$0.00	\$17,385.52	\$18,678.40	\$27,000.00	69.18%
Staff Development	\$1,506.97	\$3,405.89	\$13,608.31	\$10,618.52	\$70,000.00	15.17%
Total Human Resources	\$379,287.96	\$358,513.76	\$1,523,223.22	\$1,466,970.29	\$4,830,700.00	30.37%

Northbrook Public Library
Income Statement
8/31/21

	PY Month	CY Month	PY YTD	CY YTD	CY Budget	33.3%
Operating Costs						
Photocopy	\$1,535.73	\$68.02	\$13,729.38	\$14,787.35	\$37,500.00	39.43%
Office & Library Supplies	\$16,778.32	\$5,055.46	\$28,924.94	\$16,390.42	\$70,000.00	23.41%
Software	\$16,736.95	\$7,041.50	\$29,617.54	\$31,968.71	\$103,000.00	31.04%
Postage	\$343.73	\$232.01	\$15,628.37	\$16,732.94	\$20,000.00	83.66%
General Insurance	\$0.00	\$0.00	\$46,138.02	\$50,636.83	\$63,000.00	80.38%
Telephone/Internet	\$909.37	\$411.03	\$16,663.67	\$18,717.09	\$43,000.00	43.53%
Professional Services	\$26,185.45	\$20,099.14	\$81,500.42	\$102,913.38	\$275,000.00	37.42%
Furniture, Equipment	\$19,372.47	\$4,614.79	\$24,409.99	\$33,491.12	\$50,000.00	66.98%
Equipment Rental & Maintenance	\$0.00	\$129.31	\$0.00	\$1,259.74	\$42,000.00	3.00%
Community Relations	\$29.88	\$5,176.79	\$4,715.89	\$12,418.49	\$44,000.00	28.22%
Total Operating Costs	\$81,891.90	\$42,828.05	\$261,328.22	\$299,316.07	\$747,500.00	40.04%
Maintenance						
Vehicle Expense	\$42.60	\$4.00	\$42.60	\$47.16	\$3,000.00	1.57%
Janitorial Supplies	\$3,528.08	\$3,179.98	\$8,810.44	\$8,728.23	\$45,000.00	19.40%
Utilities	\$2,134.42	\$1,520.57	\$4,237.53	\$5,485.17	\$54,000.00	10.16%
Building Repairs	\$1,751.50	\$0.00	\$1,751.50	\$2,830.00	\$30,000.00	9.43%
Contracted Services	\$11,921.26	\$6,643.08	\$30,026.41	\$49,724.23	\$135,000.00	36.83%
Total Maintenance	\$19,377.86	\$11,347.63	\$44,868.48	\$66,814.79	\$267,000.00	25.02%
Other Expenses						
Recruiting	\$0.00	\$249.00	\$0.00	\$747.00	\$500.00	149.40%
Contingency & Misc Exp	\$123.03	\$975.02	\$234.54	\$2,529.01	\$100,000.00	2.53%
Board Development	\$0.00	\$0.00	\$0.00	\$327.20	\$0.00	0.00%
Total Other Expenses	\$123.03	\$1,224.02	\$234.54	\$3,603.21	\$100,500.00	3.59%
Total Undesignated Expenses	\$546,599.95	\$480,352.53	\$2,149,697.99	\$2,237,318.35	\$7,113,700.00	31.45%
Designated Expenses						
Miscellaneous Designated Expenses	\$59.95	\$1,152.63	\$1,992.75	\$3,167.88	\$0.00	0.00%
Designated Materials Expense	\$122.20	\$0.00	\$743.88	\$224.71	\$0.00	0.00%
Designated Program Expense	\$2,875.00	\$1,850.00	\$11,199.17	\$12,481.27	\$100,000.00	12.48%
Total Designated Expenses	\$3,057.15	\$3,002.63	\$13,935.80	\$15,873.86	\$100,000.00	15.87%
Transfers & Other Financing Uses						
Transfer to CIF	\$0.00	\$0.00	\$0.00	\$0.00	\$425,000.00	0.00%
Transfer to Debt Service	\$0.00	\$0.00	\$0.00	\$0.00	\$25,000.00	0.00%
Total Transfers & Other Financing Uses	\$0.00	\$0.00	\$0.00	\$0.00	\$450,000.00	0.00%
Total Expenses	\$549,657.10	\$483,355.16	\$2,163,633.79	\$2,253,192.21	\$7,663,700.00	29.40%
NET SURPLUS/(DEFICIT)	\$1,117,615.48	(\$430,328.19)	\$4,461,098.12	\$1,846,979.26	\$488.00	

Northbrook Public Library
Income Statement
8/31/21

	PY Month	CY Month	PY YTD	CY YTD	CY Budget	33.3%
02 - IMRF/FICA Fund						
Revenues						
Undesignated Revenue						
Property Tax Levy-IMRF	\$108,862.02	\$0.00	\$434,726.37	\$214,683.77	\$400,000.00	53.67%
Property Tax Levy FICA	\$64,206.38	\$0.00	\$256,399.85	\$155,109.02	\$289,000.00	53.67%
Interest Income IMRF	\$2.22	\$0.00	\$2.92	\$0.03	\$50.00	0.06%
Interest Income FICA	\$1.31	\$0.00	\$1.90	\$0.02	\$50.00	0.04%
Total Undesignated Revenue	\$173,071.93	\$0.00	\$691,131.04	\$369,792.84	\$689,100.00	53.66%
Total Revenues	\$173,071.93	\$0.00	\$691,131.04	\$369,792.84	\$689,100.00	53.66%
Expenses						
Undesignated Expenses						
Human Resources						
Employer IMRF	\$33,717.23	\$30,671.72	\$134,860.78	\$124,028.31	\$425,000.00	29.18%
Employer FICA	\$23,680.53	\$22,274.45	\$94,532.25	\$89,850.72	\$289,000.00	31.09%
Total Human Resources	\$57,397.76	\$52,946.17	\$229,393.03	\$213,879.03	\$714,000.00	29.96%
Total Undesignated Expenses	\$57,397.76	\$52,946.17	\$229,393.03	\$213,879.03	\$714,000.00	29.96%
Total Expenses	\$57,397.76	\$52,946.17	\$229,393.03	\$213,879.03	\$714,000.00	29.96%
NET SURPLUS/(DEFICIT)	\$115,674.17	(\$52,946.17)	\$461,738.01	\$155,913.81	(\$24,900.00)	

Northbrook Public Library
Income Statement
8/31/21

	PY Month	CY Month	PY YTD	CY YTD	CY Budget	33.3%
03 - Capital Improvements Fund						
Revenues						
Undesignated Revenue						
Interest Income	\$934.72	\$348.67	\$5,980.87	\$1,613.24	\$10,000.00	16.13%
Other Income	\$7,189.00	\$7,200.00	\$7,189.00	\$7,200.00	\$0.00	0.00%
Total Undesignated Revenue	\$8,123.72	\$7,548.67	\$13,169.87	\$8,813.24	\$10,000.00	88.13%
Transfers & Other Financing Sources						
Transfer from General fund	\$0.00	\$0.00	\$0.00	\$0.00	\$425,000.00	0.00%
Total Transfers & Other Financing Sources	\$0.00	\$0.00	\$0.00	\$0.00	\$425,000.00	0.00%
Total Revenues	\$8,123.72	\$7,548.67	\$13,169.87	\$8,813.24	\$435,000.00	2.03%
Expenses						
Undesignated Expenses						
Capital Projects & Bond Expenses						
Renovation/Repair	\$169,832.23	\$2,211.00	\$660,870.02	\$86,846.71	\$908,000.00	9.56%
Professional Fees	\$14,420.00	\$10,700.00	\$48,875.40	\$24,067.50	\$75,000.00	32.09%
Furniture & Equipment	\$17,817.53	\$81.15	\$220,869.74	\$165,264.87	\$40,000.00	413.16%
Total Capital & Bond Expenses	\$202,069.76	\$12,992.15	\$930,615.16	\$276,179.08	\$1,023,000.00	27.00%
Total Undesignated Expenses	\$202,069.76	\$12,992.15	\$930,615.16	\$276,179.08	\$1,023,000.00	27.00%
Total Expenses	\$202,069.76	\$12,992.15	\$930,615.16	\$276,179.08	\$1,023,000.00	27.00%
NET SURPLUS/(DEFICIT)	(\$193,946.04)	(\$5,443.48)	(\$917,445.29)	(\$267,365.84)	(\$588,000.00)	

Northbrook Public Library
Income Statement
8/31/21

	PY Month	CY Month	PY YTD	CY YTD	CY Budget	33.3%
05 - Debt Service Fund						
Revenues						
Undesignated Revenue						
Property Tax Levy	\$117,187.97	\$0.00	\$467,974.95	\$406,959.39	\$758,249.00	53.67%
Interest Income	\$6.44	\$0.00	\$6.79	\$0.06	\$0.00	0.00%
Total Undesignated Revenue	\$117,194.41	\$0.00	\$467,981.74	\$406,959.45	\$758,249.00	53.67%
Total Revenues	\$117,194.41	\$0.00	\$467,981.74	\$406,959.45	\$758,249.00	53.67%
Expenses						
Undesignated Expenses						
Capital Projects & Bond Expenses						
Interest Payments	\$0.00	\$0.00	\$207,143.76	\$191,085.77	\$376,077.00	50.81%
Principal Payments	\$0.00	\$0.00	\$0.00	\$0.00	\$382,172.00	0.00%
Total Capital & Bond Expenses	\$0.00	\$0.00	\$207,143.76	\$191,085.77	\$758,249.00	25.20%
Total Undesignated Expenses	\$0.00	\$0.00	\$207,143.76	\$191,085.77	\$758,249.00	25.20%
Total Expenses	\$0.00	\$0.00	\$207,143.76	\$191,085.77	\$758,249.00	25.20%
NET SURPLUS/(DEFICIT)	\$117,194.41	\$0.00	\$260,837.98	\$215,873.68	\$0.00	

August 2021 Financial Summary

Total General Fund revenues collected to date is \$4,100,171.47.

- 54.78% of property taxes have been collected
 - Second installment tax bills are due on October 1, 2021 in past years second installments payments were due in August
- Fines, Fees & Rentals
 - 80% of the Fines, Fees & Rentals is non-resident fees
 - This is the renewal of cards for patrons that live in unincorporated Northbrook – this renewal was not collected during FY2021

Total General Fund expenditures are \$2,253,192.21, budget differences include:

- OCLC costs are greater than budget due to invoices being paid quarterly
- CCS Shared costs are greater than budget due to invoices being paid quarterly
- Unemployment / Workers Compensation represents 10 months of expense
- Staff Development is less than budget due to virtual conferences/workshops costing less than in person conferences/workshops
- Postage costs are greater than budget due to annual deposit being made in July
- General Insurance represents 10 months of expense
- Telephone is greater than budget due to 6 months of Ring Central expense being paid, annual amount for backup internet being paid and the annual amount for hotspots being paid
- Furniture, Equipment is greater than budget due to the nature of the account – items are one time costs – to date we have purchased IT Lifecycle items, a mast lift, dvd recorders, OWL for virtual meetings and picnic tables
- Recruiting costs are greater than budget due to use of new job posting sites to comply with EDI initiatives

Northbrook Public Library
Bills, Charges and Transfers for Board of Trustee Approval
Month of August 21

Operating Funds

Library Claims List	\$	117,893.61
Librarian's Claims List	\$	13,670.14
Payroll	\$	288,480.99
Fica/IMRF	\$	52,946.17
ACH to IPBC	\$	66,153.38
Total Operating Funds	\$	539,144.29

Capital Improvement Fund

Claims List	\$	12,992.15
	\$	12,992.15

Debt Service Fund

Grand Total Library	\$	552,136.44
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**Northbrook Public Library
Bank Register Report
Northbrook Bank & Trust General Checking**

Transaction Number	Transaction Date	Reference	Payments	Description
25167	8/19/2021	First Bankcard	\$9,457.80	monthly payment - supplies
25168	8/30/2021	Amazon	\$1,226.55	monthly payment - supplies
25169	8/30/2021	Ancel Glink P.C.	\$660.00	monthly payment - professional services
25170	8/30/2021	Best Quality Cleaning	\$5,525.00	monthly payment - contracted services
25171	8/30/2021	Burris Equipment Co.	\$808.00	annual payment - training for maintenance
25172	8/30/2021	CDW Government, Inc.	\$1,399.20	monthly payment - computer equipment
25173	8/30/2021	Computype, Inc.	\$1,023.75	monthly payment - supplies
25174	8/30/2021	Continental Resources, Inc	\$2,225.95	monthly payment - computer equipment
25175	8/30/2021	ECO Promotional Products, Inc.	\$2,089.39	annual payment - materials - circulating tote bags
25176	8/30/2021	Garvey's Office Products	\$718.80	monthly payment - supplies
25177	8/30/2021	Jo I Gayle	\$660.00	monthly payment - programming
25178	8/30/2021	Glenbrook HSD 225 - Business Services	\$820.00	annual payment - fixed assets
25179	8/30/2021	Grainger	\$825.66	monthly payment - janitorial supplies
25180	8/30/2021	Grey House Publishing	\$5,050.00	monthly payment- materials
25181	8/30/2021	Illinois Library Association	\$875.00	annual payment - staff development - ILA conference
25182	8/30/2021	Jo-Ann Stores LLC	\$1,045.00	annual payment - materials - database
25183	8/30/2021	Krueger International, Inc.	\$723.84	annual payment - fixed assets
25184	8/30/2021	Library Journals LLC	\$1,849.60	monthly payment - staff development
25185	8/30/2021	North American	\$2,011.00	monthly payment - janitorial supplies
25186	8/30/2021	Outsource Solutions Group, Inc.	\$18,349.14	monthly payment - professional services
25187	8/30/2021	Overdrive	\$13,147.47	monthly payment - materials
25188	8/30/2021	Penguin Random House LLC	\$5,000.00	monthly payment - programming - one book
25189	8/30/2021	Record Information Services, Inc.	\$1,330.00	monthly payment - materials - databases
25190	8/30/2021	Symmetry Energy Solutions, LLC	\$1,008.57	monthly payment - utilities
25191	8/30/2021	Vis-O-Graphic, Inc.	\$5,094.38	bi monthly payment - community relations - newsletter
25192	8/30/2021	Wex Health Inc.	\$2,357.02	monthly payment flexible spending, dependant care and commuter benefit
25193	8/31/2021	Baker & Taylor	\$22,991.19	monthly payment - materials
25194	8/31/2021	Baker & Taylor Entertainment	\$794.20	monthly payment - materials
25195	8/31/2021	Midwest Tape	\$8,827.10	monthly payment - materials

\$ 117,893.61

Northbrook Public Library
Bank Register Report
Northbrook Bank & Trust Librarian Checking

Transaction Number	Transaction Date	Reference	Payments
51362	8/24/2021	Accurate Office Supply Co.	\$319.80
51363	8/24/2021	Anna Amen	\$298.32
51364	8/24/2021	Amigos Library Services - LMC	\$460.00
51365	8/24/2021	ASCAP	\$373.27
51366	8/24/2021	Aw Yeah Comics	\$30.94
51367	8/24/2021	Baker & Taylor Entertainment	\$9.61
51368	8/24/2021	Steve Balazs	\$250.00
51369	8/24/2021	Suz Bates	\$200.00
51370	8/24/2021	Blackstone Publishing	\$80.54
51371	8/24/2021	Jason R Boston	\$59.99
51372	8/24/2021	Nancy Buehler	\$250.00
51373	8/24/2021	CallOne	\$405.03
51374	8/24/2021	Cavendish Square	\$177.93
51375	8/24/2021	Cedar Mill Library	\$12.00
51376	8/24/2021	CFM Local 10-20	\$501.32
51377	8/24/2021	Cintas	\$478.20
51378	8/24/2021	Cooperative Computer Service	\$198.29
51379	8/24/2021	Rey E.de la Cruz	\$150.00
51380	8/24/2021	Demco	\$56.11
51381	8/24/2021	Displays2Go	\$46.99
51382	8/24/2021	Elenco Electronics, Inc.	\$47.28
51383	8/24/2021	Emstar Inc	\$150.00
51384	8/24/2021	Sabina Fazlic	\$125.00
51385	8/24/2021	Freeman Pictures, Inc.	\$150.00
51386	8/24/2021	Gale/Cengage Learning Inc.	\$453.08
51387	8/24/2021	Mark Gelfeld	\$200.00
51388	8/24/2021	Benjamin Goluboff	\$250.00
51389	8/24/2021	Rae Goodman-Lucker	\$35.99
51390	8/24/2021	Anna Romina Guevarra	\$150.00
51391	8/24/2021	HANA Center	\$150.00
51392	8/24/2021	Illinois Heartland Library System-OCLC	\$15.50
51393	8/24/2021	Image Specialties of Glenview, Inc.	\$7.60
51394	8/24/2021	Lechner Services	\$112.50
51395	8/24/2021	Wen Li	\$12.99
51396	8/24/2021	Library Ideas LLC	\$511.40
51397	8/24/2021	LibraryWorks, Inc.	\$25.00
51398	8/24/2021	Gail Lukasik	\$150.00
51399	8/24/2021	Ron Mantegna	\$200.00
51400	8/24/2021	Amanda Margis	\$40.00
51401	8/24/2021	Kiron A Mathew	\$4.99
51402	8/24/2021	Jim Miller	\$33.94

Northbrook Public Library
Bank Register Report
Northbrook Bank & Trust Librarian Checking

Transaction Number	Transaction Date	Reference	Payments
51403	8/24/2021	Moore Landscapes, LLC	\$537.00
51404	8/24/2021	Nanny Nikki Music, LLC	\$300.00
51405	8/24/2021	National Notary Association	\$125.00
51406	8/24/2021	NFPA	\$460.45
51407	8/24/2021	Northbrook Chamber of Commerce & Industry	\$500.00
51408	8/24/2021	Northbrook Hardware	\$80.67
51409	8/24/2021	Online Audiovisual Catalogers, Inc.	\$40.00
51410	8/24/2021	Pastimes Inc.	\$91.00
51411	8/24/2021	Mary Kay Perrenot	\$34.96
51412	8/24/2021	Petty Cash Custodian	\$35.91
51413	8/24/2021	Laurie Prioletti	\$100.00
51414	8/24/2021	Reds Garden Center	\$42.00
51415	8/24/2021	Olga Rudiak	\$400.00
51416	8/24/2021	Runco Office Supply	\$174.06
51417	8/24/2021	Sarah Rustman	\$88.73
51418	8/24/2021	Sheet Music Plus	\$81.86
51419	8/24/2021	Sujin Song	\$100.00
51420	8/24/2021	Sphero, Inc.	\$83.85
51421	8/24/2021	Sunset Food Mart, Inc.	\$18.95
51422	8/24/2021	Douglas W Tallamy	\$500.00
51423	8/24/2021	The Sewing Source Inc	\$129.31
51424	8/24/2021	Uline	\$234.33
51425	8/24/2021	UPS	\$37.29
51426	8/24/2021	VSP of Illinois, NFP	\$319.59
51427	8/24/2021	Warehouse Direct	\$393.82
51428	8/24/2021	Robert Waterbury	\$50.00
51429	8/24/2021	WEX Health, Inc.	\$97.50
51430	8/24/2021	WM Corporate Services Inc.	\$512.00
51431	8/24/2021	Yvonne Wolf	\$175.00
51432	8/24/2021	Yami Vending Inc.	\$404.25
51433	8/24/2021	YourMembership.com, Inc.	\$249.00
51434	8/24/2021	The Book Bin	\$90.00

\$ 13,670.14

Northbrook Public Library
Bank Register Report
Northbrook Bank & Trust Capital Improvements

Transaction Number	Transaction Date	Reference	Payments	Description
1824	8/30/2021	F.E. Moran, Inc. - Fire Protection - North	\$1,055.00	Fire Panel Replacement Project
1825	8/30/2021	Fast Signs	\$168.00	1st Floor Renovation Project - Signage
1826	8/30/2021	Gewalt Hamilton Associates	\$3,500.00	Cedar Lane Project
1827	8/30/2021	Henricksen	\$81.15	1st Floor Renovation Project - Furniture
1828	8/30/2021	Johnson Controls Fire Protection LP	\$988.00	Fire Panel Replacement Project
1829	8/30/2021	Product Architecture + Design	\$7,200.00	3rd Floor Renovation Project - staff space
			<u>\$12,992.15</u>	

NORTHBROOK PUBLIC LIBRARY

Scheduled Closing Days for Calendar 2022

New Year's Eve	Friday, December 31, 2021 (close at 3:00 pm)
New Year's Day	Saturday, January 1, 2022
Security Training	Friday, January 21, 2022 (late open, 11:00 am)
Security Training	Friday, March 4, 2022
Easter	Sunday, April 17, 2022 (not a paid holiday)
Staff Development Day	Friday, May 13, 2022
Memorial Day	Monday, May 30, 2022
Fourth of July	Monday, July 4, 2022
Security Training	Friday, August 5, 2022 (late open, 11:00 am)
Labor Day	Sunday, September 4, 2022
Labor Day	Monday, September 5, 2022
Thanksgiving Eve	Wednesday, November 23, 2022 (close at 6:00 pm)
Thanksgiving	Thursday, November 24, 2022
Christmas Eve	Saturday, December 24, 2022
Christmas Day	Sunday, December 25, 2022
Christmas Day	Monday, December 26, 2022
New Year's Eve	Saturday, December 31, 2022 (close at 3:00 pm)
New Year's Day	Sunday, January 1, 2023

301: Library Cards

Created:	March 2020	Updated:	September 2021
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RESIDENTS & PROPERTY OWNERS OF INCORPORATED NORTHBROOK

Residents

Are taxed for library service on their real estate tax bills. A Northbrook library card can be obtained upon display of a valid government-issued photo identification card and proof of current address within incorporated Northbrook. Northbrook resident and property owner library cards expire after three years and must be renewed with presentation of identification and proof of current address.

Property Owners

Who do not reside in Northbrook may obtain a library card. This card is available to individuals and commercial property owners who own property in Northbrook. Only one card will be issued for each parcel of property. A current tax bill and proof of ownership must be provided to obtain a property owner library card.

Children

Under the age of 18 must have a parent or guardian fill out the application form. The parent/legal guardian must present a picture ID and proof of current address. The parent/legal guardian will be responsible for any material checked out on the child's card, and assume full responsibility for the return, damage, fees or fines for materials loaned under this policy.

Nannies and Au Pairs

Who live with a family in incorporated Northbrook may receive a Northbrook Public Library card with a picture ID and a caregiving contract, or a letter from the family in incorporated Northbrook that includes proof of the living arrangements in Northbrook. If the Au Pair is under 18, a parent from the family must present a photo ID and proof

of current address. An Au Pair card will be issued for one year, or the year listed on the letter.

Teacher Cards

Teacher cards are issued to teachers through an approved intergovernmental agreement between the library and schools. Teachers must show a valid picture ID and have prior approval from the school district.

Business and Organization Cards

A Northbrook Public Library card can be obtained by a business or organization, profit or nonprofit, upon proof of business or organizational ownership or rental (i.e. the most current tax bill, a rental or lease agreement, professional license, business card, etc.). Only one card will be issued per business or organization. An owner, partner, principal stockholder, joint owner, or a senior administrative officer of the business or organization must submit the application. The business or organization is responsible for any fines and fees associated with, or damage done to library materials checked out with its card. A business or organization card will be issued for three years.

Temporary Visitors & Residents in Transition

Seasonal visitors or residents in transition temporarily residing within the library boundaries will be eligible to obtain a temporary borrower's card for all library services upon providing a photo ID and a letter from a social service agency, temporary employer and/or landlord/relative or guardian verifying the temporary address. Every 90 days, the temporary visitor can bring in a piece of mail or other acceptable evidence of residency for an extension of library privileges.

UNINCORPORATED AREAS

Illinois state law allows libraries to offer library cards to persons who do not reside in the library's boundaries or own taxable property within the library's boundaries. Purchased card- holders are entitled to the same services as taxed card-holders.

Taxpayers

The cost of library service for residents outside the boundaries of incorporated Northbrook is determined by the EAV (the equalized assessed value) multiplied by the current tax rate for library service for Northbrook taxpayers. The cost of library services will be calculated on all taxable parcels included in the non-resident property owner's principal residence. Residents of unincorporated areas should bring in their most recent tax bill to determine cost.

Renters

Illinois State law provides that the annual fee for unincorporated area renters is 15% of the renter's monthly rent. For verification purposes, the Renter shall provide to the library a state photo ID along with a copy of the lease proving current residency in the Northbrook Public Library Unincorporated Service Area.

Exemptions

A fee for an unincorporated library card shall not be charged to students who do not reside within the library's boundaries and whose household income makes them eligible to receive free or reduced price meals under the National School Lunch Program and the National School Breakfast Program. When applying for a non-resident card, a qualifying student must present documentation that indicates the student's eligibility for free or reduced-price meals.

A fee for an unincorporated library card shall not be charged to:

- veterans with a service-connected disability of at least 70% who is exempt from paying property taxes on their primary residence or who rents in an unincorporated area.
- the unmarried surviving spouse of a veteran who qualified for this exemption prior to death.
- an unmarried surviving spouse of a service member killed in the line of duty.

Qualifying veterans or surviving spouses must present documentation that indicates their residence is exempt from paying property taxes. The veteran shall present documentation of at least 70% disability from the U.S. Department of Veterans Affairs.^[PLDT1]

Payment

Payment for purchased library service must be paid in full at the time of purchase, which can be obtained for 6-month or 1 year intervals. Additional cards for family members in the same residence may be obtained at no additional charge. Family members over the age of 18 must be present with a photo ID and proof of current address.

Reciprocal Borrowers

The library extends reciprocal services to persons with a valid current Illinois library card. A current library card in good standing and a valid identification with the person's address must be presented to obtain reciprocal borrowing privileges. Patrons within the Cooperative Computer Services (CCS) Consortium are already in the database and do not need to register individually at each CCS library. The library reserves the right to limit services.

Library Card Use

Any cardholder, regardless of age, may borrow any circulating item in the library's collection. Patrons are required to present their physical or digital library card or photo ID when borrowing materials. Patrons may continue to check out as long as their account balance remains below \$10.00.

406: Community Displays & Exhibits

Created:	March 2020	Updated:	
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As part of its public service and information mission, the Northbrook Public Library makes specific areas available for handouts and magazines, displays and exhibits, and bulletin boards. These areas are for use of library related materials and for information that is created by, and of interest to, the local community. Displays, materials posted on bulletin boards, handouts, and exhibits are covered by the intellectual freedom policies of the library and do not constitute

FLYERS, POSTERS & PAMPHLETS

The library has a dedicated space on the first floor for the purpose of sharing community information in the form of posters and pamphlets. The library believes there are reasonable and desirable needs for public service notices and other information to be disseminated by organizations serving residents of Northbrook.

The library further believes that the dissemination of such information must be managed as to its time, place and manner due to the limited resources available and due to the fact that the library's constituents include minors. The library wishes to provide space for information for organizations and groups that conduct activities relevant to the mission of the library and that have a significant relationship to the Northbrook community.

Therefore, the library designates this space on the first floor as a limited public forum intended to be used narrowly for the purposes described in this policy. The following postings are allowed in this limited public forum:

1. Library required postings and Library announcements;
2. Village of Northbrook and other local government information and events;
3. Northbrook non-profit organizations and events; and
4. Local items of interest that are not of a commercial nature.

No editorials or editorial content may be posted, even by organizations that meet the criteria for use listed above. Materials by for-profit groups, companies and organizations, are generally not accepted (an exception might include community newspapers produced by for-profit organizations but distributed free of charge, such as the Reader). Job advertisements may be submitted for display on the 2nd floor Job Postings floor. [PLDT1] Business announcements of for-profit groups, individuals, companies and organizations, and notices of garage sales, lost animals, etc., are not accepted. Library postings and announcements, and other public service announcements will have absolute priority over any announcements submitted by other organizations.

Materials will be displayed or available as handouts for a maximum of one month depending on space. The library reserves the right to discard materials that are no longer timely.

DISPLAY CASES & EXHIBITS

The library has display cases throughout the building and also provides space for two-dimensional art shows. The library strives to provide a wide range of exhibits to meet the diverse educational, informational, cultural and recreational needs of the community.

Reasonable efforts will be made to display balanced collections without favor given to particular causes or viewpoints. However, the display cases and exhibition spaces are not public forums, and the library reserves the right to select exhibits in its sole discretion. The library will endeavor to protect materials displayed, but will not provide insurance on them. If exhibitors feel that they need coverage, they must make their own arrangements. Interested parties wishing to use the display cases or do an exhibit should contact marketing at marketing@northbrook.info.

DONATION BOXES

Local non-profit and service organizations may place non-cash donation boxes in the library's lobby upon the review and approval of the Executive Director.

1. An application for such use must be completed at least two weeks in advance.
2. A donation box cannot be in the lobby more than 30 days at a time.

3. Boxes may be removed without notice by the library.
4. At least 6 months must lapse before an organization is eligible to place another box in the lobby.

September 13, 2021

Board of Trustees
Northbrook Public Library
Northbrook, Illinois

We have audited the financial statements of **Northbrook Public Library** for the year ended April 30, 2021, and have issued our report thereon dated September 13, 2021. During our audit, we noted the following operational or administrative matters we believe to be of potential benefit to you.

Accounting for Leases

The Governmental Accounting Standards Board (GASB) issued Statement No. 87 that provides new accounting and reporting guidance on leases. This statement was originally effective for fiscal years ending after December 15, 2020, but subsequently postponed the effective date of the standard for 18 months. Despite this delay, the Library should be taking steps now to prepare for implementation.

Under this new standard, all leases lasting longer than one year will be reported by the lessee as a right-to-use asset and a long-term liability in the statement of net position in the government-wide and proprietary fund financial statements. Governments should consider the potential impact of reporting additional debt in the financial statements may have on existing legal debt limitations and bond covenants.

At this time, management should also evaluate its policies and procedures for tracking and reporting leases, including creating a centralized location to store and hold all lease agreements. All department heads should be responsible for forwarding any new lease agreements, as well as any modifications of existing lease agreements, to the Finance Department. In addition, the Board and management should review and update its capital asset policies to include consideration of intangible right-to-use assets that will be recorded under this new standard.

Future Accounting and Auditing Pronouncements

GASB has issued several other pronouncements that become effective in future years. At this time, it is not expected these new standards will have a significant impact on the Library.

GASB Statement No. 89, *Accounting for Interest Cost Incurred before the End of a Construction Period*, requires interest cost incurred before the end of a construction period be recognized as an expense in business-type activity or enterprise fund financial statements. Statement No. 89 is effective for the fiscal year ending April 30, 2022.

Future Accounting and Auditing Pronouncements (cont'd)

GASB Statement No. 91, *Conduit Debt Obligations*, improves the consistency and comparability of reporting of conduit debt obligations by eliminating the existing option to for issuers to report conduit debt obligations as their own liabilities. Statement No. 91 is effective for the fiscal year ending April 30, 2023.

GASB Statement No. 92, *Omnibus 2020*, improves the consistency and comparability in accounting and financial reporting by addressing practice issues that have been identified during implementation and application of certain GASB Statements. Statement No. 92 is effective for the fiscal year ending April 30, 2023.

GASB Statement No. 93, *Replacement of Interbank Offered Rates*, addresses the accounting and financial reporting implications that result from the replacement of an interbank offered rate in derivative instruments and lease agreements. Statement No. 93 is effective for the fiscal year ending April 30, 2023.

GASB Statement No. 94, *Public-Private and Public-Public Partnerships and Availability Payment Arrangements*, improves financial reporting by establishing definitions of public-public and public-private arrangements (PPPs), and availability payment arrangements (APAs), and providing uniform guidance on accounting and financial reporting for transactions that meet these definitions. Statement No. 94 is effective for the fiscal year ending April 30, 2024.

GASB Statement No. 96, *Subscription-Based Information Technology Arrangements*, improves financial reporting by establishing definitions of subscription-based information technology arrangements, and providing uniform guidance on accounting and financial reporting for transactions that meet these definitions. Statement No. 96 is effective for the fiscal year ending April 30, 2024.

GASB Statement No. 97, *Certain Component Unit Criteria, and Accounting and Financial Reporting for Internal Revenue Code Section 457 Deferred Compensation Plans*, improves financial reporting by increasing consistency and comparability related to the reporting of fiduciary component units including Internal Revenue Code Section 457 deferred compensation plans and the benefits provided through these plans. Statement No. 97 is effective for the fiscal year ending April 30, 2023.

This report is intended solely for the information and use of the Board of Trustees and management of the Northbrook Public Library and is not intended to be and should not be used by anyone other than these specified parties.

We would like to take this opportunity to express our appreciation to you, and to the Northbrook Public Library's staff, for the courtesy and cooperation extended to our staff during the course of the audit. Should you wish to discuss further any of the matters referred to, or if we can be of assistance in implementing any of the new standards, we will be pleased to do so at your convenience.

Selden Fox, Ltd.

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Accounting for your future

619 Enterprise Drive | Oak Brook, Illinois 60523 | www.seldenfox.com
p 630.954.1400 | f 630.954.1327 | email@seldenfox.com

COMMUNICATION WITH THOSE CHARGED WITH GOVERNANCE

September 13, 2021

Board of Trustees
Northbrook Public Library
Northbrook, Illinois

We have audited the financial statements of the **Northbrook Public Library** (Library) as of and for the year ended April 30, 2021, and have issued our report thereon dated September 13, 2021. Professional standards require that we provide you with the following information related to our audit.

Our Responsibility Under U.S. Generally Accepted Auditing Standards

As stated in our engagement letter dated February 24, 2021, our responsibility, as described by professional standards, is to express an opinion about whether the financial statements are fairly presented, in all material respects, in conformity with U.S. generally accepted accounting principles. The financial statements are the responsibility of management with your oversight. Our audit of the financial statements does not relieve you or management of your responsibilities.

Planned Scope and Timing of the Audit

We performed the audit according to the planned scope and timing previously communicated to management prior to field work beginning on June 22, 2021, and in our engagement letter dated February 24, 2021.

We addressed significant risks of material misstatement, whether due to error or fraud, by performing analytical procedures, making inquiries of those charged with governance, by observation and inspection, and by brainstorming with our audit team members. We use judgment to determine what a user of the financial statements would consider to be material in assessing the risk of misstatement. We also use judgment to determine our approach to internal control and further audit procedures relevant to significant audit areas. An audit includes consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of internal control over financial reporting. Accordingly, we express no such opinion.

Significant Audit Findings

Qualitative Aspects of Accounting Practices – Management is responsible for the selection and use of appropriate accounting policies. In accordance with the terms of our engagement letter, we will advise management about the appropriateness of accounting policies and their application. The significant accounting policies used by the Northbrook Public Library are described in Note I to the financial statements. There were no new accounting policies adopted and the application of existing policies was not changed during the fiscal year 2021. We noted no transactions entered into by the Library during the year for which there is a lack of authoritative guidance or consensus. There are no significant transactions that have been recognized in the financial statements in a different period than when the transaction occurred.

Accounting estimates are an integral part of the financial statements prepared by management and are based on management's knowledge and experience about past and current events and assumptions about future events. Certain accounting estimates are particularly sensitive because of their significance to the financial statements, and because of the possibility that future events affecting them may differ significantly from those expected. The most sensitive estimates affecting the financial statements were:

Management's estimate of a provision for losses for uncollectible property tax is based on collections history and current economic conditions. Management's estimate that the useful lives of property and equipment range from 3 to 40 years is based on past experience. Management's valuation of its net pension obligation and OPEB liability is based on actuarial studies. We evaluated the key factors and assumptions used to develop these estimates in determining that they are reasonable in relation to the financial statements as a whole.

The disclosures in the financial statements are neutral, consistent, and clear.

Difficulties Encountered in Performing the Audit – We encountered no significant difficulties in dealing with management in performing and completing our audit.

Corrected and Uncorrected Misstatements – Professional standards require us to accumulate all known and likely misstatements identified during the audit, other than those that are trivial, and communicate them to the appropriate level of management. Management provided entries to record capital asset activity during the course of the audit. All other adjustments are included in Exhibit 1. Management has corrected all such misstatements. Reclassification journal entries are included as Exhibit 2. There were no uncorrected adjusting journal entries.

Disagreements With Management – For purposes of this letter, professional standards define a disagreement with management as a financial accounting, reporting, or auditing matter, whether or not resolved to our satisfaction, that could be significant to the financial statements or the auditor's report. We are pleased to report that no such disagreements arose during the course of our audit.

Management Representations – We have requested certain representations from management that are included in the management representation letter dated September 13, 2021.

Significant Audit Findings (cont'd)

Management Consultations With Other Independent Accountants – In some cases, management may decide to consult with other accountants about auditing and accounting matters, similar to obtaining a “second opinion” on certain situations. If a consultation involves application of an accounting principle to the Library’s financial statements or a determination of the type of auditor’s opinion that may be expressed on those statements, our professional standards require the consulting accountant to check with us to determine that the consultant has all the relevant facts. To our knowledge, there were no such consultations with other accountants.

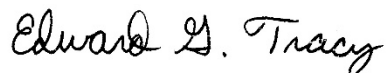
Other Audit Findings or Issues – We generally discuss a variety of matters, including the application of accounting principles and auditing standards, with management each year prior to retention as the Library’s auditors. However, these discussions occurred in the normal course of our professional relationship, and our responses were not a condition to our retention.

Other Matters – With respect to the supplementary information accompanying the financial statements, we made certain inquiries of management and evaluated the form, content, and methods of preparing the information to determine that the information complies with accounting principles generally accepted in the United States of America, the method of preparing it has not changed from the prior period, and the information is appropriate and complete in relation to our audit of the financial statements. We compared and reconciled the supplementary information to the underlying accounting records used to prepare the financial statements or to the financial statements themselves.

This information is intended solely for the use of the Board of Trustees and management of the Northbrook Public Library and is not intended to be and should not be used by anyone other than these specified parties.

Very truly yours,

SELDEN FOX, LTD.

A handwritten signature in cursive script that reads "Edward G. Tracy".

Edward G. Tracy
Executive Vice President

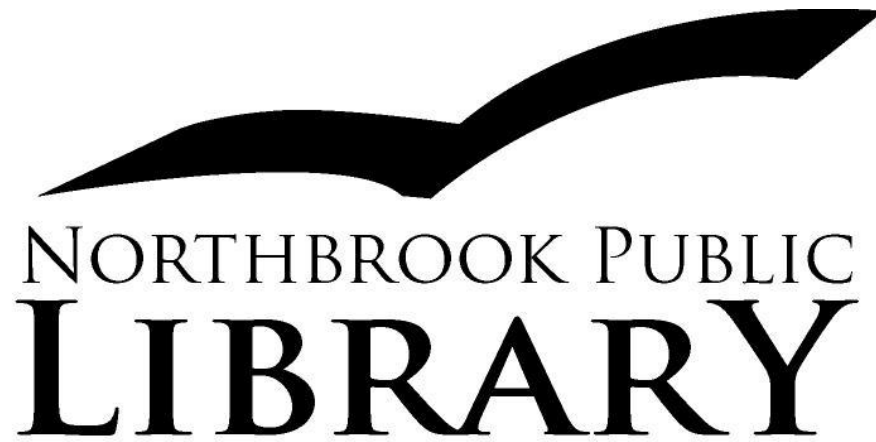
EGT/cg

**Northbrook Public Library
Adjusting Journal Entries
April 30, 2021**

Account	Description	Debit	Credit	Profit (Loss) Effect
Adjusting Journal Entry # 1				
Adjust beginning net assets to actual.				
01-20110-00	Vendor Accounts Payable	\$ 55.62	\$ -	\$ -
91-17910-00	Accumulated Depreciation	5,000.00		
01-30110-00	Undesignated Fund Balance		5,000.00	
91-30110-00	Fund Balance		55.62	-
Adjusting Journal Entry # 2				
Adjust net pension obligation in accordance with GASB Statement No. 68 in the government-wide financial statements.				
91-19010-00	Deferred Outflows - Pension	89,303.00		
91-20320-00	Net Pension Liability	1,530,343.00		
91-19000-00	Deferred Outflows - Pension		225,415.00	
91-29000-00	Deferred Inflows - Pension Actuarial		394,663.00	
91-51220-00	Pension Expense		999,568.00	999,568.00
Adjusting Journal Entry # 3				
Adjust net OPEB obligation in accordance with GASB Statement No. 75 in the government-wide financial statements.				
91-19015-00	Deferred Outflows - OPEB Actuarial	20,833.00		
91-20300-00	Net OPEB Liability	188,225.00		
91-20330-00	Deferred Inflows - Pension Actuarial	4,990.00		
91-51210-00	OPEB Expense	12,642.00		
91-20300-00	Net OPEB Liability		4,990.00	
91-20335-00	Deferred Inflows - OPEB Actuarial		221,700.00	(12,642.00)
Net effect of adjusting journal entries - government-wide financial statements				\$ 986,926.00

**Northbrook Public Library
Reclassification Journal Entries
April 30, 2021**

Account	Description	Debit	Credit
Reclassification Journal Entry # 1			
Reclassify interfund balances to proper accounts.			
01-11110-00	Certificates of Deposit	\$ 930,640.38	
02-15110-00	Due From General Fund	930,640.38	
03-15110-00	Due From General Fund	1,090,113.62	
01-23120-00	Due to/from IMRF/FICA		\$ 930,640.38
02-11110-00	Certificates of Deposit		930,640.38
03-23110-00	Due to General Fund		1,090,113.62



**AUDIT REPORT
FOR THE YEAR ENDED APRIL 30, 2021**

**Northbrook Public Library
Audit Report
For the Year Ended April 30, 2021**

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INDEPENDENT AUDITOR'S REPORT

INDEPENDENT AUDITOR'S REPORT

Board of Trustees
Northbrook Public Library
Northbrook, Illinois

We have audited the accompanying financial statements of the governmental activities and each major fund of the **Northbrook Public Library** (Library), a component unit of the Village of Northbrook, Illinois, as of and for the year ended April 30, 2021, and the statements of revenues, expenditures and changes in fund balance – budget and actual for the General Fund and IMRF/FICA (major Special Revenue) Fund and the related notes to the financial statements, which collectively comprise the Library's basic financial statements as listed in the accompanying table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express opinions on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Opinions

In our opinion, the basic financial statements referred to above present fairly, in all material respects, the respective financial position of the governmental activities and each major fund of the Northbrook Public Library as of April 30, 2021, and the respective changes in financial position and respective budgetary comparison for the General Fund and IMRF/FICA Fund (major Special Revenue) for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis (pages 3-7), the multiyear schedule of changes in net pension liability and related ratios – Illinois Municipal Retirement Fund (pages 41-42), the multiyear schedule of contributions – Illinois Municipal Retirement Fund (page 43), and the multiyear schedule of changes in net OPEB liability and related ratios – other post-employment retiree healthcare plan (pages 44-45) be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise the Library's basic financial statements. The schedules listed as supplementary information in the accompanying table of contents are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The supplementary information on pages 46-49 is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the information is fairly stated in all material respects in relation to the basic financial statements as a whole.

Selden Fox, Ltd.

September 13, 2021

MANAGEMENT'S DISCUSSION AND ANALYSIS

**NORTHBROOK PUBLIC LIBRARY
MANAGEMENT'S DISCUSSION AND ANALYSIS
APRIL 30, 2021**

Management of the Northbrook Public Library provides this narrative overview and analysis for the fiscal year ended April 30, 2021. It is recommended that readers consider this information in conjunction with the financial statements as a whole.

Financial Highlights

The Library's total net position as of April 30, 2021 and 2020, was \$15,827,132 and \$13,988,887, respectively. For the years ended April 30, 2021 and 2020, net position increased from operations \$1,838,245 and \$864,705, respectively. The term "net position" represents the difference between total assets/deferred outflows and total liabilities/deferred inflows of resources.

Overview of the Financial Statements

Management's Discussion and Analysis introduces the Library's basic financial statements. The basic financial statements include: (1) government-wide financial statements, (2) fund financial statements, and (3) notes to the financial statements. The Library also includes in this report additional information to supplement the basic financial statements.

Financial Statements

The financial statements of the Library are intended to provide the reader with an understanding of the financial position of the Library as of the close of the fiscal year and the results of activities for the year then ended. The fund financial statements focus on current financial resources while government-wide financial statements are similar to a private-sector business.

The *Statement of Net Position* and the *Governmental Funds Balance Sheet* provide information on the Library's assets/deferred outflows of resources and liabilities/deferred inflows of resources. The difference between these two represents governmental fund balances for the current financial resources reporting and net position for the government-wide reporting. Increases in fund balances and net position occur when revenues exceed expenditures/expenses. Information is presented for the government as a whole in the Statement of Net Position, and for each major fund in the fund financial statements, and shows any restrictions on the fund or net position.

The *Statement of Activities* and the *Statement of Governmental Fund Revenues, Expenditures, and Changes in Fund Balance* reflect the results of the Library's revenues, expenditures and activities during the year and the corresponding effect on fund and net position balances. These statements show the source of Library revenues and how those revenues were used to provide Library services.

Financial Statements (cont'd)

Notes to the financial statements provide additional information that is essential to a full understanding of the information provided in the basic financial statements. *Required Supplementary Information* consists of Schedules of Changes in the Net Pension Liability and Related Ratios, and Contributions for the IMRF Pension Plan, and Changes in the Net OPEB Liability and Related Ratios.

Financial Analysis

Net position may serve, over time, as a useful indicator of a government's financial position. The Library's assets/deferred outflows exceeded liabilities/deferred inflows of resources by \$15,827,132 as of the close of the year. Of the net position balance, \$7,983,836 is unrestricted, \$679,244 is restricted, and \$7,164,052 is invested in capital assets, net of related debt.

Condensed Statement of Net Position

	April 30,	
	2021	2020
Current and other assets	\$ 19,545,025	\$ 20,021,130
Capital assets, net of accumulated depreciation	17,239,056	16,079,211
Total assets	36,784,081	36,100,341
Deferred outflows	704,910	820,189
Current liabilities	873,245	935,250
Non-current liabilities	10,345,962	12,308,063
Total liabilities	11,219,207	13,243,313
Deferred inflows of resources	10,442,652	9,688,330
Net position:		
Net investment in capital asset	7,164,052	5,627,132
Restricted	679,244	590,870
Unrestricted	7,983,836	7,770,885
Total net position	\$ 15,827,132	\$ 13,988,887

Financial Analysis (cont'd)

Condensed Statement of Activities

	April 30,	
	2021	2020
Revenues:		
Property taxes	\$ 8,787,197	\$ 8,511,289
State replacement taxes	150,684	159,814
Investment income	31,324	194,802
Fines, fees and other	210,288	225,949
Total revenues	9,179,493	9,091,854
Expenses:		
Library services	6,967,828	7,917,702
Interest	373,420	309,447
Total expenses	7,341,248	8,227,149
Increase in net position	1,838,245	864,705
Net position, beginning of year	13,988,887	13,124,182
Net position, end of year	\$ 15,827,132	\$ 13,988,887

The following is a summary of changes in fund balances for the year ended April 30, 2021:

<u>Governmental Funds</u>	<u>Fund Balance April 30, 2020</u>	<u>Increase (Decrease)</u>	<u>Fund Balance April 30, 2021</u>
General	\$ 4,128,606	\$ 1,204	\$ 4,129,810
IMRF/FICA	522,020	86,726	608,746
Debt service	(9,371)	113	(9,258)
Construction	68,850	1,648	70,498
Capital improvements	6,177,274	(733,227)	5,444,047
Total	\$ 10,887,379	\$ (643,536)	\$ 10,243,843

The General Fund transferred \$1,115,000 to the Capital Improvements Fund and \$16,150 to the Debt Service Fund during the year.

Budgetary Highlight

The Library's General Fund expended \$6,519,365 which was \$707,135 less than the budget of \$7,226,500 for the year ended April 30, 2021. Salaries and employee benefits were \$365,655 less than the budgeted amount of \$4,863,500.

Capital Assets and Debt Administration

The following is a summary of capital assets as of April 30, 2021, and 2020:

	April 30,	
	2021	2020
Land	\$ 35,000	\$ 35,000
Artwork	3,200	3,200
Construction costs	1,009,521	390,844
Building improvements	25,152,214	23,967,055
Land improvements	241,162	241,162
Computer equipment	584,406	551,887
Office and other equipment	597,270	610,218
Furniture and shelving	1,320,413	1,305,135
Books and other library materials	5,130,021	4,913,416
Cost of capital assets	34,073,207	32,017,917
Less accumulated depreciation	16,834,151	15,938,706
Net capital assets	\$ 17,239,056	\$ 16,079,211

For further detail of capital assets, see Note III.B on page 26.

The outstanding bonds payable at April 30, 2021, are \$9,741,077. No new bonds were issued in the current year and bond payments made during the year were \$354,945. See Note III.D on pages 27 and 28 for more information. The Library also records noncurrent liabilities for a deferred bond premium, and net OPEB liability totaling \$333,927, and \$270,958, respectively, at April 30, 2021. The Library also recorded a net pension asset of \$133,542 at April 30, 2021.

Description of Current or Expected Conditions

Presently, management is not aware of any significant changes in conditions that could have a significant effect on the financial position or results of activities of the Library in the near future.

Requests for Information

This financial report is designed to provide a general overview of the Library's finances for all those with an interest in its finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to the Executive Director, Northbrook Public Library, 1201 Cedar Lane, Northbrook, Illinois 60062.

BASIC FINANCIAL STATEMENTS

**Northbrook Public Library
Statement of Net Position
April 30, 2021**

	Governmental Activities
<hr/>	
Assets and Deferred Outflows	
Cash and investments	\$ 14,649,863
Receivables	4,611,726
Prepaid items	149,894
Net pension asset	133,542
Capital assets not being depreciated	1,047,721
Capital assets, net of accumulated depreciation	16,191,335
	<hr/>
Total assets	36,784,081
Deferred outflows (Note IV.)	704,910
	<hr/>
Total assets and deferred outflows	37,488,991
	<hr/>
Liabilities and Deferred Inflows	
Accounts payable	420,343
Accrued expenses	38,529
Accrued interest	158,538
Compensated absences payable	255,835
Noncurrent liabilities:	
Debt due within one year	393,365
Debt due in more than one year	9,681,639
Net OPEB liability	270,958
	<hr/>
Total liabilities	11,219,207
Deferred inflows (Note IV.)	10,442,652
	<hr/>
Total liabilities and deferred inflows	21,661,859
	<hr/>
Net Position	
Net investment in capital assets	7,164,052
Restricted	679,244
Unrestricted	7,983,836
	<hr/>
	\$ 15,827,132
	<hr/>
See accompanying notes.	

**Northbrook Public Library
Statement of Activities
For the Year Ended April 30, 2021**

Functions/Programs	Expenses	Program Revenues			Net (Expenses) Revenue and Changes in Net Position - Governmental Activities
		Charges for Services	Operating Grants and Contributions	Capital Grants and Contributions	
Governmental activities:					
Library activities	\$ 6,967,828	\$ 19,667	\$ 159,242	\$ -	\$ (6,788,919)
Interest	373,420	-	-	-	(373,420)
	<u>\$ 7,341,248</u>	<u>\$ 19,667</u>	<u>\$ 159,242</u>	<u>\$ -</u>	<u>(7,162,339)</u>
General revenues:					
					8,787,197
					150,684
					31,324
					<u>31,379</u>
				Total general revenues	<u>9,000,584</u>
				Changes in net position	1,838,245
				Net position, beginning of year	<u>13,988,887</u>
				Net position, end of the year	<u>\$ 15,827,132</u>

See accompanying notes.

Northbrook Public Library
Balance Sheet - Governmental Funds
April 30, 2021

	General	IMRF/FICA	Debt Service
Assets			
Cash and investments	\$ 10,100,319	\$ -	\$ 328
Receivables, net:			
Property taxes	3,814,888	353,326	388,837
Other	6,533	-	-
Due from the Village	48,142	-	-
Due from other funds	-	930,640	344,662
Prepaid expenses	149,894	-	-
Total assets	\$ 14,119,776	\$ 1,283,966	\$ 733,827
Liabilities			
Accounts payable	\$ 242,622	\$ -	\$ -
Accrued payroll	38,529	-	-
Due to other funds	2,418,352	-	-
Total liabilities	2,699,503	-	-
Deferred Inflows of Resources			
Property taxes	7,290,463	675,220	743,085
Total liabilities and deferred inflows of resources	9,989,966	675,220	743,085
Fund Balances (Deficit)			
Nonspendable	149,894	-	-
Restricted for statutory purposes	-	608,746	-
Restricted for capital projects	-	-	-
Committed for capital projects	-	-	-
Unassigned	3,979,916	-	(9,258)
Total fund balances (deficit)	4,129,810	608,746	(9,258)
Total liabilities, deferred inflows of resources, and fund balances (deficit)	\$ 14,119,776	\$ 1,283,966	\$ 733,827

See accompanying notes.

<u>Construction</u>	<u>Capital Improvements</u>	<u>Total Governmental Funds</u>
\$ 4,647	\$ 4,544,569	\$ 14,649,863
-	-	4,557,051
-	-	6,533
-	-	48,142
65,851	1,090,114	2,431,267
-	-	149,894
<u>\$ 70,498</u>	<u>\$ 5,634,683</u>	<u>\$ 21,842,750</u>
\$ -	\$ 177,721	\$ 420,343
-	-	38,529
-	12,915	2,431,267
-	190,636	2,890,139
-	-	8,708,768
-	190,636	11,598,907
-	-	149,894
-	-	608,746
70,498	-	70,498
-	5,444,047	5,444,047
-	-	3,970,658
<u>70,498</u>	<u>5,444,047</u>	<u>10,243,843</u>
<u>\$ 70,498</u>	<u>\$ 5,634,683</u>	<u>\$ 21,842,750</u>

Northbrook Public Library
Reconciliation of the Governmental Funds Balance Sheet
to the Statement of Net Position
April 30, 2021

Total fund balance - governmental fund (page 11)	\$ 10,243,843
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Amounts reported for governmental activities in the statement of net position are different because:

Capital assets used in governmental activities are not financial resources and, therefore, are not reported in the fund.	17,239,056
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Net pension asset is not a financial resource and, therefore are not reported in the fund financial statements.	133,542
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Liabilities as defined under modified accrual accounting, not due and payable in the current period, are not reported in the funds.

Accrued interest	(158,538)
Compensated absences payable	(255,835)
Bonds payable	(9,804,046)
Difference in pension-related items on deferred outflows	676,439
Difference in pension-related items on deferred inflows	(1,733,884)
Net other post employment benefit liability	(270,958)
Difference in OPEB-related items on deferred outflows	28,471

Net position of governmental activities (page 8)	<u>\$ 16,098,090</u>
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See accompanying notes.

Northbrook Public Library
Statement of Revenues, Expenditures and Changes
in Fund Balances (Deficit) - Governmental Funds
For the Year Ended April 30, 2021

	General	IMRF/FICA	Debt Service
Revenues:			
Property taxes	\$ 7,280,953	\$ 762,430	\$ 743,814
State replacement taxes	150,684	-	-
Fines, fees, and rentals	19,667	-	-
Interest income	15,039	1,556	15
Investment loss	1,944	-	113
Gifts, designated, and grants	159,242	-	-
Miscellaneous	24,190	-	-
Total revenues	7,651,719	763,986	743,942
Expenditures:			
Salaries and employee benefits	4,497,845	677,260	-
Library materials and services	1,071,846	-	-
Operational costs	629,117	-	-
Maintenance	242,070	-	-
Other	3,557	-	-
Gifts and designated	74,930	-	-
Capital outlay	-	-	-
Debt service:			
Principal retirement	-	-	354,945
Interest and fiscal charges	-	-	405,034
Total expenditures	6,519,365	677,260	759,979
Revenues over (under) expenditures before other financing sources (uses)	1,132,354	86,726	(16,037)
Other financing sources (uses):			
Transfers in	-	-	16,150
Transfers out	(1,131,150)	-	-
Total other financing sources (uses)	(1,131,150)	-	16,150
Net changes in fund balances (deficit)	1,204	86,726	113
Fund balances (deficit), beginning of the year	4,128,606	522,020	(9,371)
Fund balances (deficit), end of the year	\$ 4,129,810	\$ 608,746	\$ (9,258)

See accompanying notes.

<u>Construction</u>	<u>Capital Improvements</u>	<u>Total Governmental Funds</u>
\$ -	\$ -	\$ 8,787,197
-	-	150,684
-	-	19,667
1,648	11,009	29,267
-	-	2,057
-	-	159,242
-	7,189	31,379
<u>1,648</u>	<u>18,198</u>	<u>9,179,493</u>
-	-	5,175,105
-	-	1,071,846
-	-	629,117
-	-	242,070
-	-	3,557
-	-	74,930
-	1,866,425	1,866,425
-	-	354,945
-	-	405,034
<u>-</u>	<u>1,866,425</u>	<u>9,823,029</u>
<u>1,648</u>	<u>(1,848,227)</u>	<u>(643,536)</u>
-	1,115,000	1,131,150
-	-	(1,131,150)
<u>-</u>	<u>1,115,000</u>	<u>-</u>
1,648	(733,227)	(643,536)
68,850	6,177,274	10,887,379
<u>\$ 70,498</u>	<u>\$ 5,444,047</u>	<u>\$ 10,243,843</u>

**Northbrook Public Library
Reconciliation of the Statement of Revenues,
Expenditures and Changes in Fund Balances (Deficit) of
Governmental Funds to the Statement of Activities
For the Year Ended April 30, 2021**

Amounts reported for governmental activities in the statement of activities
(page 9) are different because:

Net changes in fund balances - total governmental fund (page 14)	\$ (643,536)
Governmental funds report capital outlays as expenditures, however, they are capitalized and depreciated in the statement of activities.	2,598,309
Depreciation on capital assets is reported as an expense in the statement of activities.	(1,424,930)
The change in the compensated absences liability is reported as an expense on the statement of activities.	(51,549)
The net effect of various miscellaneous transactions involving capital assets (i.e. sales, trade-ins) is to decrease net position	(13,534)
The repayment of long-term debt is reported as an expenditure when due in governmental funds but as a reduction of principal outstanding in the statement of activities.	354,945
The change in accrued interest is shown as interest expense on the statement of activities.	31,614
The net effect of changes in the net pension liability is reported as an expense in the statement of activities.	999,568
The net effect of changes in the net other post employment benefit liability is reported as an expense in the statement of activities.	<u>(12,642)</u>
Changes in net position of governmental activities (page 9)	<u>\$ 1,838,245</u>

See accompanying notes.

Northbrook Public Library
Statement of Revenues, Expenditures and Changes
in Fund Balance - Budget and Actual - General Fund
For the Year Ended April 30, 2021

	Original Budget	Final Budget	Actual	Variance Positive (Negative)
Revenues:				
Property taxes	\$ 7,289,188	\$ 7,289,188	\$ 7,280,953	\$ (8,235)
State replacement taxes	100,000	100,000	150,684	50,684
Fines, fees and rentals	37,500	37,500	19,667	(17,833)
Interest income	50,000	50,000	15,039	(34,961)
Gifts, designated and grants	100,000	100,000	159,242	59,242
Loss on investment	-	-	1,944	1,944
Miscellaneous	100,000	100,000	24,190	(75,810)
Total revenues	7,676,688	7,676,688	7,651,719	(24,969)
Expenditures:				
Salaries and employee benefits	4,863,500	4,863,500	4,497,845	365,655
Library materials and services	1,145,000	1,145,000	1,071,846	73,154
Operational costs	748,000	748,000	629,117	118,883
Maintenance	266,000	266,000	242,070	23,930
Other	104,000	104,000	3,557	100,443
Gifts and designated	100,000	100,000	74,930	25,070
Total expenditures	7,226,500	7,226,500	6,519,365	707,135
Revenues over expenditures before other financing uses	450,188	450,188	1,132,354	682,166
Other financing uses - transfers out	(450,000)	(450,000)	(1,131,150)	(681,150)
Net changes in fund balance	\$ 188	\$ 188	1,204	\$ 1,016
Fund balance, beginning of the year			4,128,606	
Fund balance, end of the year			\$ 4,129,810	

See independent auditor's report.

Northbrook Public Library
Statement of Revenues, Expenditures and Changes in
Fund Balance - Budget and Actual - IMRF/FICA Fund
For the Year Ended April 30, 2021

	Original Budget	Final Budget	Actual	Variance Positive (Negative)
Revenues:				
Property taxes	\$ 779,000	\$ 779,000	\$ 762,430	\$ (16,570)
Interest income	3,000	3,000	1,556	(1,444)
Total revenues	782,000	782,000	763,986	(18,014)
Expenditures - salaries and employee benefits:				
IMRF	400,000	400,000	397,230	2,770
Social Security	289,000	289,000	280,030	8,970
Total expenditures	689,000	689,000	677,260	11,740
Revenues over expenditures	\$ 93,000	\$ 93,000	86,726	\$ (6,274)
Fund balance, beginning of the year			522,020	
Fund balance, end of the year			\$ 608,746	

See independent auditor's report.

Northbrook Public Library Notes to the Financial Statements

I. Summary of Significant Accounting Policies

The financial statements of the Northbrook Public Library (Library) have been prepared in conformity with U.S. generally accepted accounting principles as applied to government units. The Governmental Accounting Standards Board (GASB) is the accepted standard-setting body for establishing governmental accounting and financial reporting principles. The more significant of the Library's accounting policies are described below.

A. The Reporting Entity

The Library's reporting entity includes all entities for which the Library exercised oversight responsibility as defined by the GASB.

The Library has developed criteria to determine whether outside agencies should be included within its financial reporting entity. The criteria include, but are not limited to, whether the Library (1) selects the governing authority or management, (2) has the ability to significantly influence operations, or (3) has accountability for fiscal matters (e.g., final budget approval, responsibility for funding deficits, management of assets, etc.). Using these criteria, the Library has not included in its financial statements the activities of any other entity. See Note V.E. for exclusion of Foundation.

The Library is a component unit of the Village of Northbrook (Village).

B. Government-wide and Fund Financial Statements

The government-wide financial statements (i.e., the statement of net position and the statement of activities) report information on all of the nonfiduciary activities. The effect of material interfund activity has been eliminated from these statements. Governmental activities, which normally are supported by taxes and intergovernmental revenues, are reported separately from business-type activities, which rely to a significant extent on fees and charges for support. The Library has no business-type activities.

The statement of activities demonstrates the degree to which the direct expenses of a given function or segment are offset by program revenues. Direct expenses are those that are clearly identifiable with a specific function or segment. Program revenues include: (1) charges to customers or applicants who purchase, use, or directly benefit from goods, services, or privileges provided by a given function or segment, and (2) grants and contributions that are restricted to meeting the operational or capital requirements of a particular function or segment. Taxes and other items not properly included among program revenues are reported instead as general revenues.

Separate financial statements are provided for governmental funds. Major individual governmental funds are reported as separate columns in the fund financial statements. The Library reports the following major governmental funds:

The **General Fund** is the general operating fund of the Library. It is used to account for all financial resources except those accounted for in another fund.

Northbrook Public Library
Notes to the Financial Statements (cont'd)

I. Summary of Significant Accounting Policies (cont'd)

B. Government Wide and Fund Financial Statements (cont'd)

The ***IMRF/FICA Fund*** is used to account for the retirement obligations of the Library, funded by a restricted tax levy.

The ***Debt Service Fund*** is used to account for the payment of principal and interest on the Library's debt, funded by a restricted tax levy.

The ***Construction Fund*** is used to account for expenditures related to the Library's renovation and expansion project, funded by bond proceeds.

The ***Capital Improvements Fund*** is used to account for the Library's ongoing capital needs, funded by bond proceeds.

C. Measurement Focus, Basis of Accounting and Basis of Presentation

The government-wide financial statements are reported using the economic resources measurement focus and the accrual basis of accounting. Revenues are recorded when earned, and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows.

Governmental fund financial statements are reported using the current financial resources measurement focus and the modified accrual basis of accounting. Revenues are recognized when susceptible to accrual (when they are "measurable and available"). "Measurable" means the amount of the transaction can be determined and "available" means collectible within the current period or soon enough thereafter to pay liabilities of the current period. The Library considers all revenues available if they are collected within 60 days after year end. Expenditures are generally recorded when the related fund liability is incurred. However, expenditures related to compensated absences and claims and judgments, are recorded only when payment is due.

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

Northbrook Public Library
Notes to the Financial Statements (cont'd)

I. Summary of Significant Accounting Policies (cont'd)

D. Assets/Deferred Outflows, Liabilities/Deferred Inflows and Net Position or Equity

1. Deposits and Investments

Illinois revised statutes authorize the Library to invest in securities guaranteed by the full faith and credit of the United States of America, interest-bearing savings accounts, certificates of deposit or any other investment constituting direct obligations of any bank as defined by the Illinois Banking Act, the State Treasurer's investment pool (authorized by ILCS 30, 235-2,e) and other permitted investments under paragraph 902, chapter 85 of the Statutes as amended by Public Act 86-426. Investments may only be made in banks that are insured by the Federal Deposit Insurance Corporation.

Investments consist of certificates of deposit, the Illinois Funds, and the Illinois Metropolitan Investment Fund (IMET). Certificates of deposit are stated at cost.

Illinois Funds is an investment pool managed by the State of Illinois, Office of the Treasurer, which allows governments within the state to pool their funds for investment purposes. Illinois Funds is not registered with the SEC as an investment company but does operate in a manner consistent with Rule 2a7 of the Investment Company Act of 1940.

IMET is a not-for-profit investment trust created pursuant to the Illinois Municipal Code. IMET is managed by a Board of Trustees elected from the participating members. IMET is not registered with the SEC as an investment company. Investments in IMET are valued at the share price, the price for which the investment could be sold.

Illinois Funds and IMET meet the criteria contained in GASB Statement No. 79, *Certain Investment Pools and Pool Participants*. This allows these investments and those local governments investing in these funds to measure its investment at amortized cost. The criteria contained in GASB Statement No. 79 address (1) how the pool interacts with participants, (2) requirements for portfolio maturity, quality, diversification and liquidity, and (3) calculation and requirements of a shadow price.

2. Receivables, Payables and Interfund Activity

The Library recognizes property taxes receivable during the fiscal year in which the taxes are levied and become a legal claim of the Library; however, property taxes are not recognized as revenue until the subsequent fiscal year when the property taxes are extended by Cook County and remitted to the Library. Accordingly, the property tax levy for the 2020 tax year, including collections thereon, is recognized as deferred inflows of resources in the accompanying statement of net position.

Northbrook Public Library
Notes to the Financial Statements (cont'd)

I. Summary of Significant Accounting Policies (cont'd)

D. Assets/Deferred Outflows, Liabilities/Deferred Inflows and Net Position or Equity (cont'd)

2. Receivables, Payables and Interfund Activity (cont'd)

Property tax receivables are shown net of allowances for doubtful amounts. The property tax receivable allowance is equal to 3.90% of the outstanding property taxes at year end.

All interfund transactions are reported as operating transfers.

3. Capital Assets

Capital assets, which include buildings and improvements, land improvements, furniture, equipment, books, and other library materials, are reported in the government-wide financial statements. The Library defines capital assets as assets with an initial, individual cost of more than \$500, except for books and other library materials, which are capitalized regardless of cost. Such assets are recorded at historical cost or estimated historical cost if actual is unavailable. Donated capital assets are valued at their estimated fair value on the date received.

Depreciation of all exhaustible capital assets is recorded as an allocated expense in the statement of activities, with accumulated depreciation reflected in the statement of net position. Depreciation is provided using the straight-line method over the assets' estimated useful lives as follows:

Buildings and improvements	5 – 40 years
Land improvements	10 – 20 years
Computer equipment	3 – 5 years
Office and other equipment	3 – 20 years
Furniture and shelving	7 – 20 years
Books and other library materials	7 years

In the fund financial statements, capital assets used in governmental fund operations are accounted for as capital outlay expenditures in the governmental fund upon acquisition.

4. Compensated Absences

The Library's policy permits employees to accumulate earned but unused vacation benefits, which are eligible for payment upon separation from Library service. The liability for such leave is reported as incurred in the government-wide financial statements. A liability for those amounts is recorded in the governmental funds only if the liability has matured as a result of employee resignations or retirements.

Accumulated sick leave lapses when employees leave the employment of the Library and, upon separation from service, no monetary obligation exists.

Northbrook Public Library
Notes to the Financial Statements (cont'd)

I. Summary of Significant Accounting Policies (cont'd)

D. Assets/Deferred Outflows, Liabilities/Deferred Inflows and Net Position or Equity (cont'd)

5. Deferred Outflows of Resources and Deferred Inflows of Resources

Deferred outflows of resources are defined as a consumption of net assets by the government that is applicable to a future reporting period; they increase net position, similar to assets. Note IV. provides further detail on the components of deferred outflows of resources.

Deferred inflows of resources are defined as an acquisition of net assets by the government that is applicable to a future reporting period; they decrease net position, similar to liabilities. Note IV. provides further detail on the components of deferred inflows of resources.

6. Fund Equity and Net Position

Equity in the government-wide statements is classified as net position and displayed in three components:

- a. **Net investment in capital assets** – Consists of capital assets including restricted capital assets, net of accumulated depreciation and reduced by the outstanding balances (excluding unspent bond proceeds) of any bonds, mortgages, notes, or other borrowings that are attributable to the acquisition, construction, or improvement of those assets.
- b. **Restricted net position** – Consists of net position with constraints placed on its use either by: (1) external groups such as creditors, grantors, contributors, or laws or regulations of other governments, or (2) law through constitutional provisions or enabling legislation.
- c. **Unrestricted net position** – Remaining net position that does not meet the definitions of “restricted” or “net investment in capital assets.”

When both restricted and unrestricted resources are available for use, it is the Library’s policy to use restricted resources first, then unrestricted resources as they are needed.

In the governmental fund financial statements, governmental funds report fund balance as either nonspendable or spendable. Spendable fund balance is further classified as restricted, committed, assigned or unassigned, based on the relative strength of the constraints that control how specific amounts can be spent.

Northbrook Public Library
Notes to the Financial Statements (cont'd)

I. Summary of Significant Accounting Policies (cont'd)

D. Assets/Deferred Outflows, Liabilities/Deferred Inflows and Net Position or Equity (cont'd)

6. Fund Equity and Net Position (cont'd)

Restrictions of fund balance are reported for amounts constrained by legal restrictions from outside parties for use for a specific purpose or externally imposed by outside entities. The Library has fund balances restricted for specific purposes in the IMRF/FICA Fund due to property tax levies, and in the Construction Fund due to a bond ordinance.

Committed fund balance is constrained by formal actions of the Library's Board of Trustees, which is considered the Library's highest level of decision making authority. Formal action is in the form of an ordinance or resolution approved at a Board meeting. The Library's fund balance in the Capital Improvement Fund is committed for capital projects.

Assigned fund balance represents amounts constrained by the Library's intent to use them for a specific purpose. The authority to assign fund balance is at the Board level. Assignment of fund balance does not require passage of an ordinance. The Library has no assigned fund balance. The Debt Service Fund has a deficit fund balance that is reported as unassigned. The residual fund balance in the General Fund is reported as unassigned.

The Library assumes that funds with the highest level of constraint are expended first. If restricted or unrestricted funds are available for spending, the restricted funds are spent first. Unrestricted funds are considered spent in the following order as available - committed funds, assigned funds, and then unassigned funds.

II. Stewardship, Compliance and Accountability

A. Budgetary Information

The budget is adopted on a basis consistent with generally accepted accounting principles. Annual budgets are adopted for the general, special revenue, debt service, and capital projects funds, except for the Construction Fund. All annual budget amounts lapse at fiscal year end. Project-length financial plans are adopted for all capital projects funds. The Library did not amend its budget during the current fiscal year.

B. Deficit Fund Balance

The Library reports a deficit fund balance in the Debt Service Fund of \$9,258. Funding is expected to come from future tax revenue or a transfer from the General Fund.

Northbrook Public Library
Notes to the Financial Statements (cont'd)

III. Detailed Notes For All Fund Types and Account Groups

A. Deposits and Investments

Deposits – At year end, the carrying amount of the Library's deposits, excluding petty cash of \$795, was \$14,637,452, and the bank balance was \$14,744,260. The entire bank balance was covered by federal depository insurance, collateral with securities held by the pledging financial institution's agent in the Library's name, or a letter of credit.

Investments – The Library invests in the Illinois Funds. The monies invested by individual participants are pooled together and invested in U.S. Treasury bills, and notes backed by the full faith and credit of the U.S. Treasury. In addition, monies are invested in fully collateralized time deposits in Illinois financial institutions, in collateralized repurchase agreements, and in Treasury mutual funds that invest in U.S. Treasury obligations and collateralized repurchase agreements. The funds are readily available to the Library in demand which thereby reduces interest rate risk to a negligible level. The Illinois Funds is a "AAAm" rated fund. The carrying amount of deposits in the Illinois Funds at April 30, 2021, was \$1,171.

The Library had invested in The IMET Convenience Fund. During the prior year, certain repurchase agreements, believed to be guaranteed by the United States Department of Agriculture (USDA), were in default. The loans were allegedly guaranteed by the USDA but since the loan documents were forged, the USDA has decided at this time to not provide a financial guarantee for the loans. IMET estimates that 59.30% of the balance will be realizable. The Library has recognized losses in prior years to reduce the carrying amount of deposits in IMET at April 30, 2021, to \$10,445, which is 8.26% of its original value (\$285,035) less amounts distributed to date (\$158,581).

Northbrook Public Library
Notes to the Financial Statements (cont'd)

III. Detailed Notes For All Fund Types and Account Groups (cont'd)

A. Deposits and Investments (cont'd)

A reconciliation of cash and investments, as shown on the balance sheet for the Library, follows:

Carrying amount of deposits	\$ 14,637,452
Carrying amount of Illinois Funds	1,171
Carrying amount of IMET	10,445
Cash on hand	<u>795</u>
Total	<u>\$ 14,649,863</u>

Interest Rate Risk – This is the risk that changes in the market interest rates will adversely affect the fair value of an investment; generally, the longer the maturity of an investment, the greater the sensitivity of its fair value to changes in market interest rates. The Library's investment policy addresses interest rate risk by requiring the majority of its funds be held in authorized investments of less than one year of maturity, and that no investment shall exceed two years of maturity.

Credit Risk – Generally, credit risk is the risk that an issuer of a debt-type instrument will not fulfill its obligation to the holder of the investment. This is measured by assignment of a rating by a nationally recognized rating organization.

Custodial Credit Risk – For deposits, this is the risk that, in the event of a bank failure, a government will not be able to recover its deposits. For investments, this is the risk that in the event of the failure of the counterparty, a government will not be able to recover the value of its investment or collateral securities that are in the possession of another party. The Library's investment policy requires all investments to be fully secured or collateralized.

Northbrook Public Library
Notes to the Financial Statements (cont'd)

III. Detailed Notes For All Fund Types and Account Groups (cont'd)

B. Capital Assets

Capital asset activity for the year ended April 30, 2021, was as follows:

	Balances May 1	Additions	Retirements	Balances April 30
Capital assets not being depreciated:				
Land	\$ 35,000	\$ -	\$ -	\$ 35,000
Construction in progress	390,844	956,001	337,324	1,009,521
Artwork	3,200	-	-	3,200
	<u>429,044</u>	<u>956,001</u>	<u>337,324</u>	<u>1,047,721</u>
Capital assets being depreciated:				
Building and improvements	23,967,055	1,185,159	-	25,152,214
Land improvements	241,162	-	-	241,162
Computer equipment	551,887	39,080	6,561	584,406
Office and other equipment	610,218	3,080	16,028	597,270
Furniture and shelving	1,305,135	29,055	13,777	1,320,413
Books and other library materials	4,913,416	723,258	506,653	5,130,021
	<u>31,588,873</u>	<u>1,979,632</u>	<u>543,019</u>	<u>33,025,486</u>
Less accumulated depreciation for:				
Building and improvements	11,333,910	657,104	-	11,991,014
Land improvements	25,832	8,518	-	34,350
Computer equipment	488,091	43,794	6,561	525,324
Office and other equipment	374,775	36,698	4,477	406,996
Furniture and shelving	930,093	35,829	13,777	952,145
Books and other library materials	2,786,005	642,987	504,670	2,924,322
	<u>15,938,706</u>	<u>1,424,930</u>	<u>529,485</u>	<u>16,834,151</u>
Total capital assets being depreciated, net	<u>15,650,167</u>	<u>554,702</u>	<u>13,534</u>	<u>16,191,335</u>
Capital assets, net	<u>\$ 16,079,211</u>	<u>\$ 1,510,703</u>	<u>\$ 350,858</u>	<u>\$ 17,239,056</u>

Depreciation expense was charged to Library activities' expense in the statement of activities.

Northbrook Public Library
Notes to the Financial Statements (cont'd)

III. Detailed Notes For All Fund Types and Account Groups (cont'd)

C. Interfund Receivables, Payable and Transfers

Interfund balances consist of amounts due between funds arising from the delay in cash transfers among the funds. Balances at April 30, 2021, consist of the following:

Receivable Fund	Amount	Payable Fund	Amount
IMRF/FICA	\$ 930,640	General	\$ 930,640
Debt Service	344,662	General	344,662
		Capital	
Construction	12,915	Improvements	12,915
Construction	52,936	General	52,936
Capital Improvements	1,090,114	General	1,090,114

The Board approved transfers of \$425,000 from the General Fund to the Capital Improvements Fund to be utilized for future capital projects, and \$16,150 from the General Fund to the Debt Service Fund to fund shortfall of property taxes to debt service payments. Actual transfers were \$1,115,000 from the General Fund to the Capital Improvement Fund and \$16,150 from the General Fund to the Debt Service Fund.

D. Long-term Liabilities

General Obligation Bonds

The Library has issued general obligation bonds to provide funds for the acquisition, construction, and renovation of its facility. In addition, some general obligation bonds have been issued to refund other general obligation bonds.

For the year ended April 30, 2021, long-term liabilities consisted of the following obligation Library bonds and other liabilities:

Northbrook Public Library
Notes to the Financial Statements (cont'd)

III. Detailed Notes For All Fund Types and Account Groups (cont'd)

D. Long-term Liabilities (cont'd)

	Balances May 1	Additions	Retirements	Balances April 30
\$3,825,000 19-year serial refunding bonds dated November 6, 2019, with interest rates ranging from 3.00% to 5.00%	\$ 3,825,000	\$ -	\$ 90,000	\$ 3,735,000
\$6,505,000 24-year serial bonds dated August 7, 2013, with interest rates ranging from 3.00% to 4.50%.	6,130,000	-	195,000	5,935,000
\$201,371 9-year serial refunding bonds dated December 1, 2012, with interest rates ranging from .40% to 2.00% (part of Village bond issue).	72,522	-	35,945	36,577
\$3,476,500 9-year serial refunding bonds dated December 1, 2012, with interest rates of 2.00% (part of Village bond issue).	68,500	-	34,000	34,500
	10,096,022	-	354,945	9,741,077
Deferred bond premium	356,057	-	22,130	333,927
Total debt	10,452,079	-	377,075	10,075,004
Net pension liability (asset)	1,396,801	-	1,530,343	(133,542)
Net OPEB liability	459,183	-	188,225	270,958
	<u>\$ 12,308,063</u>	<u>\$ -</u>	<u>\$ 2,095,643</u>	<u>\$ 10,212,420</u>

Issue	Amount Due Within One Year		
	Principal	Interest	Total
\$3,825,000	\$ 100,000	\$ 128,750	\$ 228,750
\$6,505,000	205,000	252,000	457,000
\$201,371	36,577	732	37,309
\$3,476,500	34,500	690	35,190
	<u>\$ 376,077</u>	<u>\$ 382,172</u>	<u>\$ 758,249</u>

Northbrook Public Library
Notes to the Financial Statements (cont'd)

III. Detailed Notes For All Fund Types and Account Groups (cont'd)

D. Long-term Liabilities (cont'd)

The annual debt service requirements to maturity are as follows:

Fiscal Year Ending April 30,	Principal	Interest	Total
2022	\$ 376,077	\$ 382,172	\$ 758,249
2023	390,000	367,550	757,550
2024	410,000	350,900	760,900
2025	425,000	333,350	758,350
2026	445,000	315,150	760,150
2027- 2031	2,510,000	1,282,200	3,792,200
2032 – 2036	3,050,000	742,950	3,792,950
2037-2039	2,135,000	137,175	2,272,175
	<u>\$ 9,741,077</u>	<u>\$ 3,911,447</u>	<u>\$ 13,652,524</u>

IV. Deferred Outflows of Resources and Deferred Inflows of Resources

The following table provides additional detail regarding deferred outflows of resources and deferred inflows of resources on the government-wide statement of net position:

Deferred outflows of resources:

Pension related:

Change in assumptions	\$ 133,359
Net difference between projected and actual experience	351,282
Contributions subsequent to the measurement date	191,798

OPEB related:

Change in assumptions	<u>28,471</u>
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Total deferred outflows of resources

\$ 704,910

Deferred inflows of resources:

Property taxes	\$ 8,708,768
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Pension related:

Change in assumptions	179,050
Net difference between projected and actual earnings on pension plan investments	1,333,134

OPEB related:

Net difference between projected and actual experience	214,267
Change in assumptions	<u>7,433</u>

Total deferred inflows of resources

\$ 10,442,652

Northbrook Public Library
Notes to the Financial Statements (cont'd)

IV. Deferred Outflows of Resources and Deferred Inflows of Resources (cont'd)

The change in assumptions related primarily to the change in the interest rate assumption.

V. Other Information

A. Risk Management

The Library is exposed to various risks of loss related to torts; theft of, damage to and destruction of assets; errors and omissions; and natural disasters for which the Library carries commercial insurance.

The Library is a member of the Library Insurance Management and Risk Control Combination (LIMRCC), an intergovernmental agreement providing for unemployment insurance. LIMRCC purchases commercial insurance coverage to cover possible liabilities related to these risks. These commercial policies involve immaterial deductibles, and provide sufficient coverage to reduce the risk of any material loss. Settlements have not exceeded insurance coverage in each of the past three years.

The Library purchases commercial insurance for errors and omissions coverage.

Medical and death benefits for employees and retirees are provided for through the Library's participation in the Intergovernmental Personnel Benefit Cooperative (IPBC). IPBC acts as an administrative agency to receive, process, and pay such claims as may come within the benefit program of each member. IPBC maintains specific reinsurance coverage for claims in excess of \$50,000 per individual employee participant. The Library pays premiums to IPBC based upon current employee participation and its prior experience factor with the pool. Current year overages or underages for participation in the pool are adjusted into subsequent years' experience factor for premiums.

B. Operating Lease Commitments

The Library is committed under various leases for equipment. These leases are considered for accounting purposes to be operating leases. Lease expenditures for the year ended April 30, 2021, amounted to \$23,329. Future minimum lease payments for equipment leases are as follows:

Year Ending April 30,		
2022	\$	16,004
2023		12,688
2024		7,650
	\$	<u>36,342</u>

Northbrook Public Library
Notes to the Financial Statements (cont'd)

V. Other Information (cont'd)

C. Deferred Compensation Plan

The Village of Northbrook offers the Library employees a deferred compensation plan created in accordance with Internal Revenue Code Section 457. The plan, available to all Village and Library employees, permits them to defer a portion of their salary until future years. Participation in the plan is optional. The deferred compensation plan is not available to employees until termination, retirement, death, or unforeseeable emergency. The plan assets are held in a trust. As such, plan assets are not subject to the claims of general creditors of the Library or Village.

D. Jointly Governed Organization

The Library participates in Cooperative Computer Services (CCS). CCS is an intergovernmental agency instrumentality formed by library members of the former North Suburban Library System and exists to administer a jointly owned integrated library automation system. CCS's governing board is comprised of one member from each participating library. No participant has any obligation, entitlement, or residual interest in CCS. In order to terminate membership in CCS, member libraries must provide one-year notice of termination. The Library's expenditures to CCS for the year ended April 30, 2021, were \$103,028.

E. Foundation

During the year ended April 30, 2006, the Library created the Northbrook Public Library Foundation (Foundation), which is a federally tax exempt 501(c)(3) organization. During the year ended April 30, 2021, the Foundation received \$10,501 in donations and interest, and expended \$522 toward administrative costs. The Foundation had assets totaling \$65,461 as of April 30, 2021. The Foundation has not been included in the financial statements as it does not meet the requirements of a component unit.

F. Defined Benefit Pension Plan

General Information About the Pension Plan

Plan Description – The Library's defined benefit pension plan, the Illinois Municipal Retirement Fund (IMRF), provides pensions for all full-time employees of the Library. IMRF is an agent multiple-employer public employee retirement system that acts as a common investment and administrative agent for local governments and school districts in Illinois. The types of benefits, benefit levels, employee contributions, and employer contributions are governed by Illinois Compiled Statutes and can only be amended by the Illinois General Assembly. IMRF issues a publicly available financial report that includes financial statements and required supplementary information (RSI). That report may be obtained on-line at www.imrf.org. The Library participates in IMRF through the Village of Northbrook.

Northbrook Public Library
Notes to the Financial Statements (cont'd)

V. Other Information (cont'd)

F. Defined Benefit Pension Plan (cont'd)

General Information About the Pension Plan (cont'd)

Benefits Provided – IMRF provides retirement and disability benefits, post-retirement increases, and death benefits to plan members and beneficiaries. All employees hired in positions that meet or exceed the prescribed annual hourly standard must be enrolled in IMRF as participating members. Participating members hired before January 1, 2011, who retire at or after age 60 with 8 years of service, are entitled to an annual retirement benefit, payable monthly for life, in an amount equal to 1-2/3 percent of their final rate (average of the highest 48 consecutive months' earnings during the last 10 years) of earnings, for each year of credited service up to 15 years, and 2 percent of each year thereafter. Employees with at least 8 years of service may retire at or after age 55 and receive a reduced benefit. For participating members hired on or after January 1, 2011, who retire at or after age 67 with 10 years of service, are entitled to an annual retirement benefit, payable monthly for life in an amount equal to 1-2/3 percent of their final rate (average of the highest 96 consecutive months' earnings during the last 10 years) of earnings, for each year of credited service, with a maximum salary cap of \$116,740 and \$115,929 at January 1, 2021 and 2020, respectively. The maximum salary cap increases each year thereafter. The monthly pension of a member hired on or after January 1, 2011, shall be increased annually, following the later of the first anniversary date of retirement or the month following the attainment of age 62, by the lesser of 3% or ½ of the consumer price index. Employees with at least 10 years of credited service may retire at or after age 62 and receive a reduced benefit. IMRF also provides death and disability benefits.

Contributions – Employees participating in the plan are required to contribute 4.50 percent of their annual covered salary to IMRF. The employees' contribution rate is established by state statute. The Library is required to contribute the remaining amount necessary to fund the IMRF plan as specified by statute. The employer contribution and annual required contribution rate for calendar years 2020 and 2021, were 11.71 and 11.39 percent, respectively. The Library's contribution to the Plan totaled \$397,230 in the fiscal year ended April 30, 2021, which was equal to its annual required contribution.

Northbrook Public Library
Notes to the Financial Statements (cont'd)

V. Other Information (cont'd)

F. Defined Benefit Pension Plan (cont'd)

Net Pension Liability

The Library is a component unit of the Village of Northbrook. Village management has allocated approximately 14.61% of the Village's pension responsibility to the Library based on annual employer contribution to the plan (19.40% in prior year). The Village of Northbrook's net pension liability was measured as of December 31, 2020, and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation as of that date.

Actuarial Valuation and Assumptions – The actuarial assumptions used in the December 31, 2020, valuation were based on an actuarial experience study for the period January 1, 2017 – December 31, 2019, using the entry age normal actuarial cost method. The total pension liability in the December 31, 2020, actuarial valuation was determined using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.25%
Salary increases	2.85% to 13.75%
Investment rate of return	7.25%
Post-retirement benefit increase:	
Tier 1	3.0%-simple
Tier 2	lesser of 3.0%-simple or ½ increase in CPI

The actuarial value of IMRF assets was determined using techniques that spread the effects of short-term volatility in the market value of investments over a five-year period with a 20% corridor between the actuarial and market value of assets. IMRF's unfunded actuarial accrued liability is being amortized as a level percentage of projected payroll on a closed basis. The remaining amortization period at April 30, 2021, was 23 years.

Mortality Rates – For non-disabled lives, the Pub-2010, Amount-Weighted, below-median income, General, Retiree, Male (adjusted 106%) and Female (Adjusted 105%) tables, and future mortality improvement projected using scale MP-2020. For disabled retirees, the Pub-2010, Amount-Weighted, below-median income, General, Retiree, Male and Female (both unadjusted) tables, and future mortality improvements projected using scale MP-2020. For active members, the Pub-2010, Amount-Weighted, below-median income, General, Employee, Male and Female (both unadjusted) tables, and future mortality improvements projected using scale MP-2020.

Northbrook Public Library
Notes to the Financial Statements (cont'd)

V. Other Information (cont'd)

F. Defined Benefit Pension Plan (cont'd)

Net Pension Liability (cont'd)

Long-term Expected Rate of Return – The long-term expected rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio, using best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) developed for each major asset class. The target allocation and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

<u>Asset Class</u>	<u>Target Allocation</u>	<u>Long-term Expected Real Rate of Return</u>
Equities	37%	5.00%
International equities	18%	6.00%
Fixed income	28%	1.30%
Real estate	9%	6.20%
Alternatives:	7%	
Private equity		6.95%
Commodities		2.85%
Cash equivalents	1%	0.70%

Discount Rate – The discount rate used to measure the total pension liability was 7.25%. The projection of cash flows used to determine the discount rate assumed that employee contributions will be made at the current contribution rate and that Township contributions will be made at rates equal to the difference between actuarially determined contribution rates and the employee rate. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current active and inactive employees for the next 99 years. Therefore, the long-term expected rate of return on pension plan investments (7.25%) was applied to the next 99 periods of projected benefit payments, and then the municipal bond rate of 2.00% (based on an index of 20-year general obligation bonds with an average AA credit rating with is published by the Federal Reserve as of December 31, 2020) was utilized, resulting in a single discount rate of 7.25% being used to determine the total pension liability.

Northbrook Public Library
Notes to the Financial Statements (cont'd)

V. Other Information (cont'd)

F. Defined Benefit Pension Plan (cont'd)

Net Pension Liability (cont'd)

Changes in Net Pension Liability – Village of Northbrook

The change in the net pension liability for the Village of Northbrook is shown below.
The Library's percentage of the liability is 14.61%.

	Total Pension Liability	Plan Fiduciary Net Position	Net Pension (Asset) Liability
Balances 12/31/19	\$ 113,478,206	\$ 106,276,827	\$ 7,201,379
Changes for the year:			
Service cost	1,737,783	-	1,737,783
Interest	8,076,403	-	8,076,403
Differences between expected and actual			
Experience	1,622,218	-	1,622,218
Changes in assumptions	(989,685)	-	(989,685)
Contributions - employer	-	2,109,996	(2,109,996)
Contributions - employee	-	810,844	(810,844)
Net investment income	-	15,087,840	(15,087,840)
Benefit payments, including refunds of employee contributions	(5,896,883)	(5,896,883)	-
Other changes	-	553,734	(553,734)
Balances 12/31/20	<u>\$ 118,028,042</u>	<u>\$ 118,942,358</u>	<u>\$ (914,316)</u>

Discount Rate Sensitivity – The following presents the net pension liability of the Village as a whole, calculated using the discount rate of 7.25%, as well as what the net pension liability would be if it were calculated using a discount rate that is one percentage point higher or lower than the current rate. **The Library's portion is approximately 14.61%:**

	1% Decrease (6.25%)	Current Discount Rate (7.25%)	1% Increase (8.25%)
Village of Northbrook net pension liability	<u>\$ 12,907,639</u>	<u>\$ (914,316)</u>	<u>\$ (11,958,619)</u>

Northbrook Public Library
Notes to the Financial Statements (cont'd)

V. Other Information (cont'd)

F. Defined Benefit Pension Plan (cont'd)

Net Pension Liability (cont'd)

Pension Plan Fiduciary Net Position – Detailed information about the pension plan's fiduciary net position is available in the separately issued IMRF financial report.

Net Pension Liability, Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions – Library

At April 30, 2021, the Library's portion of the Village of Northbrook's net pension asset is \$167,498. For the year ended April 30, 2021, the Library recognized pension income of \$319,083 in the government-wide financial statements. At April 30, 2021, the Library reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
Differences between expected and actual experience	\$ 351,282	\$ -	\$ 351,282
Changes in assumptions	133,359	179,050	(45,691)
Net difference between projected and actual earnings on pension plan investments	-	1,333,134	(1,333,134)
	484,641	1,512,184	(1,027,543)
Contributions made subsequent to the measurement date	191,798	-	191,798
Total	\$ 676,439	\$ 1,512,184	\$ (835,745)

Library contributions of \$191,798 will be recognized as a reduction of the net pension liability in the year ending April 30, 2022. Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year Ending April 30,

2022	\$ (264,198)
2023	(54,844)
2024	(497,495)
2025	(211,006)
Total	\$ (1,027,543)

Northbrook Public Library
Notes to the Financial Statements (cont'd)

V. Other Information (cont'd)

G. Other Post-Employment Benefits

Plan Descriptions, Provisions and Funding Policies

The Library provides post-employment health care and life insurance benefits (OPEB) for its eligible retired employees through a single employer defined benefit plan. The benefits, benefit levels, employee contributions and employer contributions are governed by the Library and can be amended by the Library through its personnel manual. The plan is not accounted for as a trust fund as an irrevocable trust has not been established to account for the plan. The plan does not issue a separate report. The activity of the plan is reported in the Library's General Fund. To be eligible for benefits, an employee must qualify for retirement through the Illinois Municipal Retirement Fund.

All health care benefits are provided through the Library's health plan. The benefit levels are the same as those afforded to active employees. Benefits include general inpatient and outpatient medical services; mental, nervous and substance abuse care, vision care dental care; and prescriptions. Upon a retiree reaching 65 years of age, Medicare becomes the primary insurer and the Library's plan becomes secondary. All retirees contribute 100% of the actuarially determined premium to the plan. At April 30, 2021, membership consisted of:

Retirees and beneficiaries currently receiving benefits and terminated employees entitled to benefits, but not yet receiving them	2
Active plan members	<u>46</u>
Total	<u>48</u>

Funding Policy – Retirees and dependents may continue coverage under the Library's group health program by contributing a monthly premium. They may participate in any plans offered to active employees. Retirees and dependents are required to pay 100% of the blended average employee cost. Premiums are the same for active and retired employees. The Library pays the difference between the actuarial cost of the health coverage for retirees and the employee group cost. There is no formal funding policy that exists for the OPEB plan as the total OPEB liabilities are currently an unfunded obligation.

Northbrook Public Library
Notes to the Financial Statements (cont'd)

V. Other Information (cont'd)

G. Other Post-Employment Benefits (cont'd)

Net OPEB Liability – The Library's net OPEB liability was initially measured as of April 30, 2021, and the total OPEB liability used to calculate the net OPEB liability was determined by an actuarial valuation as of May 1, 2020.

Total OPEB liability	\$ 270,958
Plan fiduciary net position	<u>-</u>
Net OPEB liability	<u>\$ 270,958</u>

Retiree Lapse Rates – The assumed lapse rate is 0%.

Election at Retirement – 20% of active employees are assumed to elect coverage at retirement.

Marital Status – 25% of active employees are assumed to be married and elect spousal coverage upon retirement.

Actuarial Valuation and Assumptions – The total OPEB liability was determined by an actuarial valuation using the Alternative Measurement Method as detailed in GASB Statement 75, as of May 1, 2020. The following actuarial assumptions were applied to all periods included in the measurement, unless otherwise specified:

Actuarial Cost Method	Entry Age Normal
Salary increases	4.00%
Discount rate	1.83%
Inflation rate	3.00%
Investment rate of return	4.10%

The health care trend rate is 5.50 percent for the HMO Plan and 6.00 percent for the PPO Plan for fiscal years 2019-2020, then decreasing over time to an ultimate rate of 4.50 percent for both plans by fiscal year 2036. The mortality rates were based on the PubG.H-2010 Mortality Table – General with mortality improvement using scale MP-2020.

Discount Rate – The discount rate used to measure the total OPEB liability is based on the ability of the fund to meet benefit obligations in the future. Because the Village does not have a dedicated trust to pay retiree healthcare benefits, the discount rate used should be a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher. A discount rate of 1.83% is used, which is the S&P Municipal Bond 20 Year High-Grade Rate Index as of April 30, 2021.

Northbrook Public Library
Notes to the Financial Statements (cont'd)

V. Other Information (cont'd)

G. Other Post-Employment Benefits (cont'd)

Changes in Net OPEB Liability

	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB (Asset) Liability
Balance 4/30/20	\$ 459,183	\$ -	\$ 459,183
Changes for the year:			
Service cost	16,766	-	16,766
Interest	13,643	-	13,643
Differences between expected and actual experience	(235,444)	-	(1235,444)
Changes in assumptions	15,638	-	15,638
Contributions - employer	-	-	-
Net investment income	-	-	-
Benefit payments, including refunds of employee contributions	(36,729)	-	(36,729)
Other changes	37,901	-	37,901
Net changes	(188,225)	-	(188,225)
Balances at 4/30/21	\$ 270,958	\$ -	\$ 270,958

Sensitivity of the Net OPEB Liability to Changes in the Discount Rate – The following presents the net OPEB liability of the Library as of the date of the latest actuarial valuation, calculated using the discount rate of 1.83%, as well as what the Library's net OPEB liability would be if it were calculated using a discount rate that is one percentage point higher or lower than the current rate:

	1% Decrease (0.83%)	Current Discount Rate (1.83%)	1% Increase (2.83%)
Net OPEB Liability	\$ 254,133	\$ 270,958	\$ 288,796

Northbrook Public Library
Notes to the Financial Statements (cont'd)

V. Other Information (cont'd)

G. Other Post-Employment Benefits (cont'd)

Changes in Net OPEB Liability

Sensitivity of the Net OPEB Liability to Changes in the Healthcare Trend Rates –

The following presents the net OPEB liability of the Library as of the date of the latest actuarial valuation, as well as what the Library's net OPEB liability would be if it were calculated using healthcare cost trend rates that are one percentage point higher or lower than the current rate:

	1% Decrease (Varies)	Current Discount Rate (Varies)	1% Increase (Varies)
Net OPEB Liability	\$ 299,116	\$ 270,958	\$ 246,363

OPEB Expense and Deferred Outflows of Resources and Inflows of Resources Related to OPEB –

For the year ended April 30, 2021, the Library recognized OPEB expense of \$11,471. At April 30, 2021, the Library reported deferred outflows and inflows of resources related to OPEB from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows (Inflows) of Resources
Differences between expected and actual experience	\$ -	\$ 214,267	\$ (214,267)
Assumption changes	28,471	7,433	21,038
Net difference between projected and actual earnings on pension plan investments	-	-	-
Total	\$ 28,471	\$ 221,700	\$ (193,229)

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year Ending December 31,

2021	\$ (19,112)
2022	(19,112)
2023	(19,112)
2024	(19,112)
2025	(19,112)
Thereafter	(97,669)
Total	\$ (193,229)

REQUIRED SUPPLEMENTARY INFORMATION

**Northbrook Public Library
Village of Northbrook (see Note below)
Illinois Municipal Retirement Fund
Multiyear Schedule of Changes in Net Pension Liability and Related Ratios
Calendar Year Ended December 31,**

	<u>2020</u>	<u>2019</u>
Total pension liability:		
Service cost	\$ 318,353	\$ 328,425
Interest on the total pension liability	1,402,007	1,593,150
Benefit changes	-	-
Difference between expected and actual changes	297,182	204,009
Assumption changes	(181,305)	-
Benefit payments and refunds	<u>(1,080,278)</u>	<u>(1,048,711)</u>
Net change in total pension liability	755,959	1,076,873
Total pension liability - beginning	<u>20,480,354</u>	<u>19,403,481</u>
Total pension liability - ending	<u>\$ 21,236,313</u>	<u>\$ 20,480,354</u>
Plan fiduciary net position:		
Employer contributions	\$ 386,540	\$ 323,235
Employee contributions	148,542	151,375
Pension plan net investment income	2,764,013	3,339,697
Benefit payments and refunds	(1,080,278)	(1,048,711)
Other	<u>101,441</u>	<u>117,860</u>
Net change in plan fiduciary net position	2,320,258	2,883,456
Plan fiduciary net position - beginning	<u>19,083,553</u>	<u>16,200,097</u>
Plan fiduciary net position - ending	<u>\$ 21,403,811</u>	<u>\$ 19,083,553</u>
Net pension liability	<u>\$ (167,498)</u>	<u>\$ 1,396,801</u>
Plan fiduciary net position as a percentage of total pension liability	<u>100.79%</u>	<u>93.18%</u>
Covered valuation payroll	<u>\$ 3,173,489</u>	<u>\$ 3,360,028</u>
Net pension liability as a percentage of covered valuation payroll	<u>-5.28%</u>	<u>41.57%</u>

Note - The Northbrook Public Library participates in IMRF through the Village of Northbrook. It is not possible to present this schedule for the Library alone; however, the Library represents approximately 14.6% of the Village and as such the above schedule represents 18.3% of the Village's schedule. GASB 68 was adopted in fiscal year ended April 30 2016; this schedule will build a ten-year history prospectively.

See independent auditor's report.

2018	2017	2016	2015
\$ 295,235	\$ 305,975	\$ 308,221	\$ 305,485
1,406,958	1,295,578	1,401,693	1,192,367
-	-	-	-
329,023	71,088	(153,599)	(6,357)
559,318	(599,476)	(65,348)	40,891
(1,002,857)	(866,472)	(825,139)	(716,600)
1,587,677	206,693	665,828	815,786
17,815,804	17,609,111	16,943,283	16,127,497
<u>\$ 19,403,481</u>	<u>\$ 17,815,804</u>	<u>\$ 17,609,111</u>	<u>\$ 16,943,283</u>
\$ 371,707	\$ 359,385	\$ 366,360	\$ 350,861
142,976	134,781	135,300	128,054
(988,647)	2,738,317	1,040,580	72,797
(1,002,857)	(866,472)	(825,139)	(716,600)
406,200	(317,152)	7,890	27,116
(1,070,621)	2,048,859	724,991	(137,772)
17,270,718	15,221,859	14,496,868	14,634,640
<u>\$ 16,200,097</u>	<u>\$ 17,270,718</u>	<u>\$ 15,221,859</u>	<u>\$ 14,496,868</u>
<u>\$ 3,203,384</u>	<u>\$ 545,086</u>	<u>\$ 2,387,252</u>	<u>\$ 2,446,415</u>
83.49%	96.94%	86.44%	85.56%
<u>\$ 3,177,666</u>	<u>\$ 2,938,462</u>	<u>\$ 2,945,889</u>	<u>\$ 2,827,246</u>
100.81%	18.55%	81.04%	86.53%

**Northbrook Public Library
Illinois Municipal Retirement Fund
Required Supplementary Information -
Multiyear Schedule of Contributions
April 30, 2021**

Fiscal Year Ended April 30,	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Valuation Payroll	Actual Contribution as a Percentage of Covered Valuation Payroll
2021	\$ 397,230	\$ 397,230	\$ -	\$ 2,713,385	14.64 %
2020	349,333	349,333	-	3,394,368	10.29 %
2019	351,547	351,547	-	2,941,945	11.95 %
2018	357,325	357,325	-	2,990,876	11.95 %
2017	362,742	362,742	-	2,950,690	12.29 %
2016	350,861	350,861	-	2,827,246	12.41 %

Notes to Required Supplementary Information:

Actuarial Cost Method	Aggregate Entry Age Normal
Amortization Method	Level Percentage of Payroll (Closed)
Remaining Amortization Period	23 Years
Asset Valuation Method	5-Year Smoothed Market; 20% Corridor
Wage Growth	3.25%
Inflation	2.50%
Salary Increases	3.35% to 14.25% Including Inflation
Investment Rate of Return	7.25%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2017 valuation pursuant to an experience study of the period 2014-2016.
Mortality	For non-disabled retirees, an IMRF specific mortality table was used with fully generational projection scale MP-2017 (base year 2015). The IMRF specific rates were developed from the RP-2017 Blue Collar Health Annuitant Mortality Table with adjustments to match current IMRF experience. For disabled retirees, an IMRF specific mortality table was used with fully generational projection scale MP-2017 (base year 2015). The IMRF specific rates were developed from the RP-2015 Disabled Retirees Mortality Table applying the same adjustment that were applied for non-disabled lives. For active members, an IMRF specific mortality table was used with fully generational projection scale MP-2017 (base year 2015). The IMRF specific rates were developed from the RP-2017 Employee Mortality Table with adjustments to match current IMRF experience.

Note: The Library adopted GASB 68 in the fiscal year ended April 30, 2016, and will build a ten-year history prospectively.

See independent auditor's report.

Northbrook Public Library
Other Postemployment Retiree Healthcare Plan
Multiyear Schedule of Changes in Net OPEB Liability and Related Ratios
Fiscal Year Ended April 30,

	<u>2021</u>	<u>2020</u>
Total OPEB liability:		
Service cost	\$ 16,766	\$ 10,913
Interest on the total pension liability	13,643	18,137
Benefit changes	-	-
Difference between expected and actual changes	(235,444)	-
Assumption changes	15,638	-
Benefit payments and refunds	(36,728)	(66,950)
Other changes	37,900	-
	<u>(188,225)</u>	<u>(37,900)</u>
Net change in total OPEB liability	(188,225)	(37,900)
Total OPEB liability - beginning	459,183	497,083
Total OPEB liability - ending	\$ 270,958	\$ 459,183
Plan fiduciary net position:		
Employer contributions	\$ 36,728	\$ 66,950
Employee contributions	-	-
OPEB plan net investment income	-	-
Benefit payments and refunds	(36,728)	(66,950)
Other	-	-
	<u>-</u>	<u>-</u>
Net change in plan fiduciary net position	-	-
Plan fiduciary net position - beginning	-	-
Plan fiduciary net position - ending	\$ -	\$ -
Net OPEB liability	\$ 270,958	\$ 459,183
Plan fiduciary net position as a percentage of total OPEB liability	<u>0.00%</u>	<u>0.00%</u>
Covered valuation payroll	<u>\$ 2,662,043</u>	<u>\$ 3,360,028</u>
Net OPEB liability as a percentage of covered valuation payroll	<u>10.18%</u>	<u>13.67%</u>

Note: The Library adopted GASB 75 in the fiscal year ended April 30, 2019, and will build a ten-year history prospectively.

See independent auditor's report.

<u>2019</u>	
\$	10,913
	18,137
	-
	-
	9,271
	(81,844)
	30
	<u>(43,493)</u>
	540,576
\$	<u>497,083</u>
\$	81,844
	-
	-
	(81,844)
	<u>-</u>
	-
	-
\$	<u>-</u>
\$	<u>497,083</u>
	<u>0.00%</u>
\$	<u>2,578,041</u>
	<u>19.28%</u>

SUPPLEMENTARY INFORMATION

Northbrook Public Library
General Fund
Schedule of Expenditures - Budget and Actual
For the Year Ended April 30, 2021

	Original Budget	Final Budget	Actual	Variance Positive (Negative)
Salaries and employee benefits:				
General salaries and wages	\$ 3,928,756	\$ 3,928,756	\$ 3,617,765	\$ 310,991
Maintenance salaries and wages	179,744	179,744	177,485	2,259
Group insurance	630,000	630,000	648,701	(18,701)
Unemployment/workers' compensation	27,000	27,000	25,075	1,925
Staff development	98,000	98,000	28,819	69,181
Total salaries and employee benefits	4,863,500	4,863,500	4,497,845	365,655
Library materials and services:				
Books and materials	783,046	783,046	796,769	(13,723)
Audio visual materials	71,026	71,026	55,381	15,645
Video/DVDs	68,928	68,928	41,644	27,284
Programs	119,000	119,000	75,024	43,976
OCLC	21,000	21,000	23,735	(2,735)
CCS shared costs	82,000	82,000	79,293	2,707
Total library materials and services	1,145,000	1,145,000	1,071,846	73,154
Operational costs:				
Photocopy	35,000	35,000	23,328	11,672
Office and library supplies	70,000	70,000	70,197	(197)
Computer software and supplies	95,000	95,000	99,903	(4,903)
Postage	20,000	20,000	16,801	3,199
General insurance	59,000	59,000	58,129	871
Telephone	36,000	36,000	48,058	(12,058)
Professional services	265,000	265,000	243,612	21,388
Furniture and equipment	100,000	100,000	30,048	69,952
Equipment rental and maintenance	20,000	20,000	4,436	15,564
Community relations	48,000	48,000	34,605	13,395
Total operational costs	748,000	748,000	629,117	118,883

(cont'd)

Northbrook Public Library
General Fund
Schedule of Expenditures - Budget and Actual (cont'd)
For the Year Ended April 30, 2021

	Original Budget	Final Budget	Actual	Variance Positive (Negative)
Maintenance:				
Vehicle expense	\$ 3,000	\$ 3,000	\$ 483	\$ 2,517
Janitorial supplies	45,000	45,000	42,115	2,885
Utilities	53,000	53,000	47,123	5,877
Building repairs	30,000	30,000	18,710	11,290
Contracted services	135,000	135,000	133,639	1,361
Total maintenance	266,000	266,000	242,070	23,930
Other:				
Recruiting	500	500	-	500
Contingency	100,000	100,000	3,341	96,659
Board development	3,500	3,500	216	3,284
Total other	104,000	104,000	3,557	100,443
Gifts and designated	100,000	100,000	74,930	25,070
Total expenditures	\$ 7,226,500	\$ 7,226,500	\$ 6,519,365	\$ 707,135

See independent auditor's report.

Northbrook Public Library
Schedule of Revenues, Expenditures and Changes in
Fund Deficit - Budget and Actual - Debt Service Fund
For the Year Ended April 30, 2021

	Original Budget	Final Budget	Actual	Variance Positive (Negative)
Revenues:				
Property taxes	\$ 527,476	\$ 527,476	\$ 743,814	\$ 216,338
Interest income	500	500	15	(485)
Gain on investment	-	-	113	113
Total revenues	<u>527,976</u>	<u>527,976</u>	<u>743,942</u>	<u>215,966</u>
Expenditures - debt service:				
Principal	262,531	262,531	354,945	(92,414)
Interest	264,945	264,945	405,034	(140,089)
Total expenditures	<u>527,476</u>	<u>527,476</u>	<u>759,979</u>	<u>(232,503)</u>
Revenues over (under) expenditures before other financing sources	500	500	(16,037)	(16,537)
Other financing sources - transfers in	-	-	16,150	16,150
Net changes in fund deficit	<u>\$ 500</u>	<u>\$ 500</u>	<u>113</u>	<u>\$ (387)</u>
Fund deficit, beginning of the year			<u>(9,371)</u>	
Fund deficit, end of the year			<u>\$ (9,258)</u>	

See independent auditor's report.

Northbrook Public Library
Schedule of Revenues, Expenditures and Changes in
Fund Balance - Budget and Actual - Capital Improvements Fund
For the Year Ended April 30, 2021

	Original Budget	Final Budget	Actual	Variance Positive (Negative)
Revenues:				
Interest income	\$ 25,000	\$ 25,000	\$ 11,009	\$ (13,991)
Miscellaneous	-	-	7,189	7,189
Total revenues	25,000	25,000	18,198	(6,802)
Expenditures:				
Capital outlay:				
Renovations and repairs	2,837,178	2,837,178	1,482,325	1,354,853
Professional fees	250,000	250,000	100,020	149,980
Furniture and equipment	250,000	250,000	284,080	(34,080)
Total expenditures	3,337,178	3,337,178	1,866,425	1,470,753
Revenues under expenditures before other financing sources	(3,312,178)	(3,312,178)	(1,848,227)	1,463,951
Other financing sources:				
Bond issuance	-	-	-	-
Bond premium	-	-	-	-
Transfers in	425,000	425,000	1,115,000	690,000
Total other financing sources	425,000	425,000	1,115,000	690,000
Net changes in fund balance	\$ (2,887,178)	\$ (2,887,178)	(733,227)	\$ 2,153,951
Fund balance, beginning of the year			6,177,274	
Fund balance, end of the year			\$ 5,444,047	

See independent auditor's report.

DIRECTOR'S REPORT SEPTEMBER 2021

AGENDA ITEMS

3 Consent Agenda – Board President

3.5 Approve 2022 Closing Schedule

There are no changes to the days from previous years.

3.6 Approve Updated Library cards policy

This policy is updated to include language for the veterans disability and Cards for Kids program passed by the state legislature. A red-lined copy is included in the packet.

3.7 Approve Updated Community Displays and Exhibits policy

Reference would like to create a local job boards to help local businesses and residents. This policy is changed to allow that. A red-lined copy is included in the packet.

These items are in the consent agenda, but can be pulled out if any board member has a question on the action.

4 Annual Audit presentation from Ed Tracy, Seldon Fox

The audit is in the packet. Ed Tracy will be at the meeting to present the audit to the board and answer questions.

8 Unfinished Business

8.1 Climate Action Plan adoption

The full climate action plan is included in the packet along with a memo on what steps we will be taking to operationalize the plan in the library.

8.2 Fiction & Media Construction Project Update

A memo and supporting document is included in the packet explaining where we are at with this project and requesting some changes.

8.3 Illinois Libraries Present Intergovernmental Agreement

The IGA is in the packet, and I am asking for the board to approve it. I am happy to report that we have received funding through an Illinois State Library Grant and will not need to borrow money or ask for any special consideration in order to launch the project.

9 New Business

9.1 FY23 Levy Initial Draft

A draft levy with several possibilities is included in the packet for the board to review and discuss.

9.2 New board member appointment

We will go into closed session to discuss the appointment of a new board member to fill the seat left open by Kayhan's move.

BOARD NEWS

UPDATES

In Person Programming

In person programming began September 1. We have a limited number of in person programs. One of the programs we are doing is our silent film series. We had the first one on September 1 and had 24 people attend the afternoon and evening performances. The September 15 silent film had 24 as well, with the majority coming to the afternoon showing. We also did a hybrid program of our Classical Music Lecture series and had 10 online and 3 in person. We are continuing to investigate other hybrid options and solicit patron feedback as we plan future programs.

Library Card Sign Up Month

September is library card sign-up month and we are doing a big push to get people to sign up for cards and renew existing cards. We usually do a Food for Fines collection at this time, but as we no longer charge overdue fines, we switched to just doing a food drive for the Northfield Township Food Pantry. People have been very generous in their donations and we have been regularly shuttling over boxes of food to the pantry.

EDI Committee

The Committee has also been working on putting together a series of panel discussions and the first one is September 21 and is Let's Talk: Asian American Experiences.

The EDI Committee has been working on soliciting responses for a consultant to help us do an organizational assessment. We are in the final stages of that process and hope to have a consultant chosen by the next board meeting. They will be helping us frame our EDI work and partner with us on training for staff, board, and possibly the community. We anticipate this being a multi-year



relationship as this work is layered and we want to make sure we are going about it in a thoughtful way.

BEHIND THE SCENES (HR, FACILITIES, & FINANCES)

HR

We are still working on getting staffing filled to replace staff that have departed over the past year and a half and have the following positions posted right now:

- FT- Senior Services Librarian
- FT-Youth Services Program Coordinator
- FT-Maker Services Assistant Manager
- FT-Maker Services Specialist
- PT- Shelves (we currently have 88 hours to fill)
- PT- Maker Services Specialist

We just filled the following positions which will be starting October 1:

- FT-Circulation Supervisor
- PT- Shelves (they will be covering some of the 88 hours, but we will still be hiring more shelves)

We have had some additional staff announce departures:

- Arman Talaefard is leaving at the end of the month after being a shelve for over 4.5 years. He will be missed.
- Erin McKinnie, Circulation Manager, has accepted a position as the Director of the Central Library (Harold Washington) for Chicago Public Library and will also be leaving at the end of the month. We wish her well in her new job!

We have more positions we are posting soon including:

- FT-Circulation Manager
- PT-Circulation Clerk II (2)
- PT-Technical Services Acquisitions Assistant
- PT-Youth Services Assistant

As you can see from the list, we are focusing heavily on getting staff hired and onboarded. This will continue to be a major focus for the remainder of the year.

Facilities

We are continuing to investigate the issues with the fire alarm panel we have been having and have pinpointed one of the issues, but are still investigating others. Anna Amen has solicited quotes to replace the outdated panel and hopes to have those ready for review next month.

EXECUTIVE DIRECTOR REPORT

Illinois Libraries Present

I have continued to work on this initiative with the other members of the steering committee and have an IGA for the board's review in the packet. I am also happy to report that we have secured an Illinois State Library grant and are awaiting a response on an Illinois Humanities Council grant to assist with start-up costs and will not need to ask for/borrow any money in order to launch.

Navigating COVID

I continue to meet regularly with other government administrators in order to share information on how we are reacting to COVID. Many are reporting staffing shortages like we are and are working on getting positions filled. We are starting to see numbers going down, but are still watching closely to see what changes might be needed if numbers start to rise again or if there are any other unexpected developments.

Building Relationships

The new Village Manager started and I have had several meetings with her. We had the chance to talk for a bit and I look forward to working with her. Now that she is here we plan to have a meet and greet with new library and new Village staff since there are so many new people that have come onboard in both organizations. That will most likely happen later this fall.

Kate Hall, Executive Director

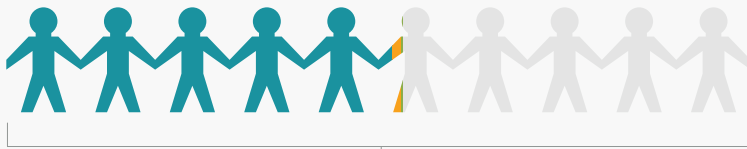
AUGUST 2021 DATA & STATISTICS

This data compares August 2020 to August 2021. Last August we still had limited hours and were focused on Grab and Go services and curbside pickup. While we are still down in overall circs from pre-pandemic levels, we are continuing to see a steady increase back to those numbers. We are seeing other numbers dropping back to pre-pandemic levels including use of the eResources while in person numbers like study room bookings and door counts continue to rise.

Card Holders

17,532 total cardholders

17,104 Residents 361 Non-Residents 67 Businesses



32,958 total residents

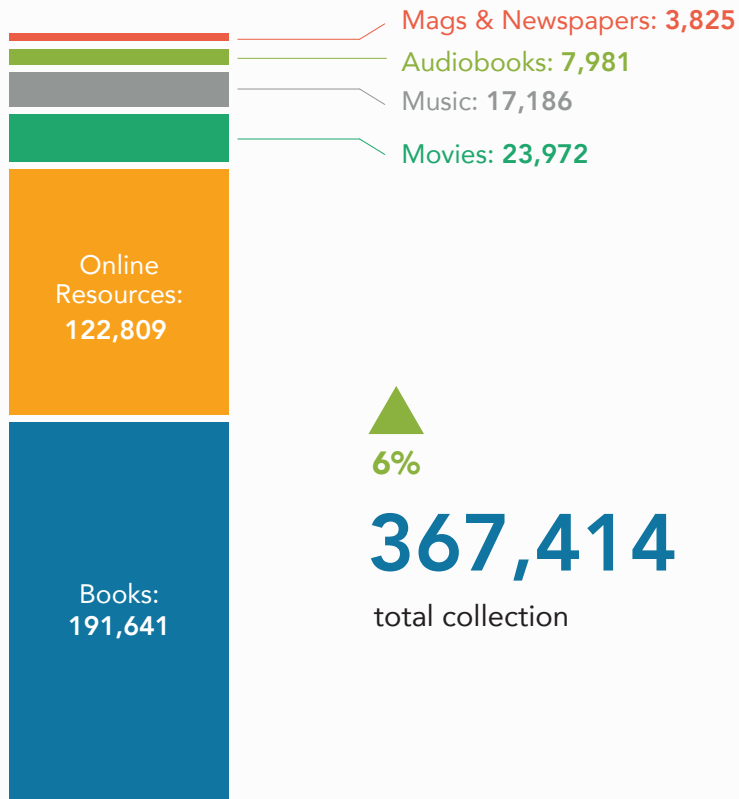
58% cardholder rate vs. 57% national average

Checkouts

69,268 total checkouts ▲ 20%

Books	eBooks
44,637	7,809
Audiobooks	eAudiobooks
1,142	3,791
Mags & Newspapers	eMags
828	879
Movies	eMovies
6,887	1,300
Music	eMusic
1,895	100

Collection



367,414

total collection

Downloadable Content

	2020	2021	
eBooks	9,082	7,809	-16%
eAudiobooks	4,300	3,791	-13%
eMagazines	1,626	879	-84%
eVideo	1,722	1,300	-32%
eMusic	188	100	-88%

AUGUST 2021 DATA & STATISTICS

eResource Use

The library is helping keep patrons up to date on information.

▼
-20%

CR Consumer Reports

▼
-58%

 LexisNexis

▼
-134%

 pressreader

Curbside & Delivery



6,281
Items picked up

▼
-35%

38
Homebound deliveries

69
Items delivered



Visits

3,558
total visits in 2020

16,389
total visits in 2021

▲
361%



Study Room Bookings

315
Study room bookings



Programs

31
programs offered

722
total attendance

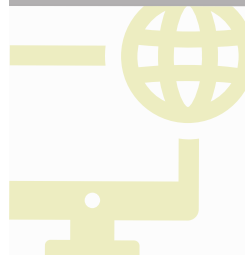
23
Average attendance per program



Virtual Technology Help Sessions

33

Technology



520
computer sessions



7,688
WiFi sessions

▲
120%



3,109
total calls

2 minutes
average call time



Patron Comments and Suggestions

August 2021

RECEIVED AUGUST 2, 2021

I am writing a long-overdue thank you for everything the library staff has done to assist the readers of Northbrook in a safe and careful manner during the pandemic. The library plays a huge part in our community and is greatly appreciated.

In particular, I was thankful that masks were required at the library, and was a little saddened when restrictions were lifted so that masks were only required for the first hour of each day. My thought is that there is a large number of children who use the library regularly, and who cannot be vaccinated because they are too young. Additionally, immunosuppressed persons are at greater risk of covid. While having a designated hour is a nice start, it is somewhat limiting. For these reasons and given the upsurge of the delta variant, I ask that you consider reinstating the mask requirement for the library. If this is already under consideration or in place, I thank you.

Comment Source: Email

Response to Patron by Kate Hall on August 4, 2021:

Thank you for your patience in awaiting a response. I have just returned from vacation and received your email. We have just reinstituted masking requirements to enter the library for all hours again as we are seeing the cases rising again. Thank you for your kind words about the work of the staff over the past year and a half. Our goal has been to follow the science, provide materials and services to patrons, and try to keep the staff and patrons as safe as we could. Having residents recognize these efforts means a lot to us.

Please let me know if you have any other questions or want to talk further.

RECEIVED AUGUST 3, 2021

I am currently (8-3-21 2:50 PM) on the second floor working at a table and there is a man with a hacking cough. He has coughed at least 10 times within the past 20 minutes. He has also had his mask down below his chin whenever I have seen him. I know the library has very little control over these things so this is not a critique of the library, but it is something I wanted to let you know is happening. Perhaps this will inform how patrons are informed of procedures or help make decisions for the library going forward. Needless to say, even while wearing a mask and being far from the gentleman, I do not feel safe being in the same building as him. I feel bad for the patrons close to him as well as the staff. I appreciate the mask requirement being in effect again and I know you're all doing the best that you can. Thank you for your hard work and service throughout the pandemic. I know public servants have not been treated well throughout this. We love our library and hope everyone stays healthy and safe. Thank you!

Comment Source: Email

Response to Patron by Kelly Durov on :

Thank you for your concern for patron and staff safety during your visit on August 3. I am sorry to hear that you were in an uncomfortable situation while you were working in the library due to another person's behavior. While staff enforce our COVID safety protocols, including the new mask requirement, it is difficult for staff to catch all instances of people removing their mask during their library visit. Staff are always available to help when situations like this arise, so please do not hesitate to inform staff working at the service desks if you encounter a situation like this in the future. If you would like to continue this conversation, I'd be happy to talk over the phone.

RECEIVED AUGUST 9, 2021

A Northbrook resident, said that we are one of the nice pillars of the community. He is a Loyola graduate and very familiar with libraries and he thinks our library is great. He can't imagine how we did it during the pandemic. He is a regular patron. We always get him what he wants, he even requested new books that we made available for him. He did not like the curbside pick up at the beginning, but got used to it. He always signs up for our programs and he said we offer wonderful programs. He attends programs mainly not movies, because movies he can stream.

Comment Source: In Person (Hala Haddad spoke to patron over the phone.)

Response to Patron by Kelly Durov on August 11, 2021:

Thank you for your kind words about the library, particularly our adapted serviced during the pandemic, staff working to locate books in our collection and through interlibrary loan, and our programs. We are so glad you get so much use out of the library!

RECEIVED AUGUST 11, 2021

A patron called this morning and she is over the moon excited about bundles. She said we're the best, she's never leaving Northbrook, and that whoever picked out books for her last time picked excellent titles

Comment Source: Phone (Patron spoke to Madison Carroll)

Staff comments by Maggie Thomann on August 12, 2021:

We're glad you are enjoying the Book & Media Bundle service that the library launched during the pandemic. Staff put a lot of thought and care into picking appealing titles based on the information patrons share about their reading interests. While we have seen a decline in requests now that the library is fully reopened, we plan to continue offering the bundle service for curbside pickup going forward.

RECEIVED AUGUST 14, 2021

I'm a Northbrook resident and today when I entered the library, I was shocked to see a sign mandating masks again! I would like to know what criteria are you using in deciding to resurrect this policy? If it's because Covid cases have risen again, then you also have to look at other data such as the dramatic decline in deaths. If we have to wear masks every time there is a spike in cases, then we will never stop wearing masks!

Comment Source: Email

Response to Patron by Kate Hall on August 17, 2021:

While COVID cases due to the delta variant are on the rise again, even for fully vaccinated individuals, that was not the only reason we put the mask requirement back in place. We put the mask requirement back in place after the CDC released guidance at the end of July advising that anyone indoors in public settings whether vaccinated or not should wear a mask. The Cook County of Public Health has also stated that universal masking in indoor facilities should happen when there is substantial or high transmission rate, which we are currently at. In addition, we continue to work to protect children, who are at a much higher risk of catching the delta variant, but who are unable to get vaccinated. I know that wearing a mask is tiresome and we all look forward to when we do not have to wear one anymore, but we are committed to following the recommendations from public health officials in determining what steps to take for the library. I am happy to answer any other questions you have and appreciate your willingness to work with us to keep everyone in our community safe.

RECEIVED AUGUST 16, 2021

A patron wanted me to pass along his comment that there are too few books in the New Large Print section. He specifically stated, "lots of people like nonfiction and need large print and this is all you have?" He said he was very disappointed with what was available to browse in this section. In the whole library, there are about 12 new Large Print books he stated he had not read.

Comment Source: In Person (Patron spoke to Mike Hominick)

Staff comments by Maggie Thomann on August 24, 2021:

Thanks so much for your feedback about the Large Print collection. The nonfiction large print collection has a dedicated annual budget, and staff purchase for the collection monthly. The library purchases all major titles and bestsellers in large print, plus additional topics that may be of interest, including biographies, history, and health. The library's purchasing is limited by the relatively small number of large type titles that are published each year, with the majority of those being fiction. Many publishers are focusing on publishing eBooks instead, which offer similar accessibility and customization for readers with low vision.

Large print and other accessible materials and services will be a focus of a new senior services librarian position we are hiring this fall. In the meantime, please feel free to send purchase requests, and our large print selector will be glad to look into any specific titles you request.

RECEIVED AUGUST 23, 2021

A patron called today to cancel his registration to the blues concert. After making sure I knew how wonderful he thought the library was, he had a few observations: When he went onto Communico to cancel, it said he had no reservations, so he had to call. A message was sent out concerning parking and he suggested that a link to cancel be available in the email. It would be great to have that option when one gets a reminder for any of the over-full events. Also he said it was hard to navigate the website. But he loves the library!

Comment Source: Phone (Comment received by F&M staff member)

Staff comments by Susan Wolf on August 23, 2021:

We will try and follow up with the patron to see why he wasn't seeing his registration and also if he has any specific problems finding things on our website. There is a link to your reservations from the automatic emails that Communico sends out, but I believe this was an email sent directly by staff. I will bring this up with the Programming Committee to see if we want to make it a best practice that we include the Communico event link when we send event reminders directly.

RECEIVED AUGUST 24, 2021

I searched the library web site and could not find anywhere what items I can drop off at the recycling bins in the library. It'd be nice if that info was front and center for residents and visitors.

Comment Source: Email

Response to Patron by Linda Vering on August 26, 2021:

Thank you for your suggestion. The Library Board has been reviewing the Climate Action Plan from the Village and plans to look at adoption at the September board meeting. We will be sharing all of the sustainability efforts we have made already as well as talking about what we plan to do moving forward. With the new recycling center, we are

going to wait until the plan is approved and we have made a few more tweaks before actively promoting it. So stay tuned and thanks again for your suggestion

RECEIVED AUGUST 25, 2021

I moved to Northbrook 10 years ago, a suburb I chose as my husband grew up here and loved it. I have been coming to the library since my oldest, who is now 11, was a baby. One of our favorite events was and is the story time. I was reading through your Northbrook Public Library catalog and came across the 'Drag Queen Story Hour with Miss Muffy event that you scheduled in our Northbrook Library. I was taken aback and deeply disturbed why you would schedule an event like this for young, three year old children. I myself have four children and my youngest is three. I cannot figure out how this would be beneficial for any young child. I have members of the LGBTQ community in my family and understand the need to be inclusive. My husband and I teach this to our children in everything they do. We teach them to embrace those that are different and act with love and kindness. That said, I strongly believe the point is missed by hosting this type of an event for children that will potentially be confused unnecessarily. I would understand if you wanted to hold a transgender event for teenagers that have the capacity to better process and understand some of the questions they may have, but not something for toddlers. This is the wrong message to send to our children of Northbrook. We are seeing more and more within the GRADE schools young children "coming out" whether it be lesbian, gay and in some cases even bisexual because they think that is what society is telling them to do. In some cases that is admirable and brave, but frankly in other cases, I believe it is to draw attention; unfortunately, for the wrong reasons. Again, I support the LGBTQ community for personal reasons, but I disagree with the inappropriate push of these values on three year olds. I want my three year old to be a kid and not have to think about any aspect of her sexuality, she has her whole life ahead of her for that. And next time please reconsider when you are presenting events to our young children. I look forward to hearing your feedback.

Comment Source: Email

Response to Patron by Kate Hall on August 26, 2021:

Thank you for reaching out to share your concerns about the Drag Queen Story Hour we have planned for this fall. Drag Queen Story Hours are a popular form of storytime, which promote early literacy as well as gender inclusivity and focuses on creating a safe and affirming community. This particular program is being offered as a part of our library-wide One Book, One Northbrook featuring the book *The Vanishing Half* by Brit Bennett. This book explores many facets of identity including drag performance and gender identity. We will not be touching on any aspects of individual sexuality and will be reading books and doing songs around the theme of Halloween.

Children engage in exploration of gender starting as early as three years old and having discussions about non-binary gender identities and gender fluidity can be a way to help children have a broader understanding of the many people that live in our world. We recognize not all families want to engage in these discussions and that it can depend on the age of their children. As with materials in our library collection, our programs are meant to represent diverse viewpoints and perspectives. Our programs offer information and exposure to a wide range of subjects and topics, especially topics being discussed in popular culture and media. I am happy to suggest some other programs that might be of more interest to you. Or if you would like to talk more about this, I am happy to meet with you or talk on the phone. Please let me know if you would like to do so.

RECEIVED AUGUST 27, 2021

Hi. I am hoping story time for toddlers can be outdoors instead of virtual. My little 2 year old grandson isn't interested in virtual stories. I feel he is missing out on the stories being read in person by the animated and joyful "in person

contact" with a live reading. It is a part of childhood that is cherished. Also, sitting along side other tots teaches him so much more than virtual can. As you know it just isn't as engaging virtually and won't hold his interest. Thanks for your consideration, Deb Brashears Mother of 5, Grandmother to 10!!!!

Comment Source: Email

Response to Patron by Summer Kosuge on September 1, 2021:

Thank you for your email.

Moving all of our children's programming to a virtual platform was a difficult decision. Our staff loves storytime and we understand the importance of providing children with the opportunity to engage with others. We know that virtual storytime is not the same experience.

At this time with increased COVID-19 transmission in our community and to create the safest environment possible for our most vulnerable population, we are not scheduling in-person programs for children. This includes the outdoor storytimes.

We look forward to bringing back these programs when it's safe to do so.



Memorandum

DATE: September 16, 2021

TO: Board of Trustees

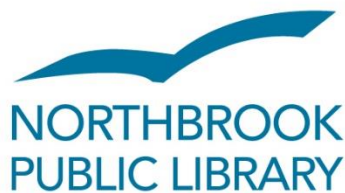
FROM: Kate Hall, Executive Director

RE: Reopening Plan Update

We started in person programming this month and are seeing that while there are people that want to attend in person, many are still reluctant. We are still seeing very good numbers with our virtual programs.

We also brought back our regular volunteers who are excited to return to their duties. That is the last major change we have planned for a while. We will continue to monitor what is happening and adjust as needed.

Since last month, more mask mandates have gone into effect. With the new vaccine requirement from the federal government for employers with over 100 employees, we are now waiting to find out if it applies to private and public sector employers or only private. OSHA is working on getting out guidance on how this will all work. We are waiting to see what comes out before making any recommendations on what to do here. We are currently 98% vaccinated, but down 11% of our workforce. I anticipate this becoming a larger topic at next month's board meeting look forward to hearing your thoughts and answering any questions you may have.



Memorandum

DATE: September 12, 2021

TO: Board of Trustees

FROM: Kate Hall, Executive Director

RE: Climate Action Plan

The Village of Northbrook Board adopted the Climate Action Plan (CAP) on August 10, 2021. The Village's Climate Action Plan was created to reach the target of 35% reduction in greenhouse gas emissions by 2030 and an 80% reduction by 2040. The full plan is available on the Village [website](#) and is included in the packet. The plan focuses on these sectors:

- Transportation and Land Use
- Buildings and Energy
- Waste Management
- Water and Wastewater
- Local Food and Agriculture
- Health and Safety
- Greenspace and Ecosystem Health
- Climate Economy

By adopting the CAP, the library is committing to using the CAP to guide decision making as it pertains to environmental impacts in the sectors listed above and to assisting the Village in promoting the CAP to the community.

In order to do this work, we are forming a Climate Action Committee which will be charged with putting into action the climate action plan (CAP). The committee's overarching goal is to align with the village and other governmental entities to foster change around sustainability practices within Northbrook. The committee is broken up into two subcommittees:

- Operations: The Operations subcommittee will work closely with Maintenance and Administration to do an assessment of internal operations, applying the Climate Action Plan actions to the library's operations and building projects.
- Public Awareness & Marketing: The subcommittee will work with the Village on increasing public awareness over the CAP and on helping community members take

actions based on the objectives of the plan through marketing and programming efforts.

This committee will be co-chaired by Kelly Durov who will head up the Operations subcommittee and Jill Franklin who will head up the Public Awareness and Marketing subcommittee. In addition, the Village has formed a Sustainability Commission which the Library CAP Committee co-Chairs will serve on. If there are board members also interested in serving on this Commission, please let me know.



Village of Northbrook **Climate Action Plan**



July 2021

Prepared by:



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Northbrook's Future Climate

By 2050, Northbrook's climate can be expected to be:



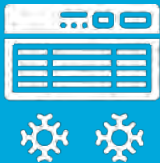
+4-6°F

warmer average annual temperature than now.



+20-25 more days

annually with a high temperature over 95°F.



+70% more

air conditioning demand and energy needed than now.



+14% higher

annual average rainfall than now.



+15% more

Heavy precipitation events annually.



+20-25 days longer

growing, allergy, and mosquito season.

The time is right for Northbrook's first
Climate Action Plan.

Executive Summary

The Village has a tradition of being a leader in addressing environmental issues and has become increasingly concerned about the global climate crisis. Over the course of the past decade, the Village has been refining its local policies to address environmental issues. In 2013, the Village and Northbrook Park District partnered to create the Strategic Sustainability Plan, which outlines improvements and initiatives in energy, material management, natural resources, community development and transportation for a more sustainable future. Five years later, the Village adopted a Master Bicycle and Pedestrian Plan which has been used to promote alternate means of transportation throughout the community

In September 2018, the Village signed on to the Metropolitan Mayors Caucus' Greenest Region Compact. The goals of the Compact address ten areas, including climate, economic development, energy, land, leadership, mobility, municipal operations, sustainable communities, water, and waste & recycling. These goals help guide coordinated efforts across the region to enhance quality of life for residents, protection and stewardship of the environment, and sustainable economic vitality.

As a continuation of the Village's sustainability efforts over the last decade, Northbrook has a vision to minimize the generation of GHG emissions from all sources and prepare for climate change. This Climate Action Plan establishes a comprehensive plan of specific strategies and detailed actions that Northbrook looks to implement to reduce greenhouse gas emissions and build resilience to related climatic impacts.

Our Challenge

The complex systems that make up modern civilization result in stressors on the delicate balance of our ecosystems. The combustion of fossil fuels is warming earth's atmosphere and changing our climate. Climate change is already affecting Northbrook and its impacts are projected to become much more severe in the coming decades. These impacts also contribute to additional strain on vulnerable populations, social systems, and overall community resilience.

Our Opportunity

The impacts of cities represent a major sustainable development opportunity. Transformation of our energy system is essential in order to stop burning fossil fuels. This transition presents an opportunity for Northbrook. Directing our energy investments into renewable sources will make them more resilient and provide for local job creation. Innovation, technology, and collective social change inherent in climate action can also support greater community abundance and shared equity.

Our Climate Action Vision

To be the first Climate Resilient community in Illinois, leading in the social and economic transitions necessary to reduce Villagewide greenhouse gas emissions in-line with the Paris Climate Agreement while protecting Northbrook's natural ecosystems, most vulnerable populations, and economic vitality against the increasing impacts of climate change.

The Process

The work that went into developing the Northbrook Climate Action Plan

12 month

planning timeframe

514

community members providing input

31

planning team members

5

foundational research study documents



Executive Summary

GHG Emission Reduction Goal in Global Context

Reviewing the Village's Climate Action Plan emissions reduction goal within a global context and greenhouse gas emissions (GHG) reduction recommendations formulated by the International Panel on Climate Change (IPCC) can help validate the appropriateness of the goal. The IPCC is the United Nation Environment Programme (UNEP) body for assessing the science related to climate change and providing support in climate action policy making. IPCC science has guided a number of international agreements to address climate change, most recently the Paris Agreement.

The Paris Agreement is a landmark international accord that was adopted by nearly every nation in 2015 to address climate change and its negative impacts. The agreement affirms IPCC recommendations by aiming to limit global warming to 1.5°C to 2°C above pre-industrial levels, considered to be the threshold for dangerous climate impacts. The agreement includes commitments from all major emitting countries to cut their climate pollution and to strengthen those commitments over time.

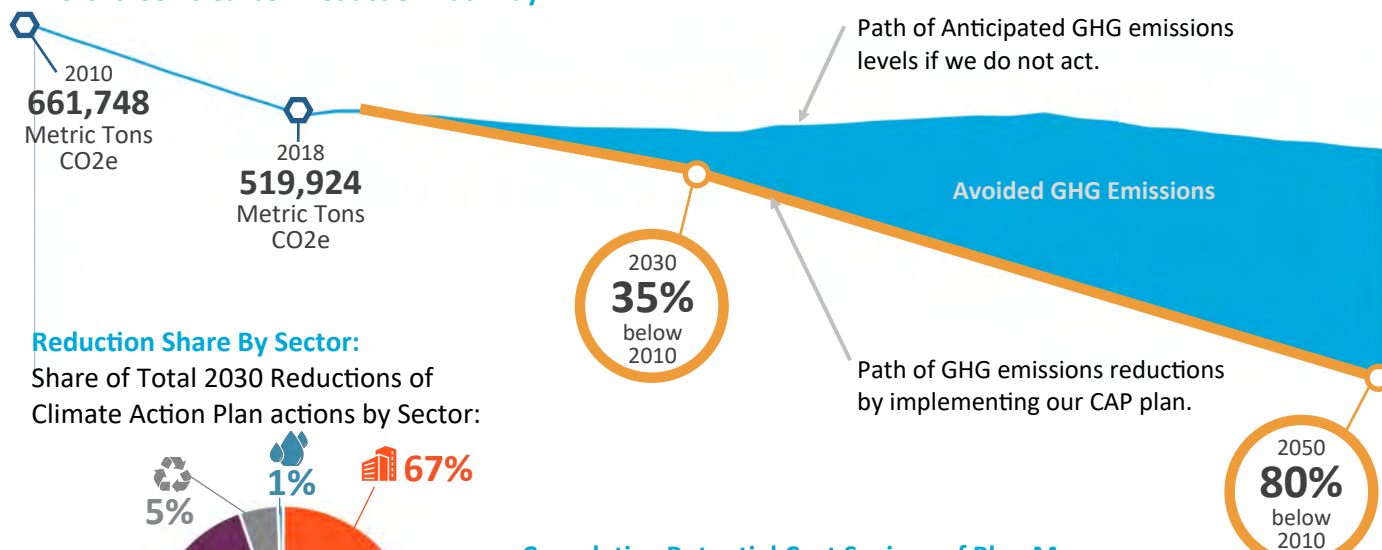
In alliance with the Paris Agreement, the United States committed to cut emissions by 26% to 28% by 2025 against a 2005 baseline. In 2019, the State of Illinois entered the Paris Agreement and also pledged to reduce emissions by 26% to 28% by 2025.

Our Carbon Reduction Goal

This plan seeks to re-affirm the Village's commitment to the Metropolitan Mayors Caucus' Greenest Region Compact and support the State of Illinois' emissions reductions goals. To do so, the plan must align itself within the IPCC suggested carbon emission reduction goals associated with the Paris Agreement of 26%-28% reduction by 2025 and 80% or greater reductions by 2050. These global recommendations and State and National commitments were accounted for in the formulation of appropriate carbon reduction goals for Northbrook:

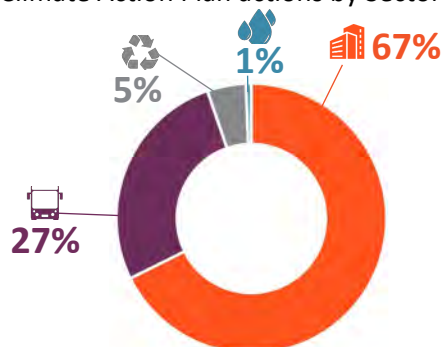
The Village of Northbrook's GHG emission reduction goals are to be compatible with the 2015 Paris Agreement and shall target a reduction in Village operations and community-wide emissions of 35% below 2010 levels by 2030 and 80% below 2010 levels by 2050.

Northbrook's Carbon Reduction Pathway:



Reduction Share By Sector:

Share of Total 2030 Reductions of Climate Action Plan actions by Sector:



Cumulative Potential Cost Savings of Plan Measures Through 2030:

\$180,000,000

Implementing many of the measures in this plan, such as reduction of energy consumption can save money for the community. (see Appendix for more)

Executive Summary

Climate Action Plan as Living Plan

This Climate Action Plan is intended as a “living plan” rather than a static document. This means that the implementation phase of this plan should be characterized by intermittent measurement of progress and plan adjustments. Plan adjustments should look towards increasing implementation goals for actions which illustrate success, modify goals for actions which may fall short of desired outcomes, and identifying additional action opportunities.

As a “living plan,” the 2030 emission reduction goal should be seen as a guiding constant and recognition should be given that initial implementation actions may not yet fully achieve plan goals. Intermittent plan progress measurements and adjustments should identify additional actions, or increases in action implementation targets as needed to meet the ultimate 2030 GHG reduction goal.

The Plan

The Northbrook Climate Action Plan:

addresses **8 sectors**
of GHG emissions and
climate vulnerabilities

through **42 strategies**
of GHG emissions and
climate vulnerabilities

supported by **190 actions**
detailing steps to be
taken

during a **10 year**
implementation
timeframe

Section 02 Transportation and Land Use



Strategy TL 1: Decrease vehicle miles traveled (VMT) by 2.5% by 2030.

Strategy TL 2: Increase public transit ridership from 11.8% to 14% by 2030

Strategy TL 3: Increase walk/bike transportation by 50% and expand discretionary walk/bike infrastructure by 2030

Strategy TL 4: Transition Village fleet to alternative fuels, achieving 50% electrification of the Village's Vehicle and Equipment fleet by 2030.

Strategy TL 5: Support and encourage alternative fuel vehicles, achieve 20% of vehicles sold and 15% reduction of VMT by 2030.

Strategy TL 6: Advance low-carbon land use policy.

Strategy TL 7: Reduce Village wide off-road and lawn equipment annual emissions.

Section 03 Buildings and Energy



Strategy BE 1: Increase on-site distributed renewable energy to 10% of Residential and Commercial electric use by 2030.

Strategy BE 2: Improve Renewable Energy Policy and Incentives.

Strategy BE 3: Educate public on solar and renewable energy.

Strategy BE 4: Increase Residential and Commercial green electricity purchasing Village Wide to 5% by 2030.

Strategy BE 5: Improve total Village owned building and operations energy efficiency by 12% Electricity and 10% Natural Gas by 2030.

Strategy BE 6: Improve total Community wide residential, commercial, and industrial building energy efficiency by 12% Electricity and 10% Natural Gas by 2030.

Strategy BE 7: Achieve 2% natural gas "fuel switching" in community wide residential, commercial, and industrial buildings to reduce on-site fossil fuel use by 2030.

Strategy BE 8: Improve Energy Efficiency Policy and Incentives.

Strategy BE 9: Educate public on energy efficiency.



Executive Summary

Our Climate Action Strategies

Section 04 Waste Management



Strategy WM 1: Decrease total per capita municipal solid waste handled by 5% by 2030.

Strategy WM 2: Increase landfill waste diversion to 50% by 2030.

Strategy WM 3: Increase organics diversion from landfill.

Strategy WM 4: Increase recycling rate.

Strategy WM 5: Educate, engage, and empower the public to meet waste management goals.

Section 05 Water and Wastewater



Strategy WW 1: Promote increased water conservation Village Wide with a targeted reduction of 7.5% by 2030.

Strategy WW 2: Mitigate the projected increased flood hazards and impacts due to climate change.

Strategy WW 3: Update design standards and plans to meet projected climate change flood mitigation requirements.

Strategy WW 4: Increase stream, river and wetland protection and restoration.

Section 06 Local Food and Agriculture



Strategy LF 1: Increase production of local food, particularly serving low income and food insecure individuals.

Strategy LF 2: Increase access and interconnect all community gardening.

Strategy LF 3: Reduce food waste and hunger.

Strategy LF 4: Improve local food resilience and availability.

Section 07 Health and Safety



Strategy HS 1: Establish and expand public health communication campaigns to include climate change impacts.

Strategy HS 2: Assist the village's heat, flooding, storm, and poor air quality vulnerable population in preparing for and mitigating climate change impacts.

Strategy HS 3: Include climate impacts and health risks in new and updates to existing plans and policies.

Strategy HS 4: Strengthen community response capacity and support networks.

Strategy HS 5: Address the air quality risks associated with climate change.

Section 08 Greenspace and Ecosystem



Strategy GS 1: Increase Tree Cover and Diversity.

Strategy GS 2: Increase the resilience and use of Native Species and Pollinator Restorations Areas with a targeted increase of 1.5% communitywide land pollinator restoration coverage.

Strategy GS 3: Reduce, repurpose, and reimagine lawn space.

Strategy GS 4: Reduce Heat Island Effect through Village Wide impervious surface reduction of 2% by 2030 and 5% by 2040.

Section 09 Climate Economy



Strategy CE 1: Capture local economic potential of climate action.

Strategy CE 2: Increase workforce development for the climate economy.

Strategy CE 3: Build marketplace climate resilience.

Strategy CE 4: Financing The Village's climate action implementation.

Next Steps and Implementation

This Northbrook Climate Action Plan is only the beginning of an on-going process of evaluating and advancing the Village's climate resilience, GHG emissions, and overall sustainability. The plan includes a Climate Action Implementation section providing a framework for launching, guiding, monitoring, and evaluating the execution of this plan. The implementation section outlines specific next steps, and important implementation considerations and recommendations. As details and outcomes are uncovered during the implementation phase, adjustments to quantitative goals, milestones, and detailed actions will be made responsively.

Executive Summary

Next Steps and Implementation

This Northbrook Climate Action Plan is only the beginning of an on-going process of evaluating and advancing the Village's climate resilience, GHG emissions, and overall sustainability. The plan includes a Climate Action Implementation section providing a framework for launching, guiding, monitoring, and evaluating the execution of this plan. The implementation section outlines specific next steps, and important implementation considerations and recommendations. As details and outcomes are uncovered during the implementation phase, adjustments to quantitative goals, milestones, and detailed actions will be made responsively.



Acknowledgements

We are deeply grateful for the community collaboration and input that went into this plan. Below are some of the main contributors that made Northbrook's first CAP possible:

Village of Northbrook Project Lead

Michaela Kohlstedt Director of Development & Planning Services, Village of Northbrook

Board of Trustees

Kathryn L. Ciesla President

Robert P. Israel Village Trustee

Muriel J. Collison Village Trustee

Heather E. Ross Village Trustee

Johannah K. Hebl Village Trustee

Daniel H. Pepoon Village Trustee

Joy Ebhomielen Village Trustee

Sandra E. Frum President (former)

Village of Northbrook Staff

Jackie Clawson Building Official, Development & Planning

Madeline Farrell Assistant Village Manager

Corey Friedman Electrical Inspector

Kelly Hamill Director of Public Works,

Erik Jensen Assistant to the Public Works Director

Charmaine John Greenest Region Corps Member

Matt Morrison Deputy Director of Public Works

Tessa Murray Sustainability Coordinator

Swati Pandey Senior Planner, Development & Planning Services

Tom Poupard Director (Retired) of Development & Planning Services

Chan Yu Deputy Director of Development & Planning Services

Community Climate Action Planning Team

Bob Israel Village Trustee

Heather Ross Village Trustee

John Albrecht Northbrook Architectural Control Committee member

Nell Badgley Northbrook Youth Commission

Frank Bleeker Northbrook Village Bicycle Task Force

Jeni Brickman Youth Services of Glenview/ Northbrook

Derrik Chen Northbrook Youth Commission

Steven Elisco Northbrook Plan Commission

Jill Franklin Northbrook Public Library

Melissa Hirsch Northbrook/Glenview School District 30

Robyn Kole Northbrook Chamber of Commerce, Board Member

Patrick Lederer Northbrook Industrial and Commercial Development Commission

Becky Mathison West Northfield District 31

Clare Poupard Go Green Northbrook Representative

Kim Ptak Glenbrook High School District 225

Len Rago Northbrook Stormwater Management Commission

Scott Robson Northbrook EQC Commission

Joan Scovic Northbrook Park District

Aaron Stash Northbrook Resident

Patti Vile Community Relations Commission

Sandy Weiss Northbrook Environmental Quality Commission

GHG Emissions

generated community-wide
in Northbrook



76,720

Metric tons CO₂e in 2018
from vehicle use.



419,723

Metric tons CO₂e in 2018
from building energy.



21,246

Metric tons CO₂e in 2018
from solid waste



2,234

Metric tons CO₂e in 2018
from water and wastewater





Section 01 Introduction



[Click here to
return to TOC](#)

Introduction

Northbrook is a dynamic community of 33,170 residents and a diverse economic base located in the northern section of Cook County, Illinois. The Village supports a significant employee base with over 38,000 individuals working in the community which is home to the corporate headquarters of Underwriters Laboratories, Crate & Barrel and more than 700 manufacturing, light industrial and service-related businesses.

The Village has a tradition of being a leader in addressing environmental issues and has become increasingly concerned about the global climate crisis. In 2013, the Village and Northbrook Park District partnered to create the Strategic Sustainability Plan, and in September 2018, the Village signed on to the Metropolitan Mayors Caucus' Greenest Region Compact. The goals of the Compact address ten areas, including climate, economic development, energy, land, leadership, mobility, municipal operations, sustainable communities, water, and waste & recycling.

In May 2020 the Village hired paleBLUEdot to develop a Climate Action Plan. The goal of the project was to inventory Northbrook's community-wide greenhouse gas emissions, assess the village's forecasted climate change impacts, exposure, and sensitivity, and to establish and prioritize climate action and mitigation actions

In support of establishing the goals, strategies, and actions included in this plan, paleBLUEdot also produced a Greenhouse Gas Inventory, a Climate Vulnerability Assessment, a village wide Solar Renewable Energy Potentials Study, a community wide Tree Survey and Carbon Sequestration Study, and a village wide Climate Action Baseline Assessment. These assessments created the foundation of the Climate Action Planning process.

Plan Document Support of Northbrook Plans

This Climate Action Plan leverages, supports, and expands on the Village's other recent planning efforts. The strategies and actions included in this report relate closely to the foundational work already completed by the Village, including the 2013 Strategic Sustainability Plan as well as the 2018 Master Bicycle and Pedestrian Plan.

Why Create a Climate Action Plan

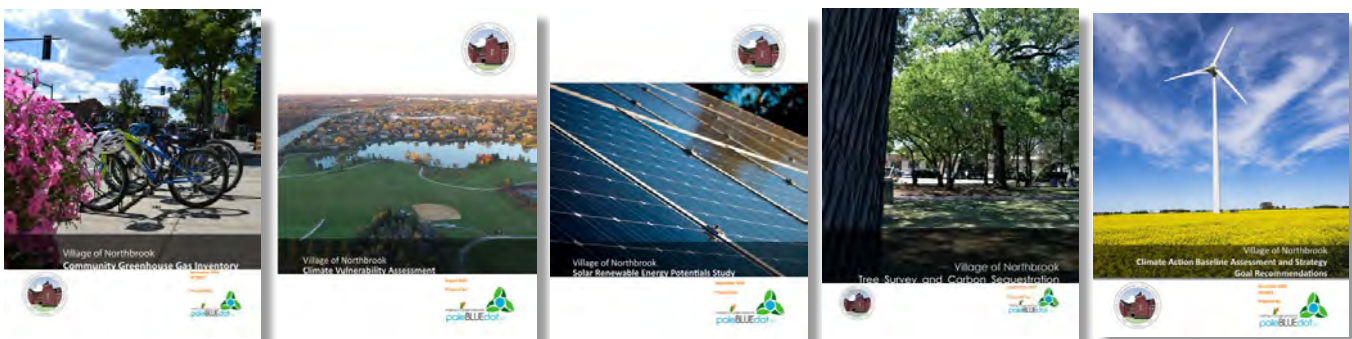
The creation and dedicated implementation of a Climate Action Plan (CAP) is an organized way for a Village to contribute to solving the global climate crisis while helping its resident and business communities create improved resilience to the current and future impacts and risks of climate change. Climate action can also create investment in innovation, jobs and actions that save households and businesses money.

What is a Climate Action Plan (CAP)

Climate action plans are comprehensive road maps that outline the specific Strategies and Actions that a Village will implement to reduce greenhouse gas emissions and build resilience to related climatic impacts. The Northbrook CAP addresses both climate mitigation and climate adaptation actions.

The Role of Cities in Climate Action

With a large majority of Americans living in urban areas, cities play a key role in addressing climate change. While each individual community's impact on global GHG emissions is relatively small, the leadership cities provide in motivating change can be extremely significant. According to a survey by the US Conference of Mayors, more than half (53%) had committed to reducing greenhouse gas emissions.



Introduction

Climate Action as a Journey

The Climate Action Plan represents a robust vision of the future with a comprehensive scope of actions befitting the magnitude of our collective climate challenge ahead. This Climate Action Plan establishes a long-term climate resilience vision and mitigation goal for the community through 2050. The plan itself, its strategies, and detailed actions, are intended as a 10 year plan. It is anticipated that this plan would be updated by 2030 to outline the next phase of action towards achieving the long-term community-wide goals.

The Northbrook Climate Action Plan should be seen as a living document. Action progress and effectiveness should be reviewed at regular intervals through the plan's implementation and adjustments should be made to expand or modify the scope of individual actions and to augment the plan with new actions as appropriate to respond to ever-changing market and community conditions.

Benefits of Climate Action

The strategies and actions contained in this plan seek to reduce Northbrook's dependence on fossil fuels, prioritize sustainable uses of land and water, reduce waste, and support improved equity and livability. The actions outlined in this plan will reduce Northbrook's GHG emissions. In addition to reducing the community's contribution to climate change this plan strives to identify how climate change will increasingly impact the community. The Climate Action Plan addresses next steps for Northbrook to adequately respond to climate change. If implemented successfully the plan will enhance Northbrook's economic vitality, resilience, and viability as a healthy, livable community.



Introduction

Northbrook's Vulnerability to Climate Risks:

Climate change is a global phenomenon that creates local impacts. It presents one of the most profound challenges of our time. A broad international consensus exists among atmospheric scientists that the Earth's climate system is being destabilized in response to elevated levels of greenhouse gas emissions in the atmosphere.

Two changes to Illinois's climate are occurring already: shorter winters with fewer cold extremes, and more heavy and extreme precipitation. Increases in the global surface temperature and changes in precipitation levels and patterns are expected to continue and intensify for decades. In turn, these changes in climate have impacts on the economy and health of local communities.

The following highlight the vulnerabilities to climate risks facing Northbrook, excerpted from the 2020 Northbrook Climate Vulnerability Assessment:

Heat Stress (High)



Warmer temperatures and more extreme heat may lead to higher risk of heat-related illness.

Air Quality (High)



Increased heat may result in more days of poor air quality and exposure to allergens, impacting respiratory illnesses.

Vector-Borne Disease (Medium)



Longer growing seasons and higher temperatures may increase vector-borne diseases like West Nile Virus and Lyme disease.

Mental Health (Medium)



Exposure to increased climate impacts and disasters may lead to increased anxiety and other mental health ramifications.

Housing (High)



Warmer temperatures will increase demand for air conditioning and weatherization needs. Energy costs may be difficult for vulnerable populations to meet. Heavier rains coupled with higher risk of surface drought conditions may cause more local flooding, particularly "flash flooding" which could cause damage to housing and reduce mobility for portions of the community.

Stormwater Management (High)



Heavier rains coupled with higher risk of surface drought conditions may significantly increase demand on stormwater management. The village's stormwater infrastructure may not be capable of handling the amount of runoff during more frequent heavy down pours, requiring resources to make needed upgrades.

Trees, Greenspace, and Agriculture (High)



Increased temperatures and changes to precipitation will stress trees, greenspace, and agriculture. Conditions may be more favorable for disease, pests, and invasive species. Trees and crop species which formerly thrived in the area's climate may be less suited for future climate conditions.

Surface Water Quality (Low)



Increases to heavy rain events and flooding/flash flooding risk may negatively impact water quality in the village's lakes, streams, and rivers. Increased pollutants and contamination potential, combined with increased annual water temperatures could increase risk to algal and bacterial growth, harming habitats and limiting recreation.



Introduction

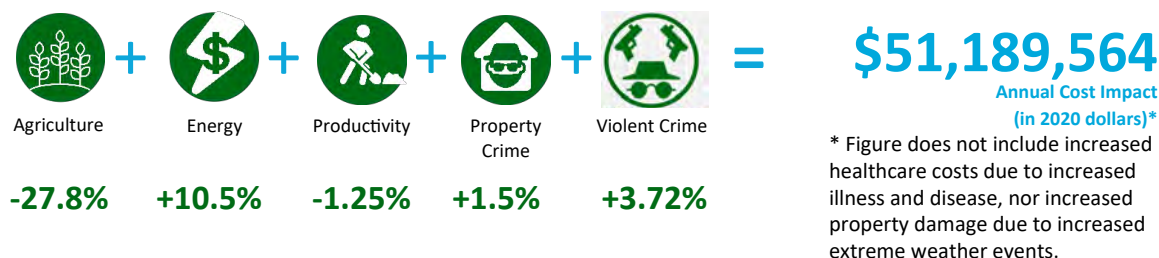
Estimated Economic Risk of Climate Change to Northbrook by 2100

Incidents of severe weather in the United States, such as significant flooding in the Midwest are tangible examples of the types of economic impacts of projected climate trends. Future economic and social impacts of climate change include impacts to agriculture, energy costs, labor impacts, death rates, and crime impacts among others. “Estimating Economic Damage from Climate Change in the United States,” a study by Solomon Hsiang et al from the Goldman School of Public Policy at the University of California Berkeley, was a comprehensive effort at quantifying the economic impacts for every county within the United States.

(<https://science.sciencemag.org/content/356/6345/1362>)

The study collected national data documenting the responses in six economic sectors to short-term weather fluctuations. These data were integrated with probabilistic distributions from a set of global climate models and used to estimate future costs during the remainder of this century across a range of scenarios. In terms of overall effects on gross domestic product, the authors predict negative impacts in the southern United States and positive impacts in some parts of the Pacific Northwest and New England.

The sectors assessed, and the findings for annual economic impact as a percentage of GDP for the Village of Northbrook based on a pro rata share of Cook County estimates are:



Estimated Social Cost of Carbon

“Social Cost of Carbon” is an effort to properly account for the damages caused by greenhouse gas emissions and the resulting climate change impacts. By including the social cost of carbon in planning efforts, agencies and business can properly evaluate policies and decisions that affect greenhouse gas emissions. The “Social Cost of Carbon” is measure of the share of climate change economic harm and impacts from emitting one ton of carbon dioxide into the atmosphere. For Northbrook it can be calculated as follows:

Estimated Economic Risk of Climate Change:	Current Annual GHG Emissions:	Current Estimated Localized Social Cost of Carbon:
\$51,000,000 Annual Cost Impact	519,924 Metric Tons	\$99 Per Ton
÷	=	

Cumulative Economic Savings Potential of Implementing the Climate Action Plan Through 2030

Transportation Savings Potential:	Energy Efficiency and Renewable Energy Savings Potential:	Waste Reduction Savings:	Social Cost of Avoided Carbon:
\$43,000,000	\$45,000,000	\$44,000,000	\$43,000,000
+	+	+	+
Cumulative Community-Wide Savings Potential:			
= \$175,000,000*			

* Value does not include economic potential of job creation and new business potential represented in the Climate Action Plan actions. (see Appendix for more)

Introduction

What Are GHG's?

A greenhouse gas is a molecule in the atmosphere which does not react to light energy in the visible range (like sunlight), but does react to light energy in the infrared range -like that which is emitted from the Earth after being warmed by the sun. The most common greenhouse gases include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).

Why do GHG's Matter?

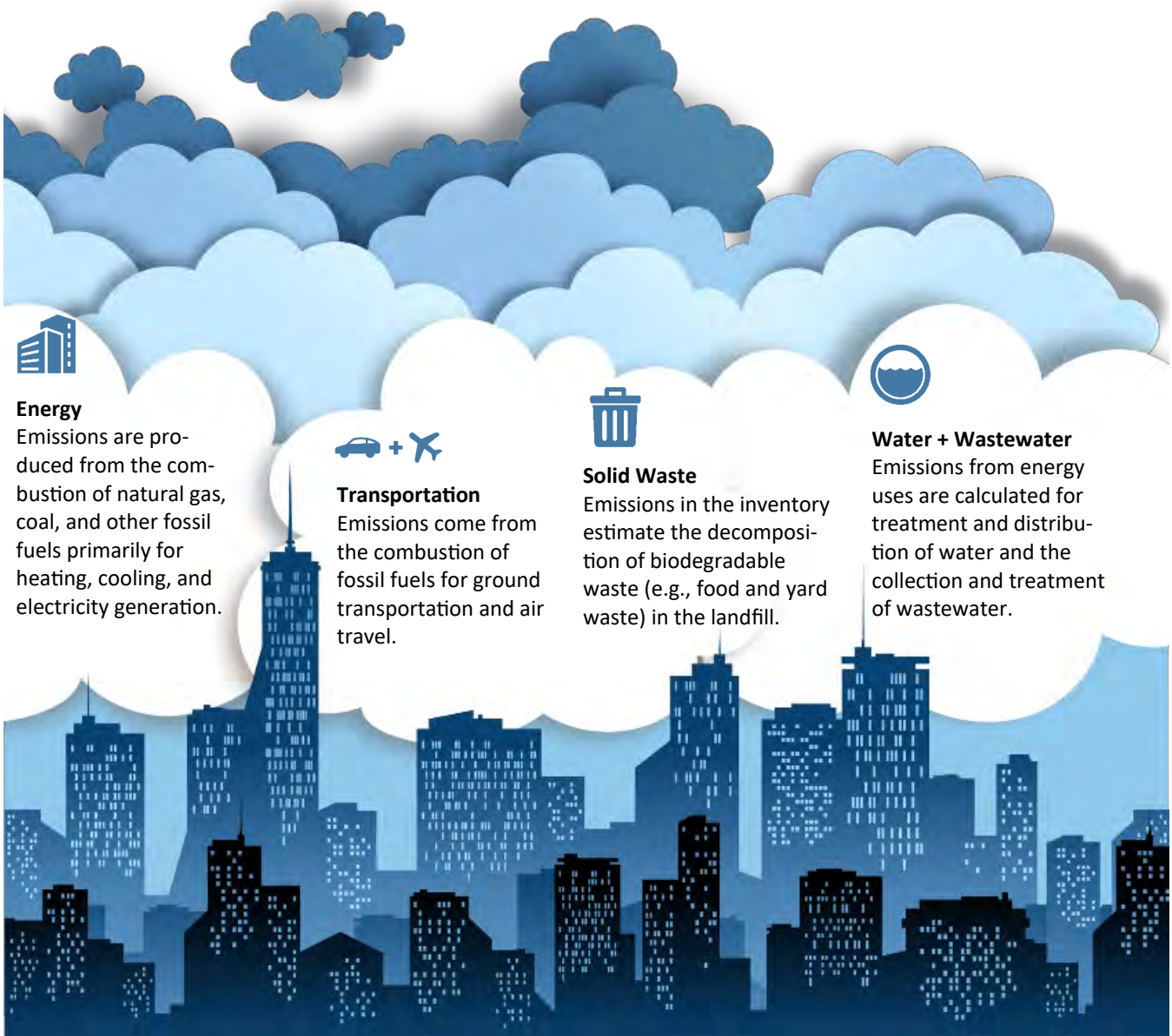
GHG's let the sun's light shine onto the Earth's surface, but they trap the heat that reflects back up into the atmosphere. In this way, they act like the insulating glass walls of a greenhouse. The more GHGs there are, the more heat that is trapped in our atmosphere and the more we experience the impacts of global warming.

What can we do to reduce GHG's?

Greenhouse gases can be reduced by making changes within the key greenhouse gas sectors within our community—particularly through the reduction and elimination of fossil fuel combustion and the advancement of clean energy sources.

Key Greenhouse Gas Sectors

Where do villagewide GHGs come from?



Northbrook Community Wide GHG Emissions Trends

2010 By The Numbers



GHG Emissions

661,748

19.91 MT Per-Capita
17.94 MT / Job
0.3205 MT / \$1,000 GDP



Population

33,240



GDP

\$2,064,691,936

\$62,115 GDP Per-Capita



Employment

36,882

2018 By The Numbers



GHG Emissions

519,924

15.68 MT Per-Capita
13.64 MT / Job
0.2220 MT / \$1,000 GDP



Population

33,167



GDP

\$2,342,220,088

\$70,619 GDP Per-Capita



Employment

38,120

8 Year Trend Dashboard



GHG Emissions

-141,824 -21.43%

-4.23 MT Per-Capita
-4.30 MT / Job
-0.10 MT / \$1,000 GDP



Population

-73 -0.22%



GDP

+\$277,528,153 +13.44%

+\$8,504 GDP Per-Capita



Employment

+1,238 +3.36%

Northbrook Community Wide GHG Emissions Overview

Community wide total emissions for the Village of Northbrook dropped 21.43% from 661,748 metric tonnes in 2010 to 519,924 metric tonnes in 2018.

Change in \$

Change in

Think Economic Development is Tied To Increased Emissions?

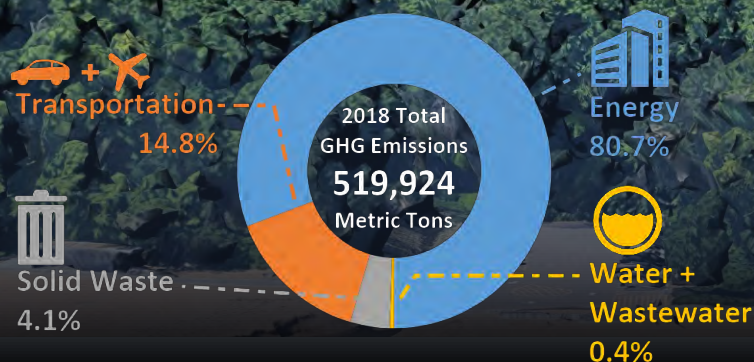
Think again! Between 2010 and 2018 the Village was able to decrease it's GHG emissions by 21.43% while growing it's economy by 13.44% (pro rata share of County reporting) and adding 3.36% more jobs!

How Large Are Community wide GHG Emissions?

The community's total emissions for 2018 are equal to **10.2 Billion** cubic feet of man-made greenhouse gas. This volume of atmosphere is equal to a cube **2,168** feet on each face, seen here from Rosewood Beach more than 5 miles away.

Volume comparison to the Willis Tower, Chicago.

Community Wide GHG Emissions By Sector

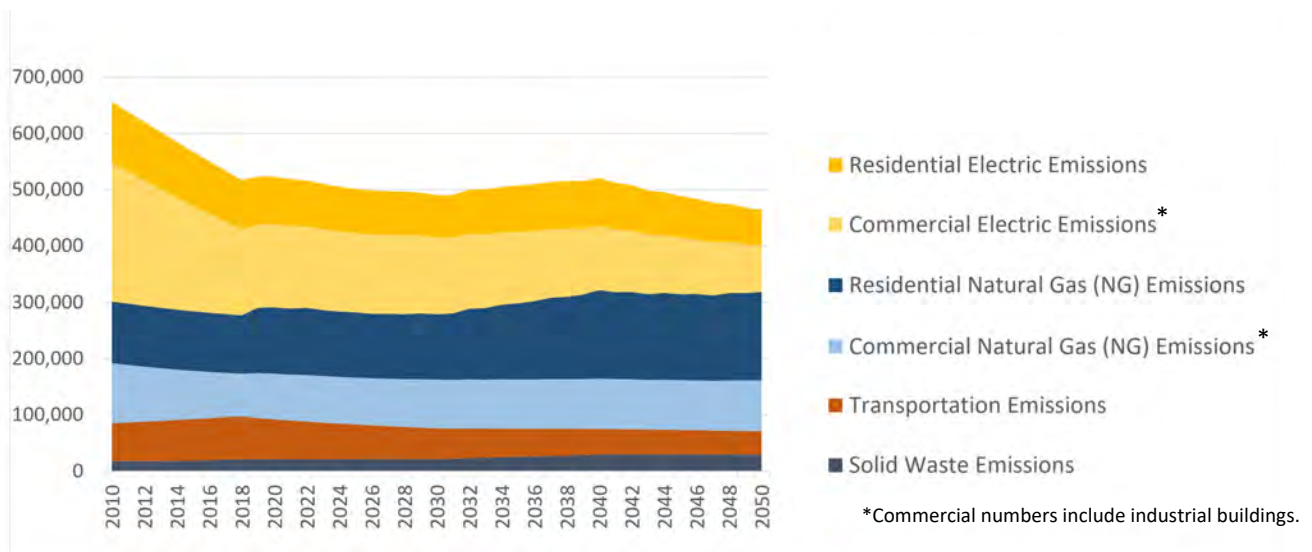


Introduction

Villagewide GHG Emissions Forecast

A GHG emission forecast supports GHG reduction planning efforts by anticipating what emissions may be like if actions are not taken. Emissions are typically forecast under a business-as-usual (BAU) scenario. The Intergovernmental Panel on Climate Change (IPCC) defines a “business-as-usual” baseline case as the level of emissions that would result if future development trends follow those of the past and no changes in policies take place.

The Village of Northbrook GHG forecasts included here were based on population, employment, and vehicle use growth estimates determined by 10 and 20 year historic growth rates and by the Chicago Metropolitan Agency for Planning. In addition to these data, the BAU draws from information from the US Environmental Protection Agency, US Department of Transportation, and US Energy Information Agency. The full assumptions used for the Business-as-usual GHG Emissions Forecast model are outlined in detail in the appendix of this plan.



2030 GHG Emissions	Change from 2010
Total Annual GHG	-25.5%
Goal Annual GHG	491,924
Difference	429,188
	62,737



Electricity Use Emissions:	-40.6%
Residential	75,178
Commercial	135,627

Natural Gas Use Emissions:	-6.4%
Residential	117,427
Commercial	86,598



Transportation Emissions:	-19.0%
VMT (Thousands)	167,719



Solid Waste Emissions:	21.3%
LFG Emissions	21,528



Wastewater+Water :	1.2%
Wastewater Emissions	955
Water Emissions	1,309

2040 GHG Emissions	Change from 2010
Total Annual GHG	-20.8%
Goal Annual GHG	522,809
Difference	267,417
	255,393



Electricity Use Emissions:	-44.0%
Residential	85,003
Commercial	113,461

Natural Gas Use Emissions:	13.6%
Residential	158,361
Commercial	89,331



Transportation Emissions:	-31.8%
VMT (Thousands)	168,404



Solid Waste Emissions:	65.5%
LFG Emissions	29,370



Wastewater+Water :	33.4%
Wastewater Emissions	1,303
Water Emissions	1,786

2050 GHG Emissions	Change from 2010
Total Annual GHG	-29.5%
Goal Annual GHG	465,829
Difference	105,646
	360,183



Electricity Use Emissions:	-59.1%
Residential	62,283
Commercial	82,559

Natural Gas Use Emissions:	14.1%
Residential	158,054
Commercial	90,682



Transportation Emissions:	-38.5%
VMT (Thousands)	171,835



Solid Waste Emissions:	66.2%
LFG Emissions	29,495



Wastewater+Water :	21.4%
Wastewater Emissions	1,308
Water Emissions	1,793



Introduction

Our Carbon Reduction Goal

This plan seeks to re-affirm the Village's commitment to the Metropolitan Mayors Caucus' Greenest Region Compact and support the State of Illinois' emissions reductions goals. To do so, the plan must align itself within the IPCC suggested carbon emission reduction goals associated with the Paris Agreement of 26%-28% reduction by 2025 and 80% or greater reductions by 2050. These global recommendations and State and National commitments were accounted for in the formulation of appropriate carbon reduction goals for Northbrook:

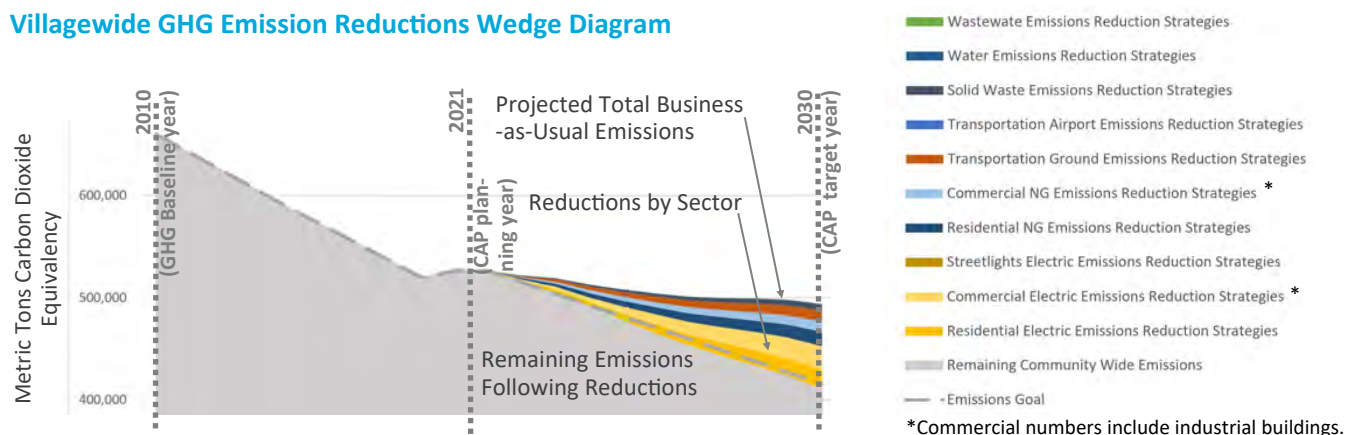
The Village of Northbrook's GHG emission reduction goals are to be compatible with the 2015 Paris Agreement and shall target a reduction in Village operations and community-wide emissions of 35% below 2010 levels by 2030 and 80% below 2010 levels by 2050.

This community-wide goal is reflected in strategies established for individual sectors which seek to both support the Village's Climate Action Plan in creating a climate resilient community and to reduce villagewide GHG emissions in line with the above goal. Sector goals related to GHG emissions reductions are designed to balance reduction across all sectors and achieve the overall emissions goals set forth for the community. The goals seek to strike a balance between achievability while also reaching for improvement beyond business-as-usual.

Estimated Villagewide GHG Reductions Included in This Plan

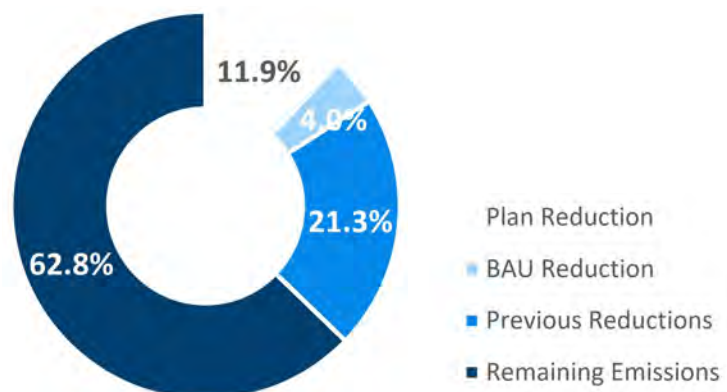
Long-term emission reduction potentials of the strategies and actions included in this plan have been modeled based on projected energy and fuel reductions and adoption rates of renewable energy and low/no emission transportation modes outlined in the strategies and actions. From this modeling, we know that with the successful implementation of this climate action plan, villagewide annual GHG emissions are projected to be 244,706 metric tons below 2010 levels and 104,341 metric tons below 2018 levels. The potential cumulative GHG emissions reductions over the 10 year implementation period are estimated at over 432,810 metric tons - an elimination of over **8.5 billion cubic feet** of man made greenhouse gas atmosphere resulting from this climate action plan.

Villagewide GHG Emission Reductions Wedge Diagram



Breakdown of GHG Emissions Reductions From 2010 to 2030

Total anticipated GHG emissions reductions by 2030 include emissions reductions which have already occurred since 2010, reductions which are anticipated within the Business-as-Usual forecast, and the reductions resulting from the strategies and actions included in this plan.



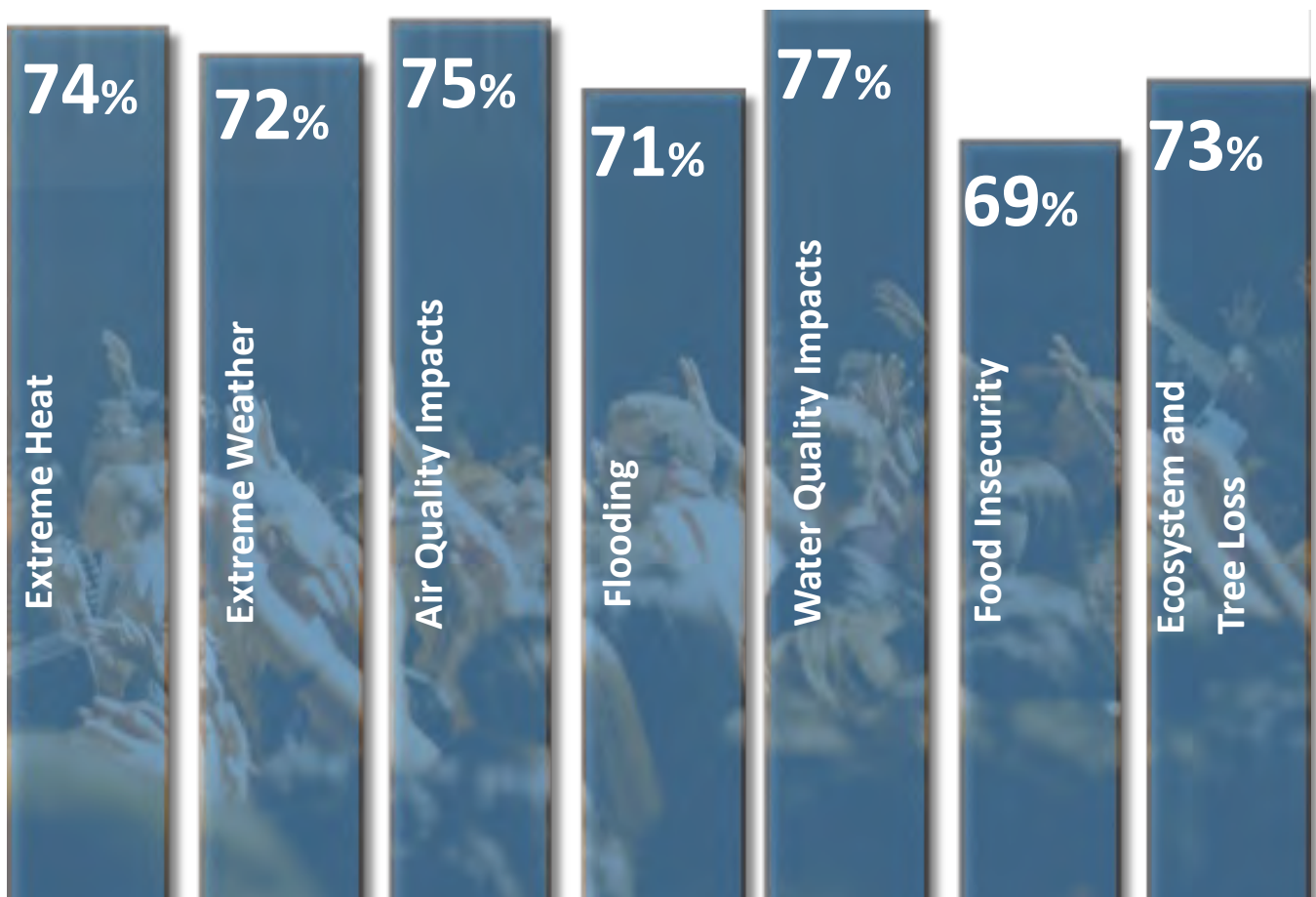
Introduction

Gathering Community Input on Climate Concerns

Understanding the perspectives of community members and broad community input is key to any successful community sustainability or climate planning effort. With that in mind, the Village of Northbrook issued this community survey to collect input from a broad range of community members. The intent of the survey was to help the Village identify climate mitigation and adaptation needs, opportunities, priorities, and issues for the community.

This survey was designed as an on-line questionnaire survey with random self-selected engagement. The survey was designed by paleBLUEdot and reviewed for edit by Village of Northbrook planning staff. The survey was made available on-line on a dedicated webpage and received a total of 418 responses. (<https://www.northbrook.il.us/993/Climate-Action-Plan>).

The graph below shows the percentage of respondents that identified each climate change impact topic as a concern. Survey responses, along with other research and community input, helped to inform the strategic goals and actions identified in the plan.



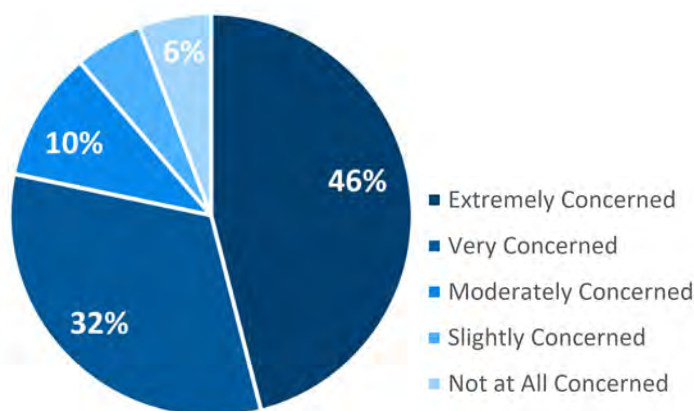
Introduction

The Process

The plan was developed in collaboration with a 31 person planning team of community members, business community members, school district, park district, library, Village commissions, Board of Trustee Liaisons, and Village of Northbrook staff. The planning team was organized into sub-teams aligned with each of the sectors included in this plan (see Plan Framework). The plan was developed through a number of planning workshops from November 2020 through April 2021.

Development and implementation of the Northbrook Climate Adaptation Plan are opportunities for the Village of Northbrook government and partners in the community to research and articulate some of Northbrook's most pressing resilience challenges; identify specific, multi-benefit actions that contribute to solutions to those challenges; and secure additional resources, technical assistance, and partnerships to accelerate next steps.

The goals and actions identified in the Climate Adaptation Plan are grounded in community input, expert analysis, and best practices from other cities throughout the United States. Strategic goals and detailed actions were developed by the Planning Team through a series of workshop meetings. A preliminary draft of actions were reviewed against action screening criteria which enabled the Planning Team to evaluate, refine, finalize, and prioritize the actions to be incorporated in the final Climate Adaptation Plan.



Survey Says

Of the community survey respondents, 78.3% are Very Concerned (32.3%) or Extremely Concerned (46%) about Climate Change.

Northbrook Action Screening Criteria

Support: How likely is the proposal to be adopted by the Village or community-wide? Is it politically feasible? Is there community support? Is it consistent with the Village's priorities and readiness to implement?

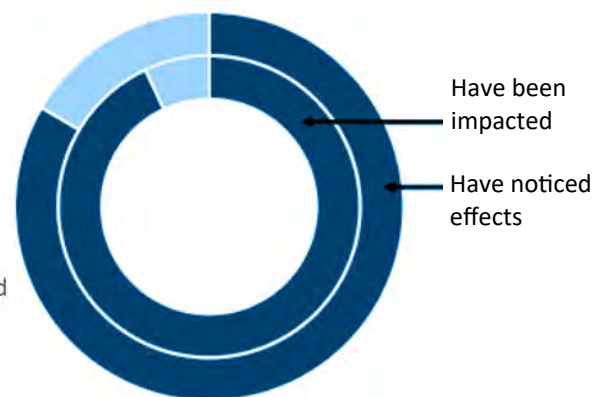
Impact of Implementation: Will it impact a large portion of the targeted emissions sector or population?

Potential for Success: Do these strategies have a track record for success locally or in other communities?

Affordability: What is the relative ease of covering the costs of the action with Village budget, grants, establishment of progressive fee structures, etc.? How affordable is the action to residents/businesses? What is the relative cost effectiveness of this action?

Overall Benefit to Cost: Does this Action have a good overall cost-to-benefit potential? Overall cost-to-benefit should include:

- Benefits relative to GHG emissions reductions (cost of carbon),
- Other direct benefits such as operational cost savings or community savings,
- Co-benefits such as economic development potential, equity, quality of life potential, health benefits
- Avoided costs including avoided costs of "business as usual" impacts if Action was not implemented.
- The relative ease of covering the costs of the action with Village budget, grants, establishment of progressive fee structures, etc.
- The affordability of the action to residents/businesses.



Over 93% have noticed effects of climate change and over 83% have been impacted by effects of climate change.

Introduction

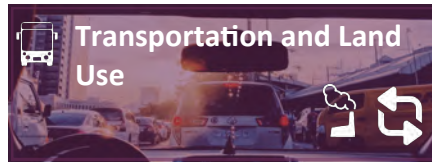
Climate Action Plan Framework

This Climate Action Plan includes an implementation framework designed to achieve community-wide goals for greenhouse gas reduction and climate adaptation and resilience. The plan is organized around a unifying framework organized by sector as illustrated to the right. Each sector has over-arching Strategies established to meet 2030 goals and detailed Actions for implementation. Sector actions include a focus on Climate Mitigation, Climate Adaptation, or both.

Climate Mitigation: addresses the root causes of climate change through the reduction or prevention of greenhouse gas (GHG) emissions. Sectors with this as a significant focus are shown to the right with this symbol:



Climate Adaptation: seeks to lower the risks posed by the impacts of climate change which are now inevitable or likely. Sectors with this as a significant focus are shown to the right with this symbol:



Emissions from on-road vehicle traffic occurring in the community. Approaches to this sector area include reductions in vehicle miles traveled as well as shifts to public transit and alternative modes of transportation like biking and walking. Sector strategies include:

Strategy TL 1: Decrease vehicle miles traveled (VMT) by 2.5% by 2030.

Strategy TL 2: Increase public transit ridership from 11.8% to 14% by 2030.

Strategy TL 3: Increase walk/bike transportation by 50% and expand discretionary walk/bike infrastructure by 2030.

Strategy TL 4: Transition Village fleet to alternative fuels, achieving 50% electrification of the Village's Vehicle and Equipment fleet by 2030.

Strategy TL 5: Support and encourage alternative fuel vehicles, achieve 20% of vehicles sold and 15% reduction of VMT by 2030.

Strategy TL 6: Advance low-carbon land use policy.

Strategy TL 7: Reduce Village wide off-road and lawn equipment annual emissions.



Emissions associated with all electricity and natural gas consumption within the village. Approaches to this sector area include improved energy efficiency and resilience.

Sector strategies include:

Strategy BE 1: Increase on-site distributed renewable energy to 10% of Residential and Commercial electric use by 2030.

Strategy BE 2: Improve Renewable Energy Policy and Incentives.

Strategy BE 3: Educate public on solar and renewable energy.

Strategy BE 4: Increase Residential and Commercial green electricity purchasing Village Wide to 5% by 2030.

Strategy BE 5: Improve total Village owned building and operations energy efficiency by 12% Electricity and 10% Natural Gas by 2030.

Strategy BE 6: Improve total Community wide residential, commercial, and industrial building energy efficiency by 12% Electricity and 10% Natural Gas by 2030.

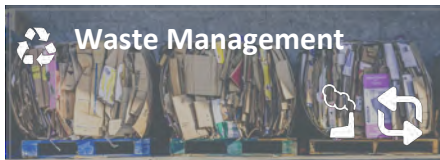
Strategy BE 7: Achieve 2% natural gas "fuel switching" in community wide residential, commercial, and industrial buildings to reduce on-site fossil fuel use by 2030.

Strategy BE 8: Improve Energy Efficiency Policy and Incentives.

Strategy BE 9: Educate public on energy efficiency.



Introduction



All solid waste generated by residents and businesses within the community and their associated emissions. Approaches in this sector focus on diversion of food, consumer, and construction waste.

Sector strategies include:

Strategy WM 1: Decrease total per capita municipal solid waste handled by 5% by 2030.

Strategy WM 2: Increase landfill waste diversion to 50% by 2030.

Strategy WM 3: Increase organics diversion from landfill.

Strategy WM 4: Increase recycling rate.

Strategy WM 5: Educate, engage, and empower the public to meet waste management goals.



Community health impacts and resilience in the face of current and projected climate impacts & risks. Approaches in this sector focus on community resilience and connections.

Sector strategies include:

Strategy HS 1: Establish and expand public health communication to include climate change impacts.

Strategy HS 2: Assist the village's heat, flooding, storm, and poor air quality vulnerable population in preparing for and mitigating climate change impacts.

Strategy HS 3: Include climate impacts and health risks in new and updates to existing plans and policies.

Strategy HS 4: Strengthen community response capacity and support networks.

Strategy HS 5: Address the air quality risks associated with climate change.



All potable water, wastewater collection and treatment, flood mitigation, and surface water health. Approaches to this sector focus on water conservation, wastewater reduction, flood mitigation, and stormwater management.

Sector strategies include:

Strategy WW 1: Promote increased water conservation Village Wide with a targeted reduction of 7.5% by 2030.

Strategy WW 2: Mitigate the projected increased flood hazards and impacts due to climate change.

Strategy WW 3: Update design standards and plans to meet projected climate change flood requirements.

Strategy WW 4: Increase stream, river and wetland protection & restoration.



Resilience of urban tree canopy, ground cover, greenspace, parks, and ecosystems. Focus includes expansion of tree canopy coverage, improvement of beneficial use of lawn areas, and mitigation of heat island impacts.

Sector strategies include:

Strategy GS 1: Increase Tree Cover and Diversity.

Strategy GS 2: Increase the resilience and use of Native Species and Pollinator Restorations Areas with a targeted increase of 1.5% communitywide land pollinator restoration coverage.

Strategy GS 3: Reduce, repurpose, and reimagine lawn space.

Strategy GS 4: Reduce Heat Island Effect through Village Wide impervious surface reduction of 2% by 2030 and 5% by 2040.



Food cultivation and distribution, nutrition insecurity, and food waste. Approaches to this sector include reduction of food waste, food system resilience, strengthening of local food production, and equitable access to healthy food. Sector strategies include:

Strategy LF 1: Increase production of local food, particularly serving low income and food insecure individuals.

Strategy LF 2: Increase access and interconnect all community gardening.

Strategy LF 3: Reduce food waste and hunger.

Strategy LF 4: Improve local food resilience and availability.



Economic development, jobs, and business creation potential represented by the actions and goals of all sectors in this Climate Action Plan. Approaches include workforce and economic development, and resilience of businesses. Sector strategies include:

Strategy CE 1: Capture local economic potential of climate action.

Strategy CE 2: Increase workforce development for the climate economy.

Strategy CE 3: Build marketplace climate resilience.

Strategy CE 4: Financing The Village's climate action implementation.

Transportation

In Northbrook



146,768,000

Vehicle Miles Driven in 2018



70.5%

Commuters drive alone



11.8%

Commuters use public transit



475

Electric vehicles currently
registered





Section 02 Transportation and Land Use



[Click here to
return to TOC](#)

Transportation and Land Use

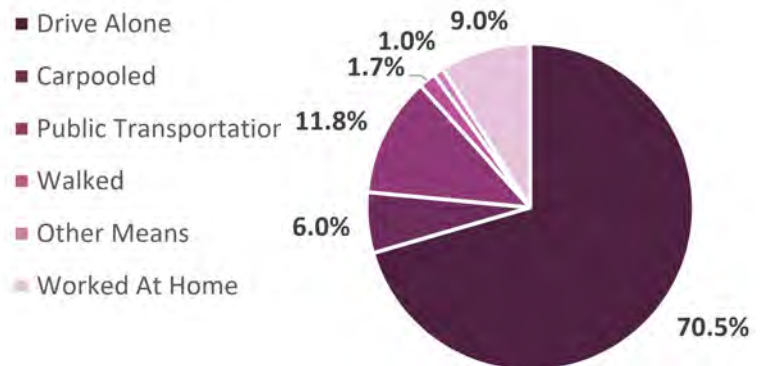
The design of a Village can limit or expand the choices and opportunities available to its residents. Where and how we live, our mobility to and from the places in our community we visit daily, and the related global impact of those decisions are all influenced by how our community is designed. The transportation systems we have access to and choose to use—including private and public vehicles, trains, and planes - can have significant impacts on the environment.

In Northbrook, the transportation sector accounts for 14.8% of villagewide greenhouse gas emissions (2018 GHG Inventory). As shown in the commuter transportation pie chart to the right, the majority (70.5%) of Northbrook residents drive to work alone. The remaining use public transit (11.8%), telework (9%), carpool (6%), or walk /bicycle (2%).

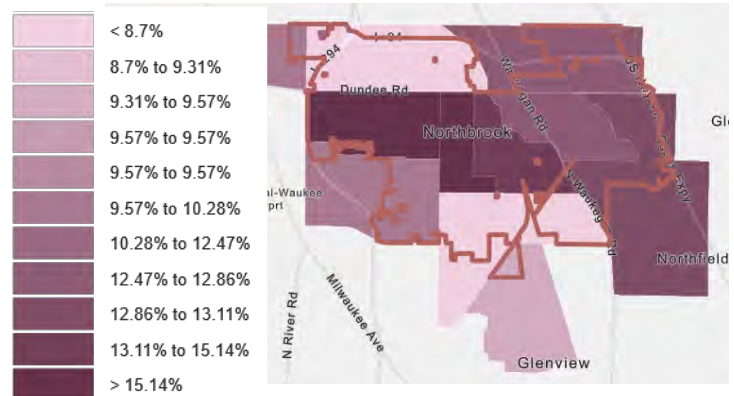
Of the workforce in Northbrook, the average commute-to-work time is 27 minutes compared to the State of Illinois average of 29 minutes. Nearly 12% of commuters have a commute of less than 10 minutes. This population may represent a significant opportunity for converting commute mode from driving to public transit, biking, or walking.

Continuing to improve the equity and sustainability of Northbrook’s land use and transportation systems requires a focus on developing systems and networks that allow for greater choice in where residents live and work, as well as how they commute. Implementation of Complete Streets and a connected system of transit, bike and pedestrian infrastructure along with emphasis on neighborhood design that supports well designed density and walkability. These strategies are lower cost solutions that will save households money while helping Northbrook reach its goal to reduce villagewide GHG emissions by 2030.

Commuter Transportation Modes of Workers in Northbrook



Commuters with <10 Minute Commute in Northbrook



Climate Change Considerations



Climate Impacts

This sector impacts climate change through the combustion of fossil fuels (gasoline, diesel, propane) for on-road cars and trucks and off-road vehicles and equipment.



Climate Hazards

Hazards to transportation and land use include increased damage to roads and transportation infrastructure due to increased freeze and thaw cycles, flooding, and extreme weather and temperatures.



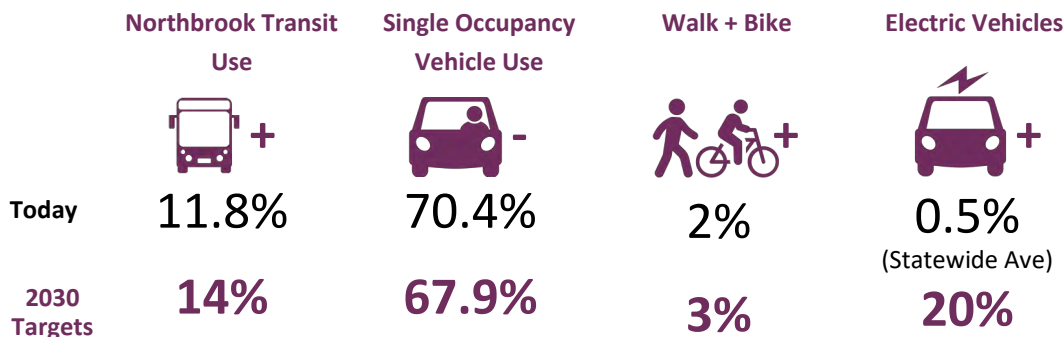
Transportation and Land Use

Equity Considerations

- Increased opportunities for public transit and active transportation can help address health disparities for many at-risk populations.
- Affordable and reliable options for mobility for people with special transportation needs can significantly improve transportation equity. Populations with special transportation needs include older adults, youth, persons with disabilities, and persons with reduced incomes.
- Some neighborhoods in Northbrook have fewer housing and transportation options than others. This can limit people's choices in where they live and how they get to work or other activities. Households that rely on public transit service or who rent their home will be limited in where they may find housing that meets both needs.

Mode Shift Targets Supporting Sector Goals

Sector goals are established to both support the Village's Climate Action Plan in creating a climate resilient community and to reduce village-wide GHG emissions 35% below 2010 levels by 2030.



Strategies Supporting Sector Goals

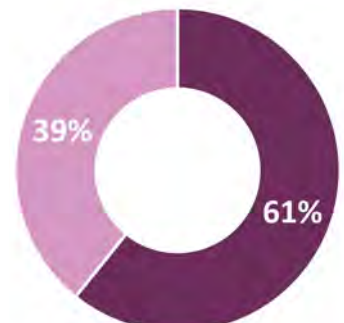
- 1 **Strategy TL 1:** Decrease vehicle miles traveled (VMT) by 2.5% by 2030.
- 2 **Strategy TL 2:** Increase public transit ridership from 11.8% to 14% by 2030
- 3 **Strategy TL 3:** Increase Walk/Bike Transportation 1% by 2030.
- 4 **Strategy TL 4:** Transition Village fleet to alternative fuels, achieving 50% electrification of the Village's Vehicle and Equipment fleet by 2030.
- 5 **Strategy TL 5:** Support and encourage alternative fuel vehicles, achieve 20% of vehicles sold and 15% of VMT by 2030.
- 6 **Strategy TL 6:** Advance low-carbon land use policy.
- 7 **Strategy TL 7:** Reduce Village wide off-road and lawn equipment annual emissions.



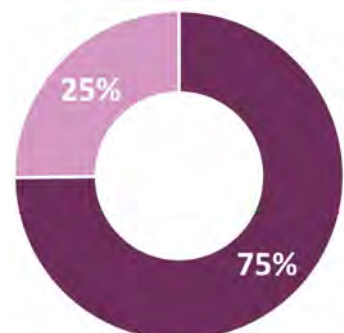
Community Survey Responses Supporting Actions in Sector

Would you support using taxpayer dollars to install electric vehicle charging stations for the public at key locations in the village?

■ Yes ■ No



Would you Support the Village in replacing its fleet vehicles with hybrid and electric vehicles?



Transportation and Land Use

1 Strategy TL 1: Decrease vehicle miles traveled (VMT) by 2.5% by 2030.

Actions	Implementation Phase
TL 1-1 Execute a community Complete Streets assessment to identify percentage of streets in compliance with Village's complete streets policy. Assessment should recommend 10 year compliance goals outlining percentage of streets to be renovated to be within compliance, recommend prioritized streets for renovation, and establish an implementation plan.	1
TL 1-2 Work with local businesses to promote tele-working as an alternative to commuting.	1
TL 1-3 Prioritize transportation funding for Vision Zero engineering improvement projects to create safe streets for people walking, biking and riding transit.	2

2 Strategy TL 2: **Increase public transit ridership from 11.8% to 14% by 2030** (increase to be focused on currently underserved populations, particularly low income individuals and households without vehicle access).

Actions	Implementation Phase
TL 2-1 Advance improved mobility options for youth and seniors such as shifting student transportation modes from cars to school bus system and promotion of services such as the PACE dial-a-ride, PACE Paratransit, and Senior Cap services. Explore creation of \$5 credit per ride arrangement with PACE similar to those established by cab companies	1
TL 2-2 Explore frequent service transit to the village's many employment centers	1
TL 2-3 Work with local employers encouraging them to implement subsidized or discounted transit program. Explore TMA Lake-Cook and others for potential partnerships. http://tmalakecook.org/	1
TL 2-4 Study mobility limitations and challenges for youth and seniors not addressed in existing programs and services and explore additional mobility options and programs with partners to address limitations while decreasing community vehicle miles traveled.	2
TL 2-5 Establish parking maximums for new development within 3/4 mile of existing or future rail or rapid bus stations.	2



Transportation and Land Use

- 3 Strategy TL 3:**
Increase walk/bike transportation by 50% and expand discretionary walk/bike infrastructure by 2030 (of total commute).

Actions	Implementation Phase
TL 3-1 Identify locations, especially near shopping and business districts, where additional bike parking facilities could be installed	1
TL 3-2 Identify locations and partners to facilitate parking buyback programs for municipal and other employers in the village. (https://www.bestworkplaces.org/pdf/ParkingCashout_07.pdf https://www.boston.gov/transportation/parking-cash-out)	1
TL 3-3 Leisure biking: Connect Northbrook - via protected bike lanes - to key biking corridors to the west of 294 (Des Plaines River Trail) and east of 94 (North Branch Trail).	2
TL 3-4 Implement the recommendations of the Northbrook Master Bicycle and Pedestrian Plan.	2
TL 3-5 Continue to support and implement Safe Routes to Schools programs. Ensure every Northbrook school has had a Safe Routes assessment and plan. Implement all plan recommendations.	3

- 4 Strategy TL 4:**
Transition Village fleet to alternative fuels, achieving 50% electrification of the Village's Vehicle and Equipment fleet by 2030 (measured by fuel consumption).

Actions	Implementation Phase
TL 4-1 Conduct a municipal fleet inventory and EV transition Implementation plan. Effort to identify opportunities for electrifying, right-sizing, and improving overall efficiency of vehicles to meet CAP Goals. Include implementation recommendations to incorporate EV's through right-timing purchases with a planned vehicle-replacement schedule.	1
TL 4-2 Update Village vehicle purchasing policy and budget process to default to alternative fuel with traditional internal combustion engine (ICE) as optional requiring proof of need and lack of EV option meeting use case. Focus on small vehicles as well as large vehicles for alternative fuels. EV replacement to be prioritized for high mileage vehicles. Goal: Achieve 50% EVs within Village Fleet by 2030. For unavoidable approved ICE vehicle purchases, establish minimum fuel efficiency requirements.	2

Transportation and Land Use

5

Strategy TL 5:

Support and encourage alternative fuel vehicles, achieve 20% of vehicles sold and 15% of VMT by 2030.

Actions	Implementation Phase
TL 5-1 Coordinate with Cook County to maintain tracking of EV registration in the community	1
TL 5-2 Support State efforts to adopt a low-carbon fuel standard.	1
TL 5-3 Proactively encourage the safe use of non-car electric vehicles such as e-bikes and scooters on Village rights of way. Collaborate with the library for bike and e-bike safety education.	1
TL 5-4 Modify future waste hauler agreements with haulers serving Northbrook to include progressive EV fleet requirements, with the goal of 50% EV fleet by 2030 and 100% by 2035. Example: City of Evanston	1
TL 5-5 Create an Electric Vehicle (EV) Action Plan to guide access to chargers on Village property and village wide, explore alternative technologies like Smart cable technology and streetlight/EV charger integration, address barriers to charging for garage-free homes and rental properties, increase use of EVs in car sharing programs, assess options to lower EV and EV charger implementation costs, and recommend EV charging station requirement amendments to zoning ordinances to support EV plan. EV Action Plan should consider EV charging needs for village residents and businesses as well as consider opportunities to support EV re-charging for travelers in ways which support the community as well as the traveler. Resource for an EV Action Plan: https://mayorscaucus.org/wp-content/uploads/2020/08/EV-Readiness-CHECKLIST-01Jun2020_final.pdf	1
TL 5-6 Expand Northbrook's current residential "EV Ready" code requirement to include all new developments (residential, multi-family, commercial, institutional, educational, industrial). Requirement to include wiring capacity to charge electric vehicles and EV parking requirements to reserve a percentage of parking spots for exclusive EV use.	2
TL 5-7 Establish an expedited process through the Village's zoning and building code for electric vehicle charging infrastructure.	2
TL 5-8 Partner with local businesses to install EV charging stations outside their store fronts for patron use.	2
TL 5-9 Identify and promote information on grants, incentives, and rebates available to the public for adoption of EV charging equipment and EV vehicles.	2
TL 5-10 Village to explore strategies to offset or reimburse part or all of the increased State of Illinois vehicle sticker fee for EV cars.	2
TL 5-11 Partner with private sector and other public sector fleet operators and transit providers to work towards a goal of 100% electric fleets within Northbrook by 2035 (50% electric by 2030).	2
TL 5-12 Identify, explore, and offer incentives to advance equity of EV adoption and use.	2



Transportation and Land Use

6 Strategy TL 6: Advance low-carbon land use policy.

Actions	Implementation Phase
TL 6-1 Amend the zoning ordinance to allow and encourage higher density development within the downtown district and within 3/4 mile radius of transit center. These amendments should include increasing building heights, allowing projects to build out to approved densities, and should consider opportunities for mixed land use. Increased density can minimize vehicle miles travelled.	1
TL 6-2 Use regulatory and voluntary tools to promote affordable and accessible housing development along existing and planned high capacity transit lines, frequent transit routes and in opportunity areas identified by Northbrook Development and Planning.	1
TL 6-3 Reconsider Village parking requirements and establish revisions which support the goals of this plan such as reducing overall parking requirements, establishing parking maximums, elimination or reduction of parking minimums, establishing minimum EV and bike parking requirements or incentives. Particular focus should be given to the Transit Oriented Development areas within a ¾ mile radius of train station and transit stops. Consider incorporating bicycle parking requirements to commercial districts.	1
TL 6-4 Incentivize infill and mixed-use development (e.g., through alternative code compliance, fee waivers, density bonuses, investment prioritization, development impact fees, tax benefits)	2
TL 6-5 Allow the construction of accessory dwelling units to increase rental opportunities in both established neighborhoods and new development.	2

7 Strategy TL 7: Reduce village wide off-road and lawn equipment annual emissions.

Actions	Implementation Phase
TL 7-1 Develop an incentive program to convert fuel-burning lawn equipment such as gas-powered lawn mowers and blowers to electric. Incentive should focus on increasing community equity. (For GHG impacts, see: http://palebluedot.llc/carbon-copy/2015/7/16/the-carbon-footprint-of-a-lawn)	1
TL 7-2 Develop ordinances to prohibit fossil-fuel-powered lawn and yard equipment.	2

Transportation and Land Use

Planned Transportation and Land Use GHG Emission Reductions

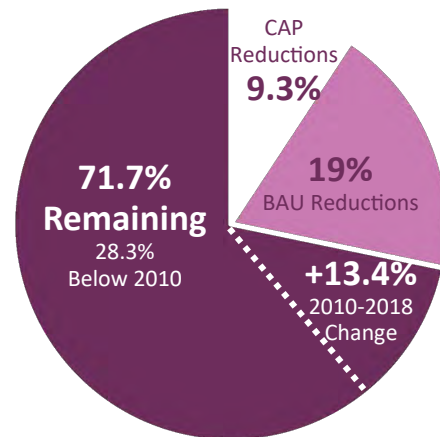
Planned Sector Emission Reductions Through 2030

The strategies and actions included in this section of the Climate Action Plan are projected to reduce the Village's annual GHG emissions by 6,273 metric tons (MT) by 2030 - a 9.3% reduction over 2010 levels. Changes in business-as-usual impacts over the same period are anticipated to reduce an additional 21,886 metric tons, however, previous changes between 2010 and 2018 increased emissions in this sector by 9,039 metric tons. The result is a total community wide Transportation sector reduction of 29% over 2010 levels.

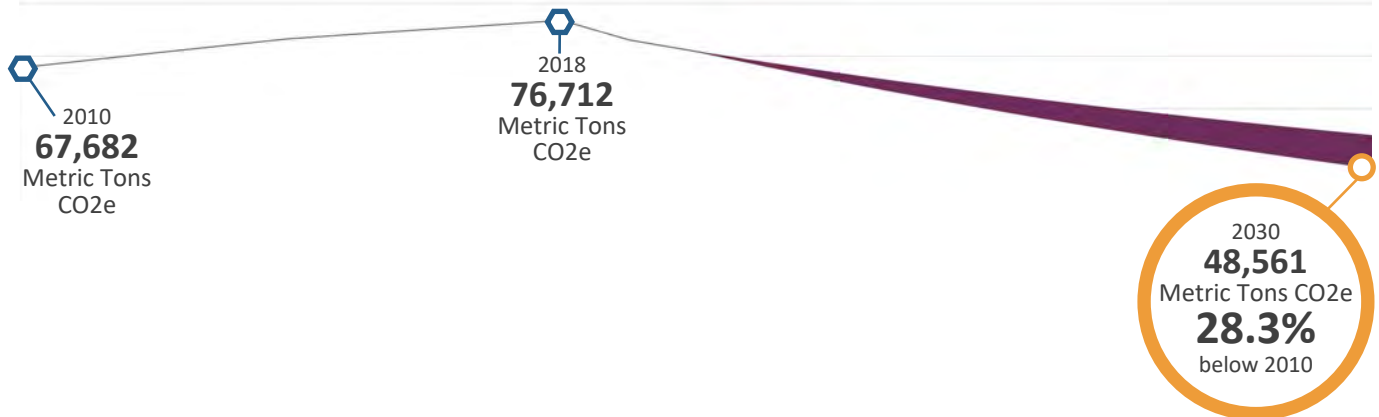
When compared to 2010 emissions, this is equivalent to eliminating **375 million** cubic feet of man-made greenhouse gas atmosphere annually by 2030

Sector Emissions Reduction below 2010 by 2030

The total change to sector emissions include CAP Plan reductions, BAU emission changes, and previous changes between 2010 and 2018 as follows:



Northbrook's Transportation and Land Use Carbon Reduction Pathway



Estimated Cumulative Economic Savings

Implementing many of the measures in this plan, such as reduction of single-occupancy auto use, can save money for the community. The estimated community savings of the goals for this section include:

Decrease VMT by 2.5%:

\$38,522,798
\$1,161
per capita

Increase EV utilization to 15% of VMT

\$4,651,059
\$359
per household

Estimated Cumulative Savings Potential*

\$43,173,856
\$1,302
per capita

* Savings for VMT reductions are based on multiplying the estimated vehicle miles saved by AAA calculated auto use cost per mile and 2020 PACE transit pass costs. Savings for EV utilization are calculated based on multiplying the estimated vehicle miles switching from gas/diesel fuel vehicle by the sum of the AAA calculated gas/diesel auto use cost per mile subtracting the EPA estimated EV auto use cost per mile. See Appendix for Cumulative Potential Cost Savings Assumptions and data sources.



Transportation and Land Use

What You Can Do

You can support the goals of the Transportation and Land Use section of the Northbrook Climate Action Plan as an individual, household, or a business. Here are just a few things you can do:

- Merge two or more errands into a single driving trip.
- Join a carpool or use ridesharing to get to work, a group activity or event.
- Walk to work, an appointment, a group activity or event.
- Ride a bike, electric bike or scooter to work, an appointment, a group activity or event.
- Take public transit to work, an appointment, a group activity or event. Plan your trip here: <https://www.pacebus.com/trip-planner>
- With a family member or friend, take public transit to a group activity or event.
- Buy or tune up a used bike.
- Sell or donate a bike (in good condition) you aren't using.
- Buy or lease a hybrid or electric vehicle, or a gas-powered one that averages more than 35 mpg.



Buildings + Energy

In Northbrook



426,411,000

kWh of electricity in 2018



34,088,156

therms of natural gas in 2018



160%

of regional household average
electric consumption



-25.8%

Change in commercial elec-
tricity consumption since 2010





Section 03 Buildings and Energy



[Click here to
return to TOC](#)

Buildings and Energy

Why Buildings and Energy Is Important

Building construction and operations can have extensive direct and indirect impacts on the environment, society, and economy. Buildings use significant resources (energy, water, raw materials, etc.), generate waste (occupant, construction, and demolition), emit potentially harmful atmospheric emissions, fundamentally change the function of land, and the ability of that land to absorb and manage water.

Building energy use is a major contributor to greenhouse gas (GHG) emissions. The Building Energy sector includes all residential, commercial, and industrial buildings. Greenhouse gas emissions from this sector come from **direct emissions** – from fossil fuels burned *on-site* for heating or cooking needs – as well as **indirect emissions** – from fossil fuels burned *off-site* in order to supply that building with electricity. Building design plays a large role in determining the future efficiency and comfort of facilities. Increasing energy efficiency can help reduce GHG emissions and result in significant cost savings for both homes and businesses. The Northbrook community can also achieve environmental, social, and economic benefits through enhancements to the built environment. The Buildings and Energy sector is 77% of village-wide GHG emissions for the Village of Northbrook. Within this sector, the share of residential consumption is 46%, commercial/industrial and government buildings are 54%.

According to 2018 community wide data, the residential sector in Northbrook consumes nearly 157 million kWh annually. This is equal to 12,805 kWh per household compared to the State of Illinois average of 8,796. The sector also consumes over 21 million therms of natural gas annually, equal to 1,685 therms per household compared to the State of Illinois average of 990 therms annually. Based on this data, the average household in Northbrook consumes 146% of the State average electrical consumption and 170% of the State average natural gas consumption.

The commercial and industrial sector in Northbrook consumes 269 million kWh annually, or approximately 8,191 per job in the community. This is compared to the State of Illinois average of 3,715 per job. These sectors also consume over 14.2 million therms of natural gas annually, equal to 434 therms per job compared to the State average of 893 therms annually. Based on a per job basis, the commercial and industrial sectors in Northbrook consume 220% of the State average electrical consumption and 49% of the State average natural gas consumption.

Climate Change Considerations



This sector impacts climate change through the combustion of fossil fuels (coal, natural gas, heating oil, propane) to generate electricity and heat/cool our buildings.



Hazards to Buildings and Energy include damage to buildings and energy grid infrastructure from extreme weather and flooding, increased power outages, and increased energy demand and cost expenditure due to rising temperatures and weather variability.

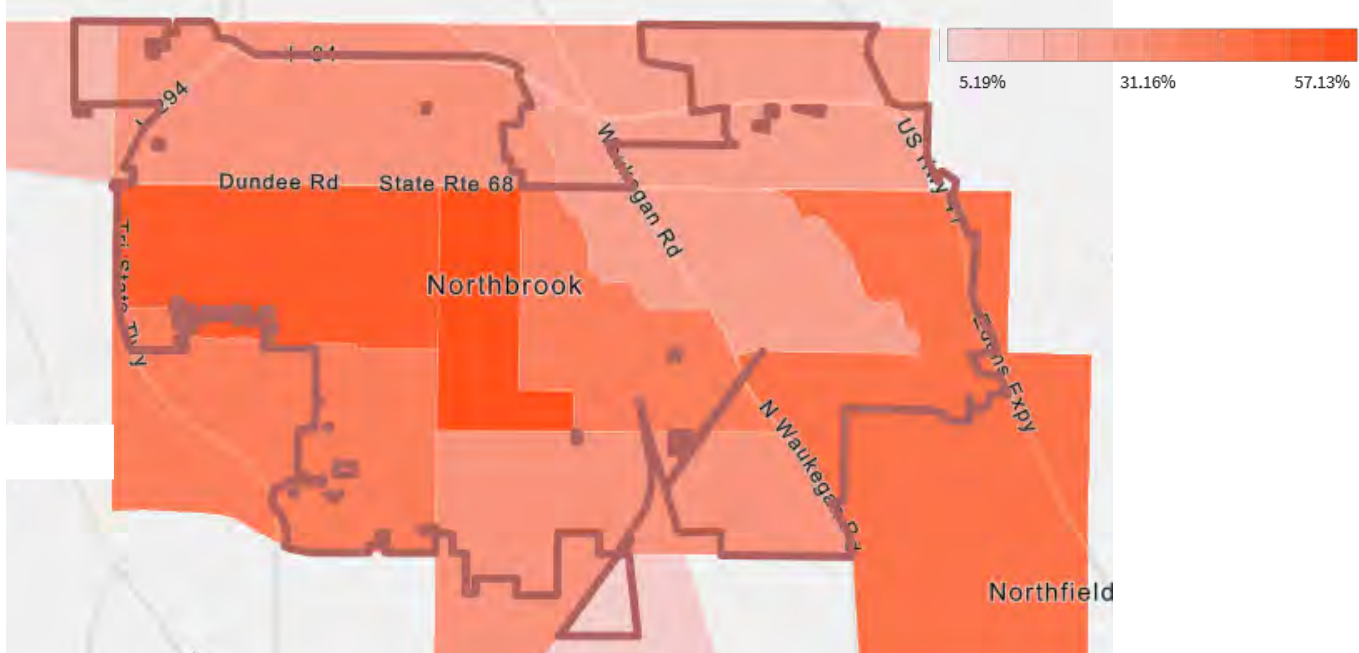


Buildings and Energy

Northbrook Building Stock Efficiency

The measure of a community's existing building stock, certified high performance buildings, and housing characteristics provides a basis for determining the current and potential energy efficiency gains for the community. Energy and water efficiency upgrades are one of the simplest and most effective ways to conserve resources, save money, and reduce greenhouse gas emissions. New building technology has increased energy efficiency significantly in recent decades. Although newer U.S. homes are 30 percent larger, they consume a similar amount of total energy as older homes - meaning they are more energy efficient per square foot of space. According to the US Energy Information Administration, homes built between 2000 and 2009 used 15% less energy per square foot than homes built in the 1980s, and 40% less energy than homes built before 1950.

Northbrook Homes Built Before 1980



Consequently, this means that retrofitting older homes with some of these technologies provides ample opportunity to improve energy efficiency throughout the community. Below are the estimated annual energy savings potential for households built before 1980:

	Estimated Units	Current Electric Consumption (million kWh)	Potential Electric Savings at 15% Improvement (million kWh)	Village Wide Potential at 15% Participation (million kWh)	Current NG Consumption (million Therm)	Potential NG Savings at 10% Improvement (million Therm)	Village Wide Potential at 15% Participation (million Therm)
Owner Occupied	9,012 84.1%	76.44	11.47	1.72	10.17	1.02	0.15
Built 1960 to 1979	6,432 60.0%	54.56	8.18	1.23	7.26	0.73	0.11
Built 1940 to 1959	2,252 21.0%	19.10	2.87	0.43	2.54	0.25	0.04
Built 1939 or Earlier	328 3.1%	2.78	0.42	0.06	0.37	0.04	0.01
Renter Occupied	1,710 15.9%	14.50	2.18	0.33	1.93	0.19	0.03
Built 1960 to 1979	1,022 9.5%	8.67	1.30	0.20	1.15	0.12	0.02
Built 1940 to 1959	603 5.6%	5.11	0.77	0.12	0.68	0.07	0.01
Built 1939 or Earlier	85 0.8%	0.72	0.11	0.02	0.10	0.01	0.00
Total Housing Units Built Before 1980:	10,722			2.05			0.18

Northbrook Renewable Energy Market Potential

As outlined in the Northbrook Renewable Energy Potentials Study, a number of scenarios for potential future market absorption of on-site solar installations exist. Scenario C outlined below, represents a continued market adoption rate within the community based on installed capacity as follows:

Scenario C: Northbrook Rooftop Solar PV Share of Statewide Projections Based on Current Share of Installed KW. This scenario also assumes maintaining the Village's leadership position in its share of the statewide **number** of arrays anticipated over the next 5 years while also maintaining the Village's leadership position in terms of its share of the statewide installed **generating capacity** (KW). By 2025, this Scenario results in a total installed capacity equal to approximately 12.6% of the total rooftop technical capacity potential or 17.2% of the optimized capacity potential within the Village.

The chart below shows projections through 2040 using the assumptions outlined above.

Scenario C: Northbrook Rooftop Solar PV Share of Statewide Projections Based on Current Share of Installed KW Capacity

(62% Initial Annual Increase)

Year	Cumulative Installed (KW)	Annual Generation (KWH)	% of Village Electric Consumption	This is Equivalent to adding (x) Average Residential Arrays Annually:	Or Equivalent to adding (x) Commercial Arrays Annually:	Or Equivalent to adding (x) Arrays Annually with Average Array Size Equal to Current Community Ave:
2024	14,264	15,399,202	3.61%	359	61.0	89.5
2030	38,728	41,810,332	9.81%	948	124	179.6
2040	110,519	119,315,514	27.98%	1,421	215	263.5

Equity Considerations




- Often, families that live in properties that are not energy efficient are also those that can least afford high-cost utility bills. These households may lack the ability to pay for energy efficiency improvements or access renewable energy options.
- Renters of both single family homes as well as multi-family housing usually do not have the ability to implement energy efficiency measures to the buildings they live in to gain the benefits of energy efficiency.
- Families with fewer resources must dedicate a disproportionately larger share of their income towards energy costs, which exacerbates other vulnerabilities including exposure to heatwaves and other climate vulnerabilities. These same families are sometimes forced to forego basic access to service altogether - an estimated 87 households in Northbrook go without heating fuel of any type (US Census heating fuel utilization data).



Buildings and Energy

Energy Mix Targets Supporting Sector Goals

Sector goals are established to both support the Village's Climate Action Plan in creating a climate resilient community and to reduce village-wide GHG emissions 35% below 2010 levels by 2030.

	Villagewide Renewable Energy	Villagewide Electricity Consumption	On-Site Fossil Fuel Consumption
			
Today	0.2%	426GHW	34.1MTherms
2030 Targets	10%	375GWH	30.7MTherms

Strategies Supporting Sector Goals

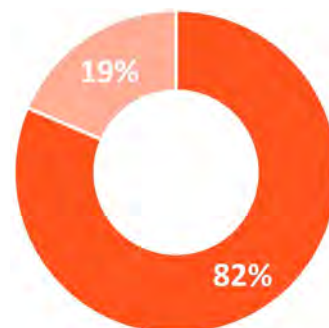
- Strategy BE 1:** Increase on-site distributed renewable energy to 10% of Residential and Commercial electric use by 2030.
- Strategy BE 2:** Improve Renewable Energy Policy and Incentives.
- Strategy BE 3:** Educate public on solar and renewable energy.
- Strategy BE 4:** Increase Residential and Commercial green electricity purchasing Village Wide to 5% by 2030.
- Strategy BE 5:** Improve total Village owned building and operations energy efficiency by 12% Electricity and 10% Natural Gas by 2030.
- Strategy BE 6:** Improve total Community wide residential, commercial, and industrial building energy efficiency by 12% Electricity and 10% Natural Gas by 2030.
- Strategy BE 7:** Achieve 2% natural gas "fuel switching" in community wide residential, commercial, and industrial buildings to reduce on-site fossil fuel use by 2030.
- Strategy BE 8:** Improve Energy Efficiency Policy and Incentives.
- Strategy BE 9:** Educate public on energy efficiency.



Community Survey Responses Supporting Actions in Sector

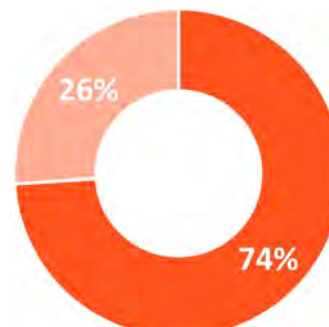
Should the Village offer incentives for energy and water efficiency that go beyond code?

■ Yes ■ No

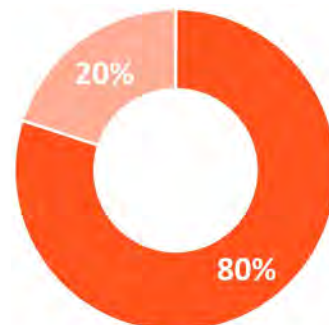


Would you support the Village in creating incentives for residents and businesses to install solar power?

■ Yes ■ No



Would you support the Village installing cost-effective renewable energy at Village owned properties?



1
Strategy BE 1:

Increase on-site distributed renewable energy to 10% of Residential and Commercial electric use by 2030.

Actions
**Implementation
Phase**

BE 1-1	Use Village facilities and other leading edge businesses and institutions to showcase clean energy systems and promote the technical and financial information needed to support broader scale adoption. Conduct a renewable energy potentials assessment and 100% Renewable Energy Master Plan for all Village owned facilities and operations. Master Plan should include exploration of on-site renewable options, community/shared renewable options, Renewable Energy Credit (REC) options, and opportunities for hosting community solar projects on Village buildings/properties (https://solsmart.org/case-study-edina-minnesota/). Master Plan should provide an implementation plan for achieving 50% renewable energy for all Village facilities and operations by 2030, and a pathway to achieve 100% by 2040. Encourage school district, county, and other public entities owning property within Village to conduct similar plans. Use Village facilities and other leading edge businesses and institutions to showcase clean energy systems and promote the technical and financial information needed to support broader scale adoption. This strategy could be coordinated with a Commercial property and Industrial property Solarize program.	1
BE 1-2	Sponsor a community-wide "Solarize" program for residential group purchase of Solar PV. Explore use of Village staff, consultant support, resources, or financing mechanisms to support the required reach of annual solarize programs to achieve long-range goals. (goal, 140 homes installed annually) https://www.nrel.gov/docs/fy12osti/54738.pdf	1
BE 1-3	Promote/Implement on-site renewable energy including solar and wind across the commercial/Industrial buildings. Identify and engage a partner that would lease roofs to create solar panel fields, as a tenant who could generate power on the roofs and sell the power directly to ComEd	1
BE 1-4	Review zoning ordinances and policies for potential obstructions to advancing distributed renewable energy like solar and wind.	1
BE 1-5	Identify the "Solar Top 50" commercial/industrial properties within the Village and produce detailed solar feasibility assessments for each site. Assessments to include potential solar generation and economic performance and return on investment estimates, information on financing and ownership models, and next step resources. Provide solar assessment reports to properties, free of charge, and conduct an informational workshop to assist building owners and businesses in understanding the assessments and next step potential. "Solar Top 50" assessment effort could be repeated annually, particularly through 2025 to leverage federal tax incentive potential.	1
BE 1-6	Sponsor a community-wide "Solarize" program for commercial and Industrial group purchase of Solar PV. Include an invitation to participate to all building sites included in the "Solar Top 50" feasibility effort. Explore use of Village staff, resources, or financing mechanisms to support the required reach of annual solarize programs to achieve long-range goals. (goal, installed capacity equal to 1.1% of commercial/industrial sector electrical consumption annually) https://palebluedot.llc/solar-pv-group-purchasing	2



2 Strategy BE 2: Improve Renewable Energy Policy and Incentives.

Actions		Implementation Phase
BE 2- 1	Require a Solar PV Site Assessment as a part of all building permit submissions. Assessment should include estimated installation cost, and projections for both energy generation potential and economic payback potential over a minimum 20 year timeframe.	1
BE 2- 2	Create tools to use in building and zoning processes to support renewable energy and energy efficiency awareness and review. See City of Eau Claire Land Use Calculator and Solar and Energy Calculator tools.	1
BE 2- 2	Establish a Solar Ready Ordinance to require residential and encourage all new multi-family residential and commercial buildings to be solar ready based on Village's Solar Ready Guide, with flexibility for site suitability.	2
BE 2- 3	Collaborate with other communities, the Metropolitan Mayors Caucus, industry, and state agencies to support County and State clean energy policies which support CAP goals. Each legislative session, prioritize proactive clean energy policies, such as: State Renewable Portfolio Standard Increase (e.g., 25% by 2025), improved net-metering laws, legislation that allows Residential PACE Programs	2

3 Strategy BE 3: Educate public on solar and renewable energy.

Actions		Implementation Phase
BE 3- 1	Help showcase renewable energy at local fairs and events (Earth Day, etc). Work with education partners like Go Green, Library and schools at events like Earth Day.	1
BE 3- 2	Establish a Solar Ready Guide providing building owners, renters, developers, designers, and contractors with detailed information on strategies to make new construction or significant renovation projects fully Solar Ready enabling more cost efficient and easier installation of on-site solar arrays. Engage solar installation companies in the process of drafting solar-ready requirements. https://view.publitas.com/	2
BE 3- 3	Establish and promote a renewable energy and energy efficiency resource hub to promote education on strategies, resources, benefits, financing, incentives, and rebate opportunities,	2

4 Strategy BE 4: Increase Residential and Commercial green electricity purchasing (wind and solar source) Village Wide to 5% by 2030.

Actions		Implementation Phase
BE 4- 1	Promote green power purchase options such as those provided by ComEd and Nicor. Collaborate with utilities on promotion and education of available options.	1
BE 4- 2	Continue and expand on existing community solar project. Organize, issue, and promote a Request for Proposals for community solar developments capable of serving Village residents and businesses interested in subscribing, particularly low income renters and home owners. Community solar development may be within or outside of Village boundary. Provide communications and subscription procurement support to selected community solar developer. Goal: 150 new community solar subscriptions annually.	2

5 Strategy BE 5: Improve total Village owned building and operations energy efficiency by 12% Electricity and 10% Natural Gas by 2030.

Actions		Implementation Phase
BE 5- 1	Convert municipal streetlights to LEDs. Explore other opportunities for smart lights that can further save energy through conservation with features like motion sensors. Achieve 100% LED conversion by 2030.	1
BE 5- 2	Establish a Green Building policy for Village owned properties requiring clear energy efficiency goals, energy consumption reduction requirements, and on-site fossil fuel combustion reduction and elimination goals. Policy to require energy consumption to be benchmarked and disclosed annually. Encourage churches, schools, YMCA, Park District, and other public and private agencies to establish similar policies.	2
BE 5- 3	Conduct a building energy audit including building electrification and occupancy / plug load energy efficiency assessment on all primary Village owned facilities. Establish a timeframe to fully implement audit recommendations. Prioritization should be given to the Village's largest energy consuming sites.	2
BE 5- 4	Establish a policy requiring ENERGY STAR appliances for all eligible new Village equipment purchases.	2



6
Strategy BE 6:

Improve total Community wide residential, commercial, and industrial building energy efficiency by 12% Electricity and 10% Natural Gas by 2030.

Actions	Implementation Phase
BE 6- 1 Work with partner organizations to establish a Large Business Energy Efficiency program to promote building retro commissioning, energy efficiency strategies including geothermal, and operation and maintenance practices that improve affordability, comfort, indoor air quality, energy efficiency, and smart metering in commercial and multifamily buildings. Target 10 large businesses commissioned annually.	1
BE 6- 2 Work with ComEd, Nicor, and other potential partners to promote and expand residential and multi-family energy efficiency audit and upgrade program similar to ComEd's "Home Energy assessments". Target 150 households per year (https://www.comed.com/waystosave/foryourhome/pages/singlefamily.aspx https://www.comed.com/WaysToSave/ForYourHome/Pages/MultiFamily.aspx and https://www.nicorgas.com/residential/ways-to-save/free-products-and-services.html)	2
BE 6- 3 Identify and promote available energy efficiency and weatherization programs serving under-resourced households. Collaborate with partners including Greenest Region Corps, ComEd, Nicor, and local community organizations serving under-resourced households to establish program promotion content and communication pathways.	1
BE 6- 4 Work with partner organizations to establish a Small Business Energy Efficiency program to promote building retro commissioning, energy efficiency strategies including geothermal, and operation and maintenance practices that improve affordability, comfort, indoor air quality, energy efficiency, and smart metering in commercial and multifamily buildings. Target 50 small and medium businesses commissioned annually.	2
BE 6- 5 Through the EQC, ComEd, Nicor, and community partners like Go Green Northbrook, create a residential energy efficiency challenge. Establish annual targets of households to engage and energy efficiency targets for participants. Collect communication materials to share with residents. Develop a plan to drive residents to action; Identify other community groups that can build capacity for effective outreach; publicly recognize annual challenge "winners" with successful energy reduction achievements. Track annual progress; Combine efforts with increased renewable energy purchases and installations	2

7

Strategy BE 7:

Achieve 2% natural gas "fuel switching" in community wide residential, commercial, and industrial buildings to reduce on-site fossil fuel use by 2030.

Actions		Implementation Phase
BE 7-1	Conduct an "Electrification Assessment and Action Plan" to outline actions and priorities for electrification of all Village owned facilities to move towards zero on-site fossil fuel combustion. Work with regional energy partnerships to implement plan for all Village facilities. Include new and existing buildings, explore strategies to address electricity storage, and create a case study to highlight and share challenges, solutions, and lessons learned to share with the broader community.	1
BE 7-2	Educate residents and businesses about the benefits of replacing fossil fuel burning heating equipment and with air-source heat-pumps, geo-thermal systems, solar thermal, or other efficient electric heating options. Collaborate with ComEd and education partners like the Library and Go Green Northbrook.	2

8

Strategy BE 8:

Improve Energy Efficiency Policy and Incentives.

Actions		Implementation Phase
BE 8-1	Support interior lighting upgrades to LED technology village-wide. Promote and distribute education and information to residents and businesses on advantages of and options for LED technology. Explore options for focused buy-down programs for low-income residents, with graduated approaches for individuals and institutions able to better afford the up-front costs required to secure long-term savings. In addition to energy cost savings, maintenance costs are greatly reduced.	1
BE 8-2	Promote and distribute education and information to residents and businesses on advantages of and options for energy efficient appliances.	2
BE 8-3	Promote and offer incentives for improving energy efficiency (e.g., insulation, energy-efficient windows, electric heat pumps) in new construction and retrofit residential and commercial properties. Coordinate incentive offerings with Utility incentives and PACE financing information (currently available to commercial properties only) New construction incentives shall support measures for projects that exceed code requirements. See Chicago Sustainable Development Policy (https://cutt.ly/TvZiY6D)	2
BE 8-4	Establish an income qualified residential and small business revolving loan fund to advance energy efficiency upgrades. Identify potential partnerships with other organizations for funding and support.	2



9

Strategy BE 9:

Educate public on energy efficiency.

Actions	Implementation Phase
BE 9-1 Enlist organizers such as schools, park district, Go Green, Library, churches, to support education of energy efficiency and renewable energy strategies and resources in support of this CAP.	1
BE 9-2 Establish a Green Building Resource Center to provide general and technical assistance about green materials, energy efficient appliances and equipment, lighting, renewable energy generation, and to provide information on available rebates to residents and others.	1
BE 9-3 Establish a Net Zero Energy Building Guide providing building owners, renters, developers, designers, and contractors with detailed information on strategies to make new construction or significant renovation projects Net Zero Energy or Net Zero Energy ready. Include a project strategy checklist for building owners and teams to use and report sustainable strategies used. https://palebluedot.llc/llbo-nze	2

Buildings and Energy

Planned Buildings and Energy GHG Emission Reductions

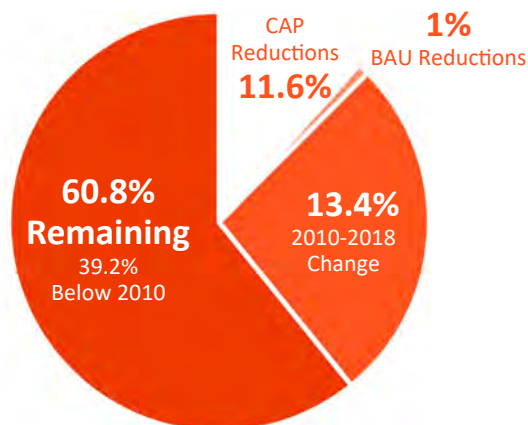
Planned Sector Emission Reductions Through 2030

The strategies and actions included in this section of the Climate Action Plan are projected to reduce the Village's annual GHG emissions by 66,622 metric tons (MT) by 2030 - an 11.6% reduction over 2010 levels. Changes in business-as-usual impacts over the same period are anticipated to reduce an additional 5,116 metric tons and previous changes between 2010 and 2018 decreased emissions in this sector by 152,583 metric tons. The result is a total community wide Buildings and Energy sector reduction of 39% over 2010 levels.

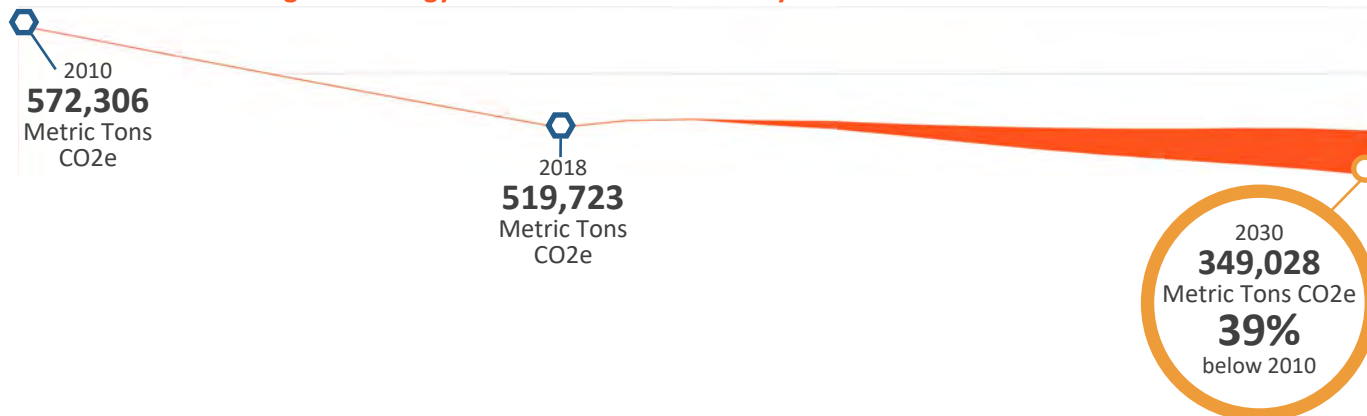
When compared to 2010 emissions, this is equivalent to eliminating **4,380 million** cubic feet of man-made greenhouse gas atmosphere annually by 2030.

Sector Emissions Reduction below 2010 by 2030

The total change to sector emissions include CAP Plan reductions, BAU emission changes, and previous changes between 2010 and 2018 as follows:



Northbrook's Buildings and Energy Carbon Reduction Pathway



Estimated Cumulative Economic Savings

Implementing many of the measures in this plan, such as increased energy efficiency and renewable energy, can save money for the community. The estimated community savings of the goals for this section include:

Residential Energy Efficiency and Renewable Energy Savings:

\$20,385,820
\$1,575
per household

Commercial/Industrial Energy Efficiency and Renewable Energy Savings:

\$23,937,003
\$654
per job

Estimated Cumulative Savings Potential*

\$45,322,824
\$1,367
per capita

* Savings for residential and commercial/industrial energy efficiency are based on current average energy rates applied to projected energy reductions. Savings for residential and commercial/industrial renewable energy are based on an estimated 15 year ROI on solar installations with an average solar array design life of 30 years. See Appendix for Cumulative Potential Cost Savings Assumptions and data sources.



What You Can Do

You can support the goals of the Buildings and Energy section of the Northbrook Climate Action Plan as an individual, household, or a business. Here are just a few things you can do:

- Unplug 2 or more electricity "vampires" in your home or apartment.
<https://www.comed.com/News/Pages/NewsReleases/2019-10-30B.aspx>
- Convert 3 or more lights or lamps to LED bulbs.
- Set your thermostat 2 or more degrees higher during cooling season, lower during heating season.
- Turn down your water heater to 120°.
- Replace an older home thermostat with a "smart," programmable model.
- Replace your older water heater with a high efficiency water heater—especially electric or solar-thermal water heaters (https://www.energystar.gov/products/water_heaters). Inefficient water heaters can often represent up to 20% of a home's energy spending!
- Replace a major appliance (e.g., refrigerator, air conditioner, furnace) with a newer, energy-efficient model.
- Replace a gas range with an electric induction unit which are safer, improve indoor air quality, and are more energy efficient (https://www.energystar.gov/about/2021_residential_induction_cooking_tops)
- Replace a gas clothes dryer with an electric model.
- Schedule a home energy audit with a licensed contractor or ComEd.
<https://www.comed.com/WaysToSave/ForYourHome/Pages/SingleFamily.aspx>
- Learn about adding solar panels to your home. Attend a free Midwest Renewable Energy Association information session, or schedule a solar suitability assessment of your home by a licensed contractor.
<https://www.growsolar.org/chicagoland/>
- If you don't own your home but support clean, renewable energy, sign up for community solar through ComEd.
<https://www.comed.com/SmartEnergy/MyGreenPowerConnection/Pages/CommunitySolar.aspx>
- Install — or have a licensed contractor install — more insulation in your home.
- Install energy-efficient windows and doors, working with a licensed contractor.
- Install solar panels at your home, working with a licensed contractor. If possible, participate in Northbrook's residential solar group purchasing program.

Solid Waste In Northbrook



4,276

tons of recycling in 2018



15,260

tons of organics/yard waste
in 2018



9,708

tons of landfill waste in 2018



+111%

Change in total solid waste
since 2010





Section 04 Waste Management



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return to TOC](#)



Waste Management

Why Waste Management Is Important

In Northbrook, solid waste contributed 4.1% of village-wide greenhouse gas emissions in 2018. Municipal solid waste sector has great potential to avoid emissions throughout the economy thanks to waste reduction and waste recovery. Landfills are the third largest anthropogenic (man-made) source of methane, accounting for approximately 11% of the estimated total global methane emissions.

Food discards and residuals that decompose in landfills release methane, a greenhouse gas that is at least 28 times more potent than carbon dioxide. This fact makes food wasting a significant contributor to solid waste greenhouse gas emissions. Habitat destruction, global warming, and resource depletion are some of the effects of our materials consumption.

Waste Management Hierarchy

Important strategies to reducing our solid waste impacts on the environment include reduction, reuse, recycling, and composting.

Most preferred environmental option
↑
Least preferred environmental option



Climate Change Considerations



Climate Impacts

This sector impacts climate change through combustion of fossil fuels in the collection and processing of materials, as well as the generation of methane from anaerobic decomposition of organic materials in landfills.

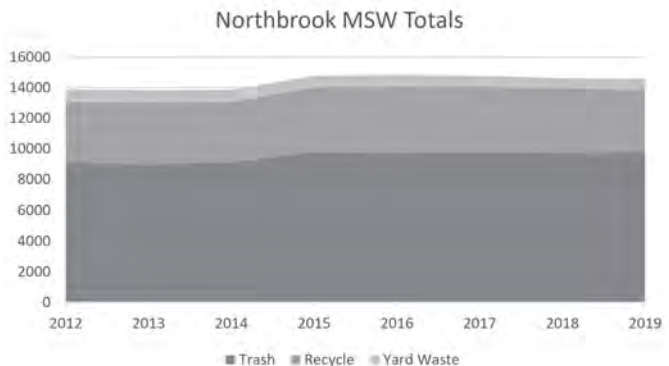


Opportunities

As indicated in the Waste Diversion Potential Estimate diagram, a significant portion of Northbrook's waste stream has the potential for being put to beneficial use while avoiding GHG emissions.

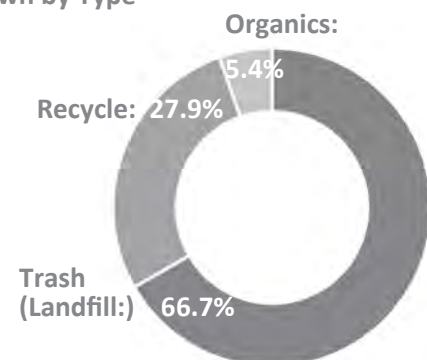
Northbrook Municipal Solid Waste (MSW) Handled

As shown on the Northbrook MSW Totals chart below, since 2012, the total municipal solid waste handled in Northbrook, including residential, commercial, and industrial waste collection, has increased from 13,880 tons to 14,613 tons. This represents a 5.3% increase in total solid waste handled—or a 7.2% increase when measured on a per capita basis.



As shown on the Northbrook MSW Breakdown by Type chart, the share of total residential, commercial, and industrial solid waste generated in the community has remained relatively consistent between yard waste, recyclables, and trash (landfill). In 2019, Organics collection was 5.4%, Recyclables 27.9% and trash (landfill) was the remaining 66.7% of the total solid waste handled.

MSW Breakdown by Type



Climate Hazards

Hazards to the waste management system include damage to infrastructure from extreme weather and flooding.



Waste Management

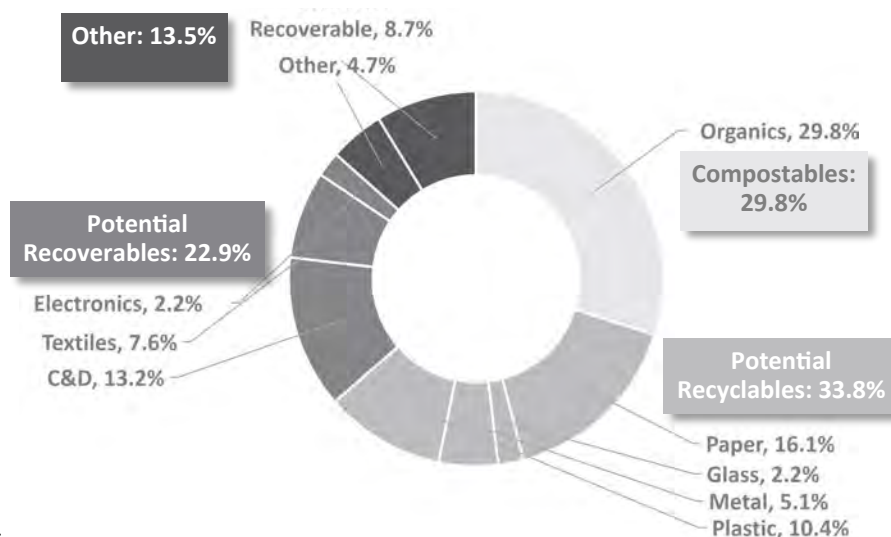
Northbrook Solid Waste Per Capita Trends

According to the 2015 Chicago Regional Greenhouse Gas Inventory compiled and issued by CMAP in 2018, the average total municipal solid waste handled per capita for suburban Cook County was 287.6 pounds annually. As shown in the Northbrook MSW Per Capita chart on the following page, the total municipal solid waste per capita for the Village was 827.4 pounds in 2012. By 2019, that number was 886.8 pounds—an increase of 5.3% and approximately 3 times the reported suburban Cook County average as reported by CMAP*. During this same timeframe, organics collection increased 1% and recycling increased 4% - when viewed within the total MSW handled, the combined organics and recycling share of municipal solid waste has fallen 3.4%. Meanwhile the trash (landfill) share of the total MSW has increased 9.1%. The total existing diversion rate (solid waste diverted from landfills) in Northbrook was 33.4% in 2019. This can be favorably compared to the total Cook County diversion rate of 30% as reported by Cook County in the 2018 Waste Management Plan.

*Note: The 2018 CMAP report indicates suburban Cook County per capita waste to be 287.6 pounds, however, the 2018 Cook County Waste Management Plan indicates countywide solid waste per capita to be 1,396 pounds. Although the CMAP number refers only to suburban Cook County and the Cook County number represents countywide waste, these numbers indicate a potential discrepancy.

Northbrook Solid Waste Characteristics

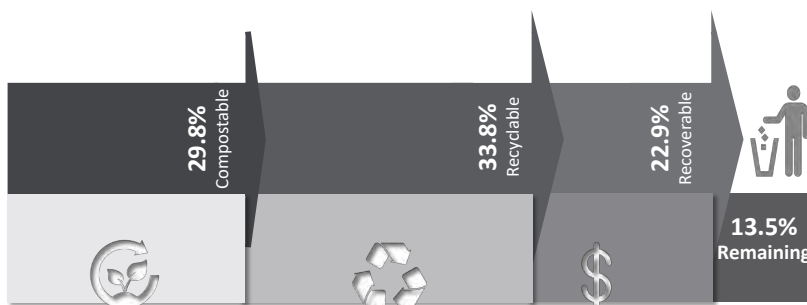
According to the 2018 Cook County Solid Waste Management Plan, Cook County Department of Environment and Sustainability commissioned a Commodity/Waste Generation and Characterization Study to determine the composition of different materials being landfilled. That study reviewed and characterized municipal solid waste (MSW) from both residential and industrial /commercial/ institutional (ICI) waste streams. To the right is the blended results of residential and commercial waste characteristics for Mt Prospect and Glenview as the two closest communities sampled in the study. This breakdown represents what is likely contained in the “trash” portion of the Northbrook MSW breakdown by type. This graph groups the classifications of waste defined in the study into broad categories based on their diversion potential including: Compostables, Potential Recyclables, and Other.



Northbrook Waste Diversion Potential Estimate

Based on the blended waste characteristics, the diagram to the left illustrates the waste landfill diversion potential estimated based on the blended waste characteristics.

Estimated Diversion Potential: **86.5%**





Waste Management

Equity Considerations

- Accessibility to recycling and composting programs may not be equally and readily available to all community residents and may also be impacted by other participation-related barriers, including awareness of programs, user fees, accessibility based on housing type, and language barriers.
- Populations that are situated very close to the landfill or composting facility may experience nuisance issues like bad odors and potential health issues unless mitigation actions are implemented.

City-Wide Solid Waste Targets Supporting Sector Goals

Sector goals are established to both support the Village's Climate Action Plan in creating a climate resilient community and to reduce village-wide GHG emissions 35% below 2010 levels by 2030.

	Landfill Diversion	Total MSW Handled
		
Today (% of total waste)	33%	1,763 pounds per capita
2030 Targets (% of total waste)	50%	1,675 pounds per capita

Strategies Supporting Sector Goals

- Strategy WM 1:** Decrease total per capita municipal solid waste handled by 5% by 2030.
- Strategy WM 2:** Increase landfill waste diversion to 50% by 2030.
- Strategy WM 3:** Increase organics diversion from landfill.
- Strategy WM 4:** Increase recycling rate.
- Strategy WM 5:** Educate, engage, and empower the public to meet waste management goals.

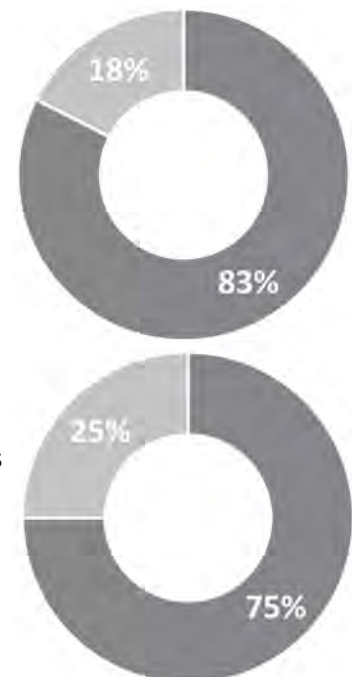


Community Survey Responses Supporting Actions in Sector

Should multi-family and apartment complexes be required to offer recycling for residents?

■ Yes ■ No

Would you support the Village providing incentives to help divert or recycle construction materials?



Waste Management

1 Strategy WM 1: Decrease total per capita municipal solid waste handled by 5% by 2030.

Actions	Implementation Phase
WM 1-1 Phase out single-use products by 2026 by implementing an opt-in fee for such products. This would apply to (but not limited to) bags (both paper and plastic), utensils, napkins, and take-out containers. Explore the feasibility of establishing a reusable takeout container service. Applies to businesses of any size. Encourage restaurants to allow customers to bring their own take-out containers	1
WM 1-2 Encourage businesses of all sizes to utilize technology and software when determining purchasing product needs to reduce overhead waste, specifically for food waste in restaurants and grocery or specialty food stores.	1
WM 1-3 Develop and then adopt an ordinance requiring reusables for dine-in restaurants and sustainable take-out food ware. This effort would reduce a significant source of single-use plastics and other high-carbon materials used in the Village.	2
WM 1-4 Encourage reduction of single-use products and limit packaging by 2026 at point of sale. This would apply to (but not limited to) bags (both paper and plastic), Styrofoam trays, cling wrap, plastic net bags, to-go containers, and boxes. Encourage businesses to avoid pre-packaging products. Applies to businesses of any size	2

2 Strategy WM 2: Increase landfill waste diversion to 50% by 2030 (a 51% increase over 2019 diversion levels).

Actions	Implementation Phase
WM 2-1 Conduct a waste audit to determine waste diversion opportunities. Establish a Village Facility Zero Waste goal to eliminate landfill stream from office operations. Encourage other public agencies (schools, park district, library etc) and businesses.	1
WM 2-2 Establish a zero waste Village Event policy making zero waste office operations and events standard.	1
WM 2-3 Reduce construction and demolition waste by ensuring that strong recycling and reuse requirements are met for all building-related permits Village-wide. Require compliance with Cook County's construction and demolition requirements including waste management plans; provide support resources. Partner with Habitat, reuse	1
WM 2-4 Require that all real estate developments that receive financial assistance or special zoning approval from the Village agree to exceed the Village's sustainability goal for waste diversion for 2030	1
WM 2-5 Assure that Cook County enforces its Construction & Demolition Debris Diversion Ordinance, and encourage contractors to exceed minimum requirements. Provide a copy of the ordinance and requirements with Village permit materials.	2

2

Strategy WM 2:

Increase landfill waste diversion to 50% by 2030 (a 51% increase over 2019 diversion levels). (continued)

Actions	Implementation Phase
WM 2-6 Restructure solid waste rates to incentivize smaller landfill bins and quantities and larger recycling and compost bins.	2
WM 2-7 Establish a Waste Ordinance, requiring all residential, multi-family residential, and commercial property owners to offer recycling and compost collection services. Example policy: https://bouldercolorado.gov/zero-waste/universal-zero-waste-ordinance with the long term goal of complying with the zero waste initiative	2

3

Strategy WM 3:

Increase organics diversion from landfill.

Actions	Implementation Phase
WM 3-1 Conduct an organics waste collection pilot project with a sample of Village businesses to test the interest, methodology, and amount of commercial food waste that would need to be accommodated by a commercial organics collection program. Explore possible incentives for food retailers, restaurants, and institutions to participate in food waste reuse and recycling programs	1
WM 3-2 Manage Food Waste: Expand on existing programs and coordinate with other entities to reduce food waste. Unused food should be funneled to composting or donation as much as possible.	1
WM 3-3 Establish a communication campaign to promote and increase the utilization of the curbside compost collection program to all residential properties (e.g., single-family and multifamily) for yard waste, food waste and certified compostable products.	2
WM 3-4 Collaborate with residential and commercial organics haulers to establish organics diversion programs for residential and commercial buildings. Explore options such as trash Integrated Food Scrap Compost Collection (see Ramsey County MN pilot program)	2
WM 3-5 Combat food waste by encouraging retailers and restaurants to donate, reduce, reuse, or compost their unsold food, creating “zero-waste sections” where products are sold close to their expiration dates, and designating “zero-waste coaches” to raise awareness among staff and help manage products reaching the end of their marketable life. Edible unsold products shall be donated. When not edible, organic waste shall be composted through a Village-approved vendor.	2



Waste Management

4

Strategy WM 4: **Increase recycling rate.**

Actions	Implementation Phase
WM 4-1 Increase waste diversion opportunities by increasing recycling and organics collection bins in public places. Work with other public agencies, including the school district, to advance recycling.	1
WM 4-2 Develop and fund an assistance program for businesses to provide waste audit services, support businesses in establishing tracking and reporting waste streams, identify reduction, diversion, and beneficial use opportunities. Program should include identification of potential grants and other revenue sources for implementation costs. Assistance program should pro-actively identify and outreach to businesses likely to benefit from waste reduction assistance. Assistance should include connecting businesses with energy audit and other resources in support of full CAP goals. Identify collaborative partners such as the County and recycling and organics haulers. Goal: 12 business waste audits completed with recommendations implemented annually.	2
WM 4-3 Develop program to recycle single-use styrofoam items, possibly in cooperation with Village waste disposal vendor and SWANCC.	2

5

Strategy WM 5: **Educate, engage, and empower the public to meet waste management goals.**

Actions	Implementation Phase
WM 5-1 Support state legislation to prohibit Styrofoam ; incentivize restaurants to choose alternatives ; education campaigns on single use items and consumer choice	1
WM 5-2 Educate the community on waste management strategies. Introduce the term Zero Waste and lifecycle concepts. Include reducing consumption, followed by reusing, repurposing, recycling, and composting information. Include clear information on what can and cannot be recycled, and the dangers and impacts of single use plastics. Offer tips such as opting out of junk mail, etc.	1
WM 5-3 Support collaborative consumption community projects, such as neighborhood compost projects, tool libraries, and repair cafes through mini-grant programs	1
WM 5-4 Provide outreach and education to Village businesses in reducing greenhouse gas emissions through their supply chains	2
WM 5-5 Encourage Northbrook residents to participate in organics collection through creation of “Include the Food” education campaign.	2
WM 5-6 Conduct a literature review of waste incentive/disincentive programs for the community and businesses that have been successfully implemented in other cities	2

Waste Management

Planned Waste Management GHG Emission Reductions

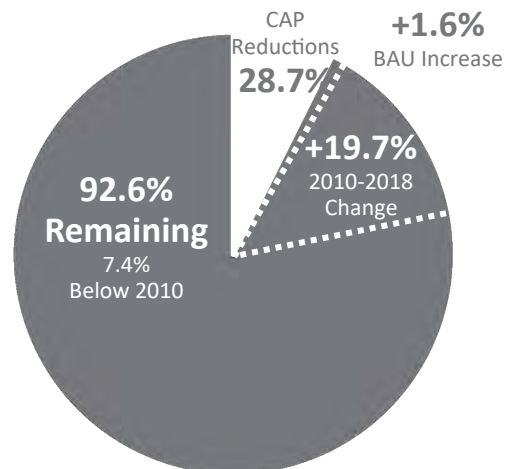
Planned Sector Emission Reductions Through 2030

The strategies and actions included in this section of the Climate Action Plan are projected to reduce the Village's annual GHG emissions by 5,090 metric tons (MT) by 2030 - a 28.7% reduction over 2010 levels. Changes in business-as-usual impacts over the same period, however, are anticipated to *increase* 282 metric tons and previous changes between 2010 and 2018 increased emissions in this sector by 3,500 metric tons. The result is a total community wide Waste Management sector reduction of 7.4% when compared to 2010 levels.

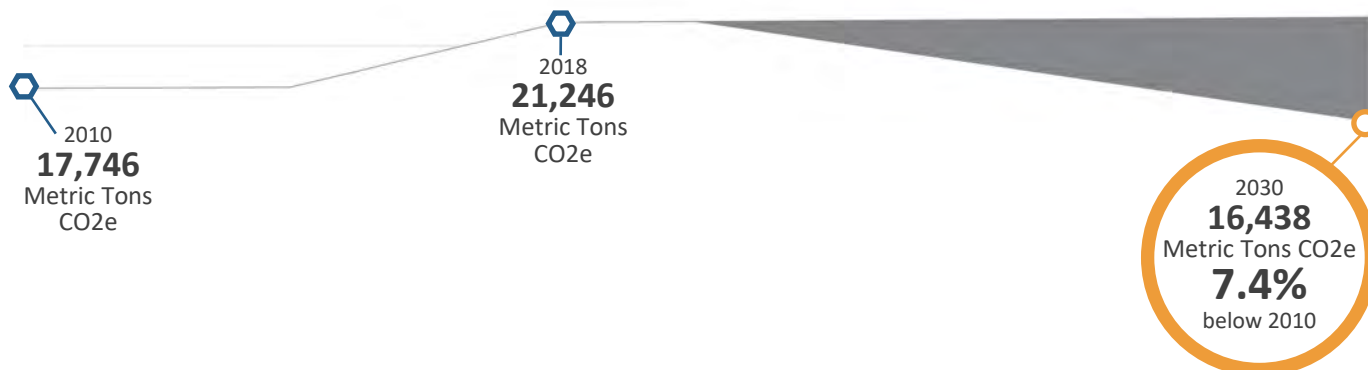
When compared to 2010 emissions, this is equivalent to eliminating **22.6 million** cubic feet of man-made greenhouse gas atmosphere annually by 2030

Sector Emissions Reduction below 2010 by 2030

The total change to sector emissions include CAP Plan reductions, BAU emission changes, and previous changes between 2010 and 2018 as follows:



Northbrook's Waste Management Carbon Reduction Pathway



Estimated Cumulative Economic Savings

Implementing many of the measures in this plan, such as reduction of food waste, material waste, and overall consumption, can save money for the community. The estimated community savings of the goals for this section include

Organics/Food Waste Diversion Savings:

\$44,618,218
\$1,345
per capita

Commercial/Industrial Waste Reduction Savings:

\$313,500
\$8
per job

Estimated Cumulative Savings Potential

= \$44,931,718
\$1,355
per capita

*Savings for organics/food waste diversion are based on multiplying the estimated pounds of food waste reduced by an estimated value per pound based on "A Roadmap to Reduce US Food Waste" by ReFED. Savings for commercial waste reduction are calculated based on multiplying the estimated number of participating organizations by the average savings per company reported by the MN WasteWise program (a similar initiative). See Appendix for Cumulative Potential Cost Savings Assumptions and data sources.



Waste Management

What You Can Do

You can support the goals of the Waste Management section of the Northbrook Climate Action Plan as an individual, household, or a business. Here are just a few things you can do:

- How much of your waste can you divert to recycling? Challenge yourself and your household to increase your recycling. Make sure to rinse and dry your recyclables; dirty materials contaminate the process and have to be landfilled.
- Carry groceries and other purchases in reusable bags. Remember to bring your bags to the grocery store, farmer's market, and when you go retail shopping.
- Give up single-use plastics by switching to sturdy, reusable items like metal/hard plastic water bottles, cutlery, & to-go containers.
- Choose items with no packaging, minimal packaging, or packaging that is compostable or completely recyclable.
- Give unused clothes and household items (in good condition) to a local nonprofit, neighbor or friend.
- Shop local second-hand and vintage stores.
- Create a composting bin and routine.
- Challenge yourself and your household to eliminate your food waste. Minimize your food waste by first eating what you already have in your fridge. Meal planning and making grocery lists can also reduce your food waste. <https://www.epa.gov/recycle/reducing-wasted-food-home>.



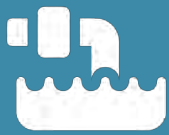
Water + Wastewater

In Northbrook



1.3 billion

gallons of water consumed
in 2018



1.2 billion

gallons of wastewater gen-
erated in 2018



266

Community flooding events
reported in Cook County
since 2001



-18%

Change in total solid waste
since 2010





Section 05 Water + Wastewater



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Water and Wastewater

Why Water and Wastewater is Important

Water is at the core of climate change and sustainable development. Quality water is vitally important for socio-economic development, maintaining healthy ecosystems, and for human survival. Water is central to the production and preservation of a wide range of services benefiting people. How we process water is also linked to our greenhouse gas emissions. Water related energy use totals 13% of US electricity consumption and has a carbon footprint of at least 290 million metric tons. Meanwhile, wastewater treatment is responsible for 3% of global GHG emissions.

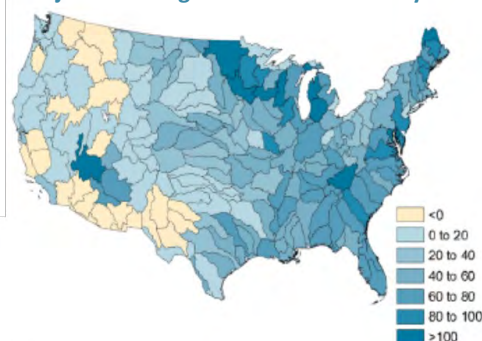
Water is also at the heart of adaptation to climate change. In our region/the Midwest, climate change will increase the likelihood of drought combined with additional heavy rain events, flooding, and flash flooding. Climate change will also result in increased stress on our water systems, increase water pollution potential, and place more risk on maintaining safe water resources. Water is an irreplaceable, critically important resource fundamental to the well-being of our communities. Water can only be considered renewable with high quality best water management practices in place.

According to FloodFactor, 10% of all properties, approximately 1,216 locations, are at risk for flooding. By 2050 the number will increase to 1,232 properties due to climate change impacts. (https://floodfactor.com/city/northbrook-illinois/1753481_fsid)

Regional Water Stress

By 2025, an estimated 1.8 billion people will live in areas plagued by water scarcity, with two-thirds of the world's population living in water-stressed regions. Since 1985, water yield in parts of Illinois, Iowa, Wisconsin, and Minnesota have declined as much as 20%. Projected climate changes will not only continue the water yield decreases but also increase water demand - by 2030 communities throughout the Midwest are projected to have an increase in annual water demand of 4-6% due to climate change and population increases. By 2071, nearly half of the 204 fresh water basins in the United States may not be able to meet the monthly water demand. (Sources: "Adaptation to Future Water Shortages in the United States Caused by Population Growth and Climate Change", "Managing the water-electricity demand nexus in a warming climate").

Projected Change in Water Demand by 2050



Climate Change Considerations



Climate Impacts

This sector impacts climate change through fossil fuel use to generate the electricity required to process and distribute water.



Climate Hazards

Hazards to the water and wastewater system include damage to infrastructure from extreme weather and flooding. Village-wide hazards include increased flooding and flash flooding potential.



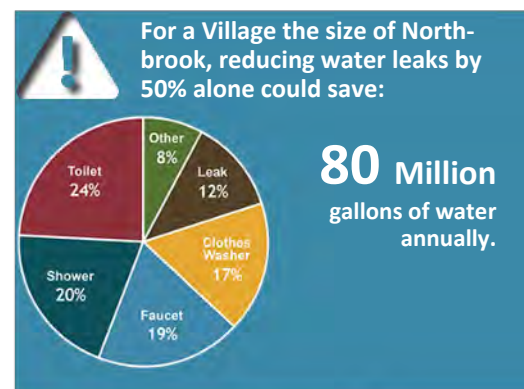
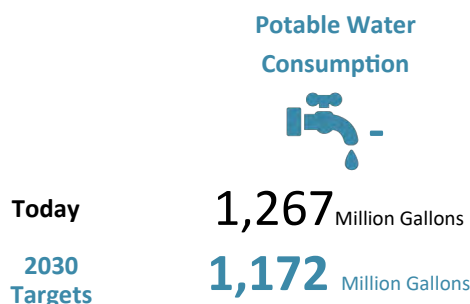
Water and Wastewater

Equity Considerations

- Low-income neighborhoods frequently suffer more damage from flooding, according to studies by the National Academies of Sciences, Engineering and Medicine (*Framing the Challenge of Urban Flooding in the United States*, 2019). The frequency and magnitude of heavy rain events is expected to increase as a result of a changing climate, making the future flooding impacts for at-risk neighborhoods potentially more acute.
- Disadvantaged communities within cities often have denser populations, more impervious surfaces, and less open/green spaces. These areas can also be prone to flooding and sewer overflows. Stormwater management through the creation of open, green spaces serve to revitalize and promote health within these disadvantaged communities.

Sector Goals

Sector goals are established to both support the Village's Climate Action Plan in creating a climate resilient community and to reduce village-wide GHG emissions 35% below 2010 levels by 2030.



Source: Water Research Foundation, Residential End Uses of Water, Version 2, 2016

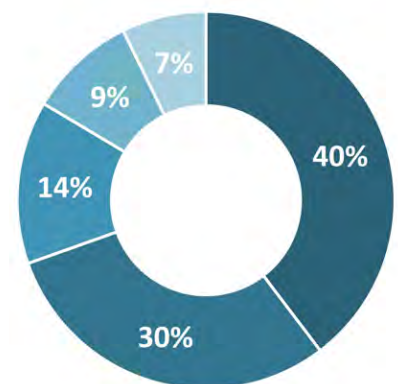
Strategies Supporting Sector Goals

- Strategy WW 1:** Promote increased water conservation Village Wide with a targeted reduction of 7.5% by 2030.
- Strategy WW 2:** Mitigate the projected increased flood hazards and impacts due to climate change.
- Strategy WW 3:** Update design standards and plans to meet projected climate change flood mitigation requirements.
- Strategy WW 4:** Increase stream, river and wetland protection and restoration.



Community Survey Responses Supporting Actions in Sector

How concerned are you about the possible infrastructure and ecosystem impacts of climate change caused flooding?



- Extremely Concerned
- Very Concerned
- Moderately Concerned
- Slightly Concerned
- Not at all Concerned

1 Strategy WW 1:
Promote increased water conservation Village Wide with a targeted reduction of 7.5% by 2030.

Actions	Implementation Phase
WW 1-1 Update Village wide landscaping guidelines for reducing water consumption and chemical use	1
WW 1-2 Reduce landscaping water use by encouraging water-efficient irrigation systems, grass replacement, and planting native and drought-resistant trees and vegetation. Explore funding opportunities to help low and middle income residents benefit from drought and flood tolerant landscaping and other water efficient investments	1
WW 1-3 Evaluate the potential for installation of rainwater collection systems at Village facilities for graywater uses, and investigate opportunities for graywater reuse at existing and new Village facilities and properties	1
WW 1-4 Expand water conservation programs that focus on outdoor irrigation, which may also support better identification of water-related carbon sequestering opportunities such as using soil amendments, native grasses and proper tree watering and consider requiring them during the permitting process	2
WW 1-5 Establish an ordinance requiring moisture sensors with all new irrigation systems installed in the village.	2
WW 1-6 Facilitate reduction of water use by top 20 customers annually. Assist large institutions and businesses in identify specific opportunities for employees or customers to conserve water and incorporate water efficiency into internal operations	2

2 Strategy WW 2:
Mitigate the projected increased flood hazards and impacts due to climate change.

Actions	Implementation Phase
WW 2-1 Prioritize managing stormwater before it enters the sewer system through a combination of overland flow, detention, and infiltration strategies (for example, permeable surfaces)	1
WW 2-2 Prepare a Blue Spot flash flood risk map to identify areas within Village that are particularly vulnerable to flash flood impacts. Create and implement a mitigation and response plan. Share and promote the information developed by the flash flood risk map, particularly among vulnerable populations and neighborhoods. (https://climate-adapt.eea.europa.eu/metadata/tools/the-blue-spot-model-a-key-tool-in-assessing-flood-risks-for-the-climate-adaptation-of-national-roads-and-highway-systems)	1
WW 2-3 Adopt policies to incentivize building owners and developers to explore revegetation, tree preservation planting and maintenance, de-paving and porous pavement, green infrastructure like bioswales and Eco-roofs and site development performance standards. Explore development of grants and other funding mechanisms to support flood mitigation efforts in flood risk areas (including flash flooding), especially in areas with vulnerable populations.	2

3

Strategy WW 3:

Update design standards and plans to meet projected climate change flood mitigation requirements.

Actions	Implementation Phase
WW 3-1 Conduct a stormwater management study exploring full range of methods of stormwater management including permeable pavements, bioswales, rain gardens, bio-char amendments in soils with high clay content, and flood-tolerant plantings. Establish a recommended percentage goal of stormwater from Village-controlled impervious surfaces with sustainable stormwater strategies by 2030. Findings of study to be integrated into updated Village Master Stormwater Management Plan with recommended implementation projects.	1
WW 3-2 Pilot pervious pavement test section in an appropriate public area (e.g. sidewalks, parking lots).	2
WW 3-3 Reduce or offset impervious surfaces where possible, and use lighter colored pavements and building materials to lessen the impact of urban heat island effect.	2

4

Strategy WW 4:

Increase stream, river and wetland protection and restoration.

Actions	Implementation Phase
WW 4-1 Coordinate with local watershed groups, Conservation District, State and federal agencies for restoration, education and outreach	1
WW 4-2 Identify and catalog current efforts underway across the community to increase stream, wetland, and river restoration	2

Planned Water and Wastewater GHG Emission Reductions

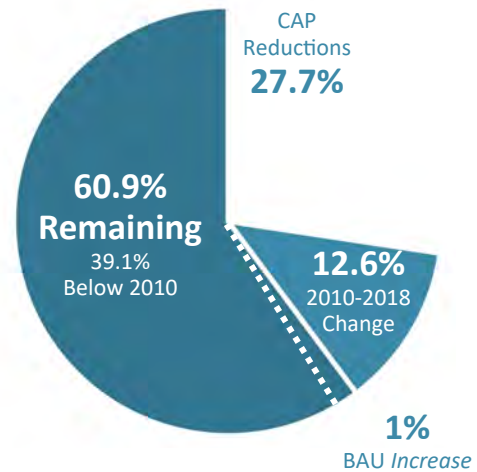
Planned Sector Emission Reductions Through 2030

The strategies and actions included in this section of the Climate Action Plan are projected to reduce the Village's annual GHG emissions by 708 metric tons (MT) by 2030 - an 27.7% reduction over 2010 levels. Changes in business-as-usual impacts over the same period are anticipated to *increase* emissions by 30 metric tons and previous changes between 2010 and 2018 decreased emissions in this sector by 321 metric tons. The result is a total community wide Water and Wastewater sector reduction of 39.1% over 2010 levels.

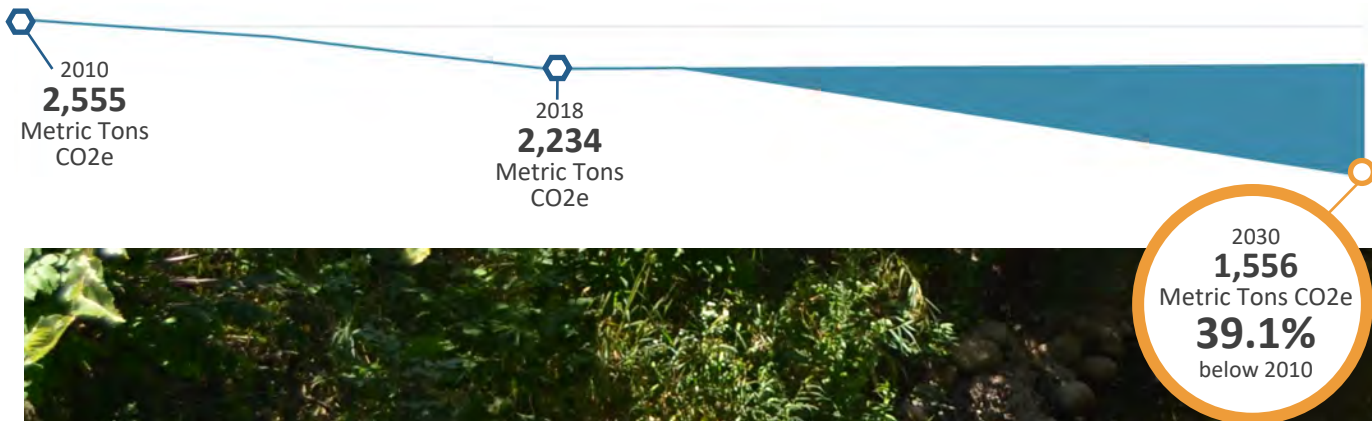
When compared to 2010 emissions, this is equivalent to eliminating **19.6 million** cubic feet of man-made greenhouse gas atmosphere annually by 2030.

Sector Emissions Reduction below 2010 by 2030

The total change to sector emissions include CAP Plan reductions, BAU emission changes, and previous changes between 2010 and 2018 as follows:



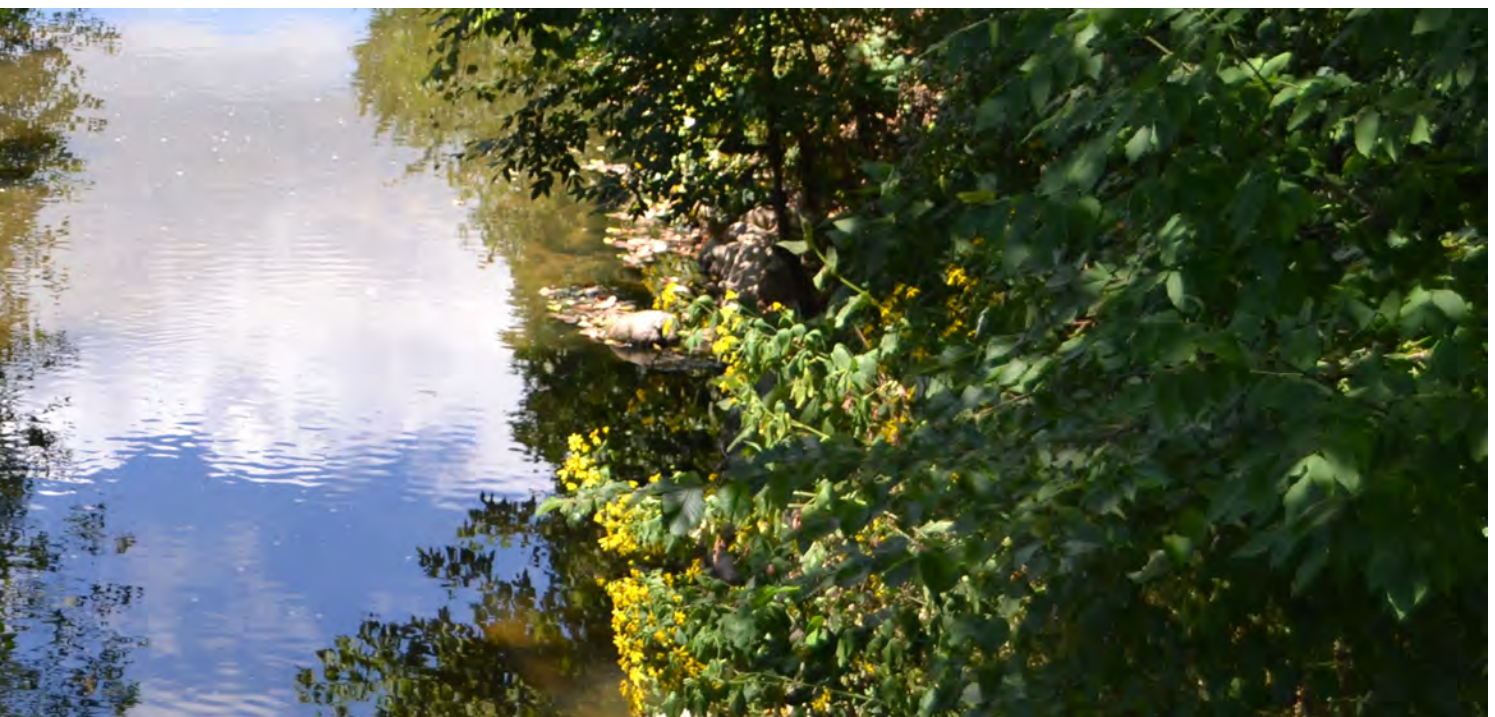
Northbrook's Water and Wastewater Carbon Reduction Pathway



What You Can Do

You can support the goals of the Water and Wastewater section of the Northbrook Climate Action Plan as an individual, household, or a business. Here are just a few things you can do:

- Turn off the faucet while brushing your teeth.
- If you have dishwasher, use it. Research shows we use more water washing dishes by hand than running a full or nearly full dishwasher.
- Replace your lawn or portions of your lawn with drought resistant native plantings, prairie grasses, and wild flowers and eliminate or greatly reduce exterior watering.
- If you have a lawn and garden irrigation system, or use hoses and sprinklers, water thoroughly less often, and do so in the early morning or evening.
- Collect rainwater and use it for indoor and outdoor plants.
- Install — or have a licensed plumber install — water-saving aerators on 2 or more showerheads and faucets.
- Install — or have a licensed plumber install — a water-saving low-flow toilet.



Local Food In Northbrook



5

Community gardens



1

Farmers market



12.6%

Food insecurity in Cook
County





Section 06 Local Food + Agriculture



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Local Food and Agriculture

Why Local Food and Agriculture Are Important

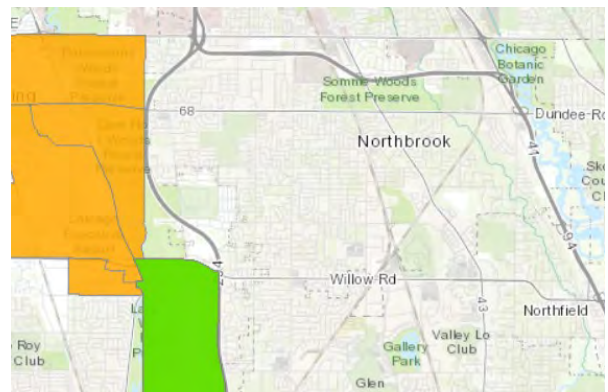
Food and climate change are directly linked. For nutritionally insecure people, climate change is a threat multiplier. Extreme weather events, extreme temperature variations, changes in precipitation, changing soil temperatures and other climate impacts will affect crop yields. Climate impacts can also introduce interruptions in the current food processing and distribution system. Disruptions that occur in the food system are likely to cause food availability or pricing fluctuations.

Our choices about what we eat and where our food comes from also directly impact our personal and community greenhouse gas emissions. Transporting food across long distances burns fossil fuels and emits greenhouse gases. In addition, the extended period of time of long-distance transport increases the need for refrigeration. The less transportation and refrigeration needed to supply us our food, the more sustainable it becomes.

Strengthening local food sources can address both climate change relationships with food and also supports your small business local economy. Studies have indicated that nearly 32 jobs are created for every \$1 million in revenue generated by produce farms involved in a local food market, compared to only 10.5 jobs for those involved in wholesale channels exclusively. Increased local food systems also increase community resilience. A robust local food system establishes additional supply chains and resilience to distribution disruptions. Healthy local food systems can also play a critical role in addressing food access vulnerability and food insecurity within neighborhoods of higher vulnerability. Increased local food systems also tend to increase diversity and long-term food system resilience in food crops cultivated.

Map of Vulnerable Population Distribution Within Community Food Access

On the map to the left, highlighted sections represent low-income census tracts at least 500 people or 33 % of residents are more than 1 mile (green sections) or 1/2 mile (orange) from the nearest supermarket (defined as a store containing all the major food departments necessary to provide full nutrition to a household) . None of the census tracts within Northbrook are identified as regions with significant populations with food access concerns. It should be noted, however, that portions of the population may have food insecurity which could be identified through a community wide food security assessment.



Climate Change Considerations



Climate Hazards

Hazards to the local food and agriculture system include reduced crop quality and yield, vulnerability to pests and soil moisture as well as fluctuation in availability, food price volatility and change.



Opportunities

Increased capacity of local food and agriculture systems and improved farm-to-table approaches can reduce community food insecurity while creating local jobs and improved community resilience.



Local Food and Agriculture

Equity Considerations

- People in low-income neighborhoods may have limited access to full-service supermarkets or grocery stores - an area known as a “food desert.”
- Studies have also shown that communities with fewer resources often have more outlets that promote unhealthy dietary behaviors such as fast food restaurants, and little access to affordable nutritious food. This condition is known as a “nutrition desert.”

Strategies Supporting Sector Goals

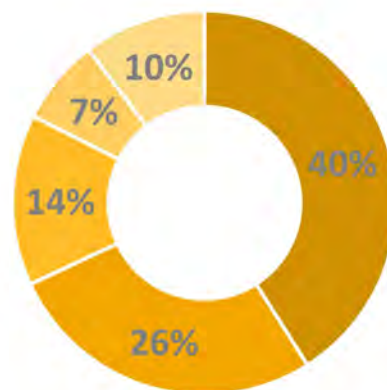
- 1 Strategy LF 1:** Increase production of local food, particularly serving low income and food insecure individuals.
- 2 Strategy LF 2:** Increase access and inter-connect all community gardening.
- 3 Strategy LF 3:** Reduce food waste and hunger.
- 4 Strategy LF 4:** Improve local food resilience and availability.



Community Survey Responses Supporting Actions in Sector

How concerned are you about the possible food security impacts of climate change effects?

- Extremely Concerned
- Very Concerned
- Moderately Concerned
- Slightly Concerned
- Not at all Concerned



- 1 Strategy LF 1:** Increase production of local food, particularly serving low income and food insecure individuals.

Actions		Implementation Phase
LF 1-1	Identify, map and prioritize food insecure areas and populations.	1
LF 1-2	Promote and expand public education campaigns to encourage purchasing and procuring locally grown and produced food at the individual and institutional level	1
LF 1-3	Promote local food production, sales, and consumption and review Village codes to remove barriers for urban farming including innovative solutions such as aquaponics, hydroponics, indoor agriculture, vertical farms	1
LF 1-4	Establish a public Food Forest by adding edible trees, shrubs, and planting regionally native vegetables to existing public landscaping. Select an existing property for a pilot project. (https://projectfoodforest.org/)	2
LF 1-5	Create "edible walk to school" routes by planting fruit trees, shrubs, and perennials (apple, pears, plums, blueberries, strawberries, service berries, etc.) that eventually will allow students walking to school to pick fruit off the trees. Explore partnerships including Organic Gardener and Illinois Extension Cook County Master Gardeners.	2
LF 1-6	Establish local agriculture ordinances clarifying the allowance of local food production activities such as front yard vegetable gardening, community gardens, urban farming, beekeeping, poultry keeping, etc.	2

2 Strategy LF 2: Increase access to and interconnect all community gardening.

Actions		Implementation Phase
LF 2-1	Establish "Grow Northbrook" central community food plot/garden, a visionary project supported by the Village that trains kids and residents from the community in local food growth. Include all stages: carpentry, irrigation, running a business. Village designs program with local business, Organic Gardener. Have a main garden and also satellite gardens; Bring in students, community volunteers. Include a training class through high school for students and/or through library for residents. Make an infrastructure investment in Village. Link it with Library and Park district. Provides food and a good message and learning opportunity. Possibly work with local restaurants who can use food. Or look into donating food (or some of the food). Look into including microgreens that can be grown all year indoors. Examples: https://edibleevanston.org/ https://www.burnsvillemn.gov/grow	1
LF 2-2	Establish a communication system whereby local gardeners could trade food (i.e. if one person has too many tomatoes, could offer them to trade or for free pick up).	2
LF 2-3	Allow community gardens within cul-de-sacs and on vacant land in all zoning districts except industrial to increase the availability of locally produced food for all residents.	2
LF 2-4	Promote year-round farmers markets. Study and identify locations and operating times which support availability and access to fresh produce for working families and individuals particularly LMI community members	2

3 Strategy LF 3: Reduce food waste and hunger.

Actions		Implementation Phase
LF 3-1	Work regionally to support and facilitate food donation programs. Food donation programs reduce the amount of healthy, safe food that goes to waste and redirects it to those in need.	1
LF 3-2	Support edible food donation through coordination with the food bank and donations from Village and community partner events	1



4 Strategy LF 4: Improve local food resilience and availability.

Actions	Implementation Phase
LF 4-1 Increase availability of composting options for residents and businesses such as expanded curbside organics collection, back-yard composting, workplace composting, and organics-to-compost partnerships with community gardens. Include a focus on	1
LF 4-2 Offer low price compost bins similar to rain barrels the Village currently offers; potentially work with businesses as well and Village could then sell or give compost to residents	1
LF 4-3 Incentivize and reward soil best management practice for urban lawns, gardens, landscaping, parks, open spaces, prairies, environmentally sensitive areas, and agricultural land uses	2

What You Can Do

You can support the goals of the Local Food and Agriculture section of the Northbrook Climate Action Plan as an individual, household, or a business. Here are just a few things you can do:

- Rent a plot at your local community gardens and grow your own.
- Eat a plant-rich diet. Animal products are extremely GHG-intensive to produce compared to plants. Eating less meat and dairy will reduce emissions associated with food consumption. Eating regionally-grown food that is suitable for the Illinois climate will also make a difference through reduced transportation-related emissions. A great place to start is with “Meatless Mondays” or one meat-free meal a day. <https://ourworldindata.org/food-choice-vs-eating-local>
- Buy food directly from a local grower on an ongoing basis by joining a Community Sponsored Agriculture (CSA) group or frequenting the farmer’s market.
- Plant fruit or nut bearing trees or shrubs that are well suited for our hardiness zone on your property. Examples include: Trees: Persimmon, Paw-paw, Black walnut, Shrub: Serviceberry.
- Support restaurants and grocery stores that use and sell locally-grown food.
- Buy food that is in season, minimizing the distance food must travel.
- Support your local farmers markets.
- Buy ethically grown and harvested food, like fair-trade coffee and chocolate.

Climate Health + Safety In Northbrook



1,216

Properties with significant
risk of flooding



+4-6°F

Increase in temperature by
2050



+70% more

Air conditioning demand by
2050



+20-25 days

Longer allergy season by
2050



Section 07 Health and Safety



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return to TOC](#)

Why Health and Safety Are Important

There is a strong relationship between human health and environmental health. From the air we breathe to the water we drink and use, life here on Earth depends on the natural resources and the environment around us. This link between the environment and human health is a critical consideration of the impacts of climate change. As outlined in the Village's Climate Risk and Vulnerability Assessment, changes in climate, such as higher average temperatures and increased storm frequency and intensity, can intensify public health stressors. These climate change impacts endanger public health and safety by affecting the air we breathe, the weather we experience, our food and water sources, and our interactions with the built and natural environments. As the climate continues to change, the risks to human health continue to grow.

The health of our environment affects our public health, and agencies should promote it as such. There is a direct relationship between climate action and community health because the health of our environment affects public health.

Equity Considerations—Vulnerable Populations

Climate change impacts the health of all community members, however, people within our communities are differently exposed to hazards and some are disproportionately affected by the risks of climate change. According to the National Climate Assessment, greater health risks related to climate impacts can be experienced by some populations in our communities including children, older adults, low-income communities, and some communities of color. Others, like children, older adults, low-income communities, some communities of color, and those experiencing discrimination are disproportionately affected by extreme heat and weather events, and many have increased health and social vulnerability which decreases their access to resources that can help them avoid the risks of climate change.

According to the National Climate Assessment (<https://nca2018.globalchange.gov/chapter/14/>):

Additional populations with increased health and social vulnerability typically have less access to information, resources, institutions, and other factors to prepare for and avoid the health risks of climate change. Some of these communities include poor people in high-income regions, minority groups, women, pregnant women, those experiencing discrimination, children under five, persons with physical and mental illness, persons with physical and cognitive disabilities, the homeless, those living alone, Indigenous people, people displaced because of weather and climate, the socially isolated, poorly planned communities, the disenfranchised, those with less access to healthcare, the uninsured and underinsured, those living in inadequate housing, and those with limited financial resources to rebound from disasters.

Climate Change Considerations



Climate Hazards

Climate stressors include increases in the frequency and intensity of poor air quality days, extreme high temperature events, heavy rainfalls, extended pollen seasons, changed distribution of disease carrying pests.



Opportunities

Strategies which improve community connect- edness, mobility, community resilience through healthy lifestyles frequently coincide with climate mitigation measures such as improved pedestrian safety and low income home weath- erization.



Northbrook Vulnerable Populations Risk Sensitivity Chart

The following identification of Northbrook population climate vulnerabilities is excerpted from the Northbrook Climate Vulnerability Assessment.

	Population	Primary Risks to The Population								Enhanced Vulnerabilities				
		Extreme Weather / Temp	Flood	Air Quality	Vector-Borne	Food Insecurity	Water Quality	Waterborne	Power Failure	Crop Yield	Mortality	Energy Costs	Property Crime	Violent Crime
children	2,869	2,869		2,869	2,869	2,869		2,869	2,869	2,869	2,869	2,869		
seniors	14,442	14,442	14,442	14,442	14,442	14,442			14,442	14,442	14,442	14,442	14,442	
disabled	5,363	5,363	5,363	5,363		5,363			5,363		5,363	5,363	5,363	
Est Total Low Income	6,163	6,163	6,163	6,163	6,163	6,163	6,163	6,163	6,163	6,163		6,163	6,163	6,163
POC	10,021	10,021	10,021	10,021	10,021	10,021	10,021	10,021				10,021	10,021	10,021
Limited English	3,084	3,084	3,084	3,084	3,084	3,084		3,084	3,084	3,084		3,084	3,084	3,084
Composit At-Risk Workers	2,237	2,237	2,237	2,237	2,237			2,237						2,237
No Vehicle Access	3,607	3,607	3,607	3,607		3,607			3,607	3,607				
Total by category		47,786	44,917	47,786	38,816	45,549	16,184	24,374	45,549	30,165	22,674	41,942	39,073	21,505
percentage of Vuln pop		100.0%	94.0%	100.0%	81.2%	95.3%	33.9%	51.0%	95.3%	63.1%	47.4%	87.8%	81.8%	45.0%
Rank by Vuln		1	2	1	3	2	6	4	2	4	5	2	3	5
Percentage of Tot Pop		87.9%	82.6%	87.9%	71.4%	83.8%	29.8%	44.8%	83.8%	55.5%	41.7%	77.1%	71.9%	39.6%

Based on the total estimated population count for each vulnerable population and considering the risks each demographic is most sensitive to, the population vulnerabilities can be considered from highest sensitivity (more vulnerable individuals) to lowest (fewer vulnerable individuals) sensitivity. It should be noted that risks which appear to have lower sensitivity levels should not be considered irrelevant for the community.

Prioritizing Risk and Vulnerable

Climate change impacts will affect everyone and Village policies and actions should consider climate adaptive needs of the entire community. As with all planning efforts climate adaptation benefits from analysis in order to assist in establishing priorities for initial efforts. An effort to structure a prioritization should not be seen as an attempt to discard the need to address climate impacts for any population within the Village - whether or not it is defined as one of the "vulnerable" populations. Prioritization, however, is necessary to ensure the greatest impact and effectiveness of limited Village resources. Based on the above review the Village's adaptive efforts may be most effective by prioritizing strategies which address the climate risks of Air Quality, Extreme Heat, Flooding, Power/Infrastructure Failure, Energy Costs, and Food Insecurity. Particular attention should be paid to strategies which are most effective for Seniors over 65, People of Color, and those in Economic Stress.

Community Climate Risk Sensitivity Ranking

Highest Sensitivity



Lowest Sensitivity

Northbrook Climate Risk

The chart below reviews the expected climate impacts, likelihood of occurrence, impact level (Vulnerable Population Climate Impact Sensitivity), potential timeframe of impact, and resulting overall potential risk level for climate risks to the population. Each of these impacts are already experienced. The timeframes represent estimations of when the likelihood of occurrence and/or the overall level of impact may be significantly increased. The timeframes should be understood to be approximate and include “short-term” (current to 20 years), “medium-term” (mid-century) and “long-term” (late century).

Health Impacts	Expected Impact(s)	Likelihood of Occurrence	Impact Level (Population Vulnerability)	Timeframe	Risk (Likelihood x Impact)	Impact-related Indicators
Extreme Heat	Increased demand for cooling; heat stress and emergency visits; heat related health	Likely	High	Medium-term	High	Cooling Degree Days, days above 95
Flooding	damage to property; flood related health impacts; infrastructure impacts	Likely	High	Short-term	Very High	Flood events, flash flood occurrences, wettest 5-day periods, number of heavy rain events, disaster declarations, change in NOAA storm
Drought	Damage to crop/tree/ecosystem, reduced drinking water source, increased flash flood potential due to decreased soil permeability	Possible	Moderate	Medium-term	Moderate	Consecutive days without rain, aquifer level, surface water condition, river flow
Air Quality Impacts	Increased particulate matter, increased ozone impacts, increased instances of asthma	Likely	High	Medium-term	High	Air quality index
Vector-Borne Diseases	Increased instances of Lyme disease, encephalitis, heart worm, malaria, Zika virus	Likely	Moderate	Long-term	Moderate	Disease records
Nutrition Insecurity	Food price volatility/change, fluctuation in availability	Possible	High	Medium-term	High	Food price index, Foodshelf demand, % of school children qualifying for free and reduced lunch
Water Quantity/Quality Impacts	Water shortage, surface water quality impacts due to heat and stormwater runoff	Possible	Low	Long-term	Low	Aquifer health; Water quality test results
Water Borne Disease	Bacteria exposure at infected surface water locations, contamination of drinking water due to flood	Unlikely	Moderate	Medium-term	Low	flood events; algae blooms

Priority Climate Risks for Northbrook

The priority climate risks to the population of Northbrook include Flooding, Extreme Heat, Air Quality, and Nutrition Insecurity Impacts while the priority climate risks to infrastructure/institutions include Land Use Planning, Buildings, Roads, Energy, and Agriculture and Forestry impacts.

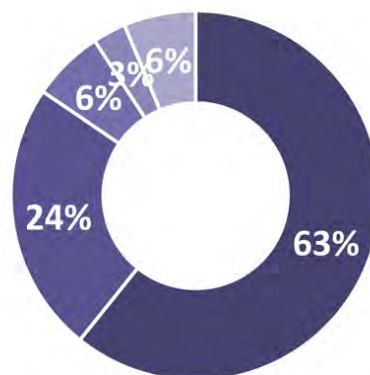
Strategies Supporting Sector Goals

- Strategy HS 1:** Establish and expand public health communication campaigns to include climate change impacts.
- Strategy HS 2:** Assist the village's heat, flooding, storm, and poor air quality vulnerable population in preparing for and mitigating climate change impacts.
- Strategy HS 3:** Include climate impacts and health risks in new and updates to existing plans and policies.
- Strategy HS 4:** Strengthen community response capacity and support networks.
- Strategy HS 5:** Address the air quality risks associated with climate change.



Community Survey Responses Supporting Actions in Sector

How much do you agree with the following statement: “It is important for Northbrook to take action to prepare for the projected impacts of climate change like more heat waves, heavier rain events, and more days of



- Completely Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Completely Disagree



1
Strategy HS 1:

Establish and expand public health communication campaigns to include climate change impacts.

Actions		Implementation Phase
HS 1-1	Provide guidance through resource material to social service providers so they are aware of best practices in treating client needs during an extreme heat event.	1
HS 1-2	Emphasize steps individuals can take to improve emergency preparedness. Increase awareness of Village and other alert systems	1
HS 1-3	Provide education around vegetation management of trees and how proper management can reduce storm-related power outages	1
HS 1-4	Coordinate with the County Health Department to provide up-to-date information to residents about the health effects of heat and Cooling Center locations throughout the County.	1
HS 1-5	Create and make available an Emergency Response Toolkit offering tips and suggestions for residents to increase their emergency preparedness	1
HS 1-6	Develop and deploy early warning response and community alert plans and systems (e.g., RAVE, Nixle) to notify residents and businesses - especially those most vulnerable - of poor air quality days, extreme weather events, extreme temperature events, potential energy and communication infrastructure failure, or other events which may pose health risks. Communication plan to include pathways for when community power and communication systems are non-functional.	2
HS 1-7	Make emergency communications available in multiple languages and platforms. The Village's top non-English languages should be addressed in the multiple-language communication plan. Platforms used should focus specifically on reaching the Village's top vulnerable populations identified in the Village's Climate Vulnerability Assessment.	2
HS 1-8	Provide education and resources about climate risks to the public, especially those most vulnerable to potential impacts of high-heat and extreme weather, translated to the Village's top non-English languages, via communication platforms typically relied upon for information by those populations	2

2 Strategy HS 2: Assist the village's heat, flooding, storm, and poor air quality vulnerable population in preparing for and mitigating climate change impacts.

Actions		Implementation Phase
HS 2-1	Encourage businesses and residents to move toward improved power resilience by making their building sites solar resilient: http://solarresilient.org/	1
HS 2-2	Prepare for public buildings to be used in different ways, both in lower-impact ways, such as seniors using the library to cool down during hot June days, and as safe-havens during acute emergencies.	1
HS 2-3	Establish cooling centers and provide information to the community to ensure vulnerable residents are aware of these services, including direct messaging at community facilities and through health providers, translated to the Village's top non-English languages. Cooling center locations should be located to maximize accessibility by vulnerable populations, particularly those with limited mobility access.	2
HS 2-4	Establish a Resilient Home inspection referral list to provide voluntary on-site home reviews to identify possible resilience improvements such as flood mitigation strategies, improved weatherization, vegetative shading, etc. Explore a partnership with other agencies including Cook County, ComEd, and local schools.	2

3 Strategy HS 3: Include climate impacts and health risks in new and updates to existing plans and policies.

Actions		Implementation Phase
HS 3-1	Update or develop a community resilience plan to prioritize and prepare for responses in the event of a disaster and extreme weather events. Identify the location of critical facilities including hospitals, medical service providers, senior homes, child-care facilities, shelters, major and alternate transportation routes, public transit facilities and locations where hazardous chemicals are used or stored	1
HS 3-2	Continue to involve key community partners, such as hospitals, in emergency preparedness planning and management. Include the impacts of climate change as emerging threats in future response planning	1
HS 3-3	Update the Village emergency plans with specific climate change-related emergency materials. These could include press release templates, information on cooling/heating centers, specific plans for populations requiring mobility assistance, and steps to identify and help populations affected by extended power outages, flooding, etc.	1
HS 3-4	Develop a debris management plan to support response to severe storm events and flooding	1
HS 3-5	Develop energy management plans for key facilities and cooling centers.	2
HS 3-6	Work with local electric utilities to conduct a grid capacity, conditions, and resilience assessment. Assessment recommendations should also identify strategies for improved energy resilience including solar+storage back-up.	2
HS 3-7	In infrastructure project design, consider plantings and infrastructure specifications and materials that will be resilient to heat-related climate change impacts and be cost-effective over the lifetime of the asset	2



4
Strategy HS 4:
Strengthen community response capacity and support networks..

Actions		Implementation Phase
HS 4- 1	Promote equity in hazard mitigation, and emergency response and recovery activities, and consider populations most vulnerable to weather-related emergencies in all plans and exercises, including evacuation routes, transportation for vulnerable population groups, shelter in place locations, back-up power operations, extended access to fuel/power sources and drinking water, etc.	1
HS 4- 2	Increase community participation in health and wellness, exercise and nutrition programs	1
HS 4- 3	Strengthen emergency management capacity to prepare for and respond to the impacts of climate change. The Village should prioritize capacity improvements such as training and equipment to address risks exacerbated by climate change. Emergency management should be equipped to address the possibility of multiple emergencies at the same time, such as the combination of western wildfire smoke air pollution coupled with extreme heat, or extreme heat combined with extreme weather and electrical outages.	1
HS 4- 4	Establish a "community watch" similar to the neighborhood watch program to strengthen community response capacity and support networks addressing climate health and safety. Explore the potential of establishing this as an expansion to CERT (https://www.northbrook.il.us/859/Fire-Programs-Services)	1
HS 4- 5	Improve the resilience of emergency response and communications systems. The Village Manager's Office will work with the Health and Human Services Department (HHS) Emergency Response Coordinator (ERC) and the Village's Emergency Manager for employee and resident emergency communications. They will routinely test and utilize communications systems and build in notifications and alerts for extreme environmental situations	2
HS 4- 6	Enhance community networks and connections for those who require special attention, such as the elderly, homebound, disabled, isolated, or those likely to be in need of financial assistance during or after extreme weather events (heat, cold and heavy precipitation)	2

5

Strategy HS 5:

Address the air quality risks associated with climate change.

Actions	Implementation Phase
HS 5- 1 Educate public and public health professionals about health risks posed by climate change, including longer allergy seasons, potential changes in air quality and impacts on mental health. Include information on ways individuals can mitigate the health risks.	1
HS 5- 2 In alignment with the American Public Health Association Policy Number: 201711, Village will expand outreach to better educate the public about the hazards of air pollution, including indoor air quality, and the steps individuals can take and available resources to reduce their exposure. In planning and conducting outreach efforts, the Village will explore collaboration with regional and national industry trade associations, nonprofit groups, and environmental organizations.	1
HS 5- 3 Inventory, identify, and maintain adequate community-safe spaces for poor air quality. Popular community gathering spaces must be made safe during air quality emergencies (ozone, western wildfire smoke, etc). Options for improving safety include retrofits, upgrades, or other measures to ensure that these spaces are accessible and adequate for sensitive populations.	2



What You Can Do

You can support the goals of the Health and Safety section of the Northbrook Climate Action Plan as an individual, household, or a business. Here are just a few things you can do:

- Put together an emergency preparedness kit for your household by visiting <https://www.ready.gov/>
- Get involved with the Northbrook Community Emergency Response Team (CERT). Join your neighbors and receive training to prepare for potential disasters.
- Prepare your home for the extremes. Understand the risk of extreme weather, extreme temperatures, flooding or wildfire to your home, and take action to safeguard your home.
- Keep yourself and your family current with physicals, vaccinations and prescribed medications and therapies.
- Plan and rehearse a fire evacuation plan with everyone who lives in your home or apartment.
- Have breathing-protection masks available for you and your family for when air quality alerts are declared.
- Take first-aid and CPR certification training.
- Notice a person who lives alone. Offer to check on them periodically, especially during extreme weather or a natural disaster.
- Notice a person who sometimes lacks transportation to their doctor, shopping or other services. Offer to drive them.
- Notice a person or family who lacks air conditioning in their home or apartment. Offer to have them visit or stay with you during extreme heat events.



Greenspace

In Northbrook



37%

Average tree canopy coverage



36%

Impervious surface coverage



26%

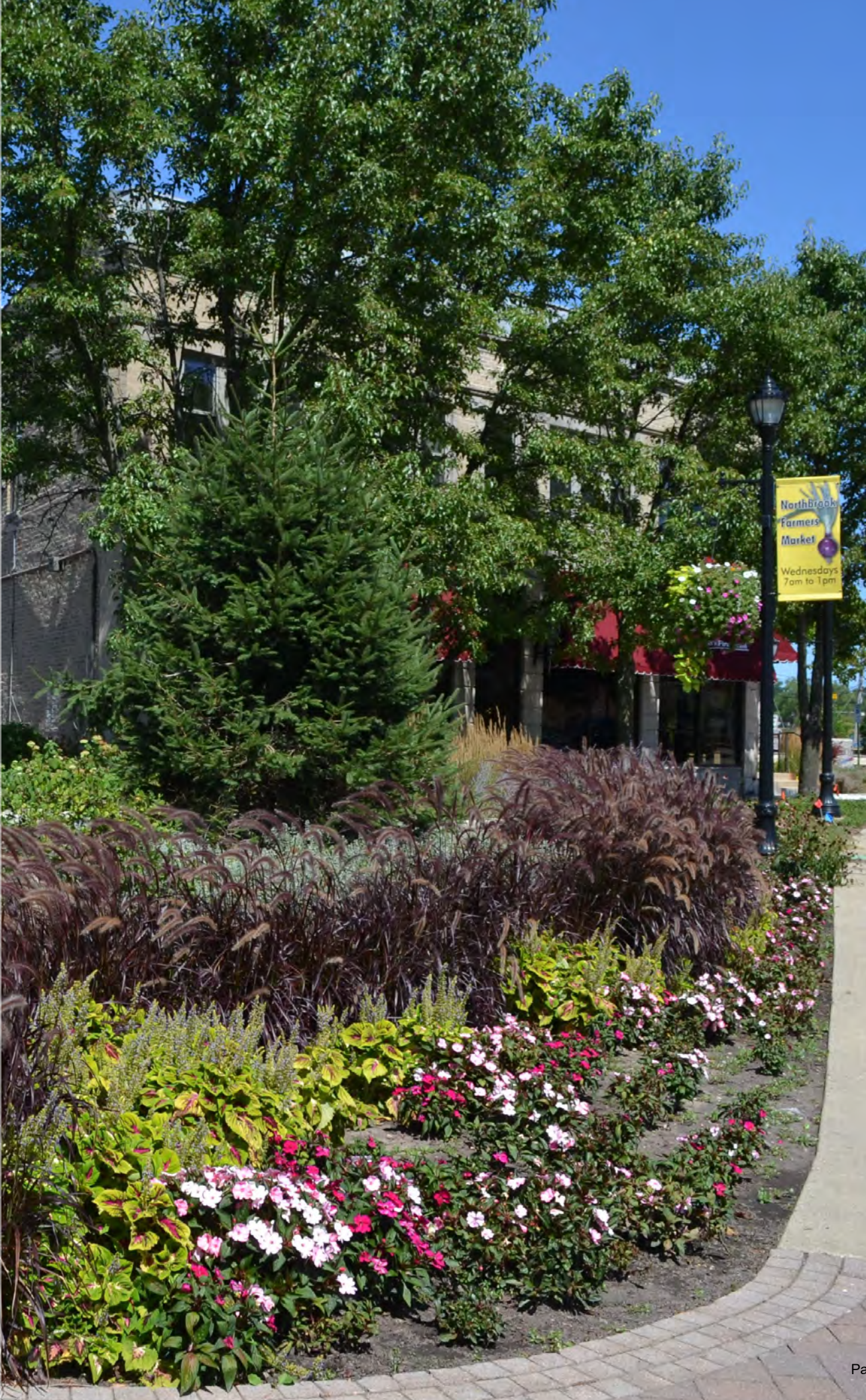
Maintained lawn coverage



4.6°F

Average heat island index





Section 08 Greenspace and Ecosystem Health



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Greenspace and Ecosystem Health

Why Greenspace and Ecosystem Health Are Important

Human activities coupled with natural variations in the carbon cycle, have resulted in a significant increase in the concentration of carbon dioxide (CO₂) and other “greenhouse gases” in the atmosphere, thus causing measurable global warming. Controlling atmospheric CO₂ requires deliberate action that combines reducing emissions and increasing storage, while planning for adaptation to the changes that result. Part of this Climate Action Plan addresses ways that greenspace protection and enhancement is one of Northbrook’s most important avenues for lowering our environmental footprint.

Greenspace, plays a central role in supporting community health, improving air, soil, and water quality, reducing energy use in buildings, and supporting climate-change mitigation. An urban greenspace includes any permeable vegetated surface, public or private, set apart for recreational, aesthetic, or ecosystem services (EC) in an otherwise urban environment. It is space set aside for providing life-essential benefits people and other living things obtain from properly-functioning ecosystems. The key benefits and services greenspaces provide include:



- Carbon sequestration: Plants on land convert carbon dioxide into biomass (leaves, stems, etc.) through photosynthesis. If more plants grow in more places, they will remove more CO₂ from the atmosphere.
- Stormwater infiltration and flood mitigation: Greenspace helps protect from flash flooding by absorbing water through roots and slowing down rainwater running off.
- Reduce the urban heat island effect: The more vegetated greenspace we have in Northbrook, the better the cooling effects. High levels of impervious surfaces (a surface that does not allow water to infiltrate such as pavement and buildings) results in an increased urban heat island effect, which raises the temperature of the near-surface air, buildings, and pavement higher than the surrounding areas.
- Purify and humidify the air: Plants purify the air when they absorb light, carbon dioxide, and water to manufacture sugar.
- Support pollinators: Animal species that pollinate plants, termed pollinators, carry pollen, either accidentally or intentionally, from the male part of a flower to the female part of the same or another flower.

Climate Change Considerations



Climate Hazards

Projected climate change impacts may cause forests and urban trees to experience increased mortality and reduced productivity, more prevalent invasive species and disease all resulting in forest and tree loss, reduction in crop yield. Loss of greenspace, in turn, reduces carbon capture potential of green infrastructure.



Opportunities

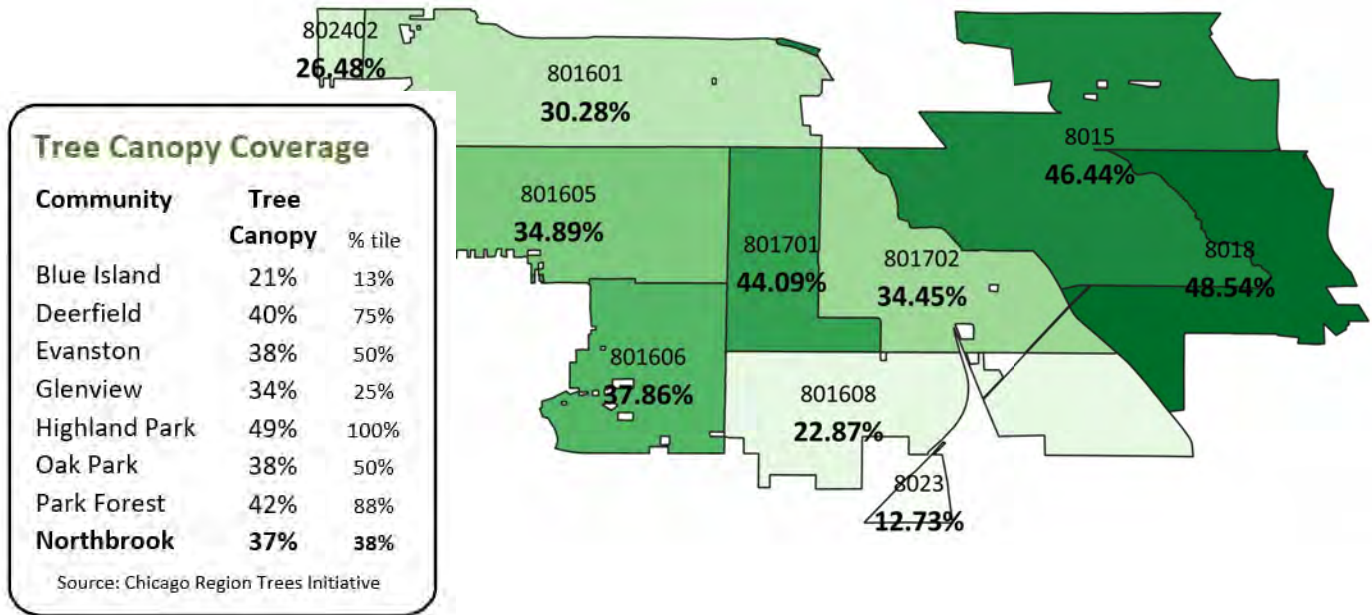
Many strategies within the Greenspace sector can advance community resilience and quality of life. Increased tree canopy, decreased impervious surfaces, and increased utilization of native grasses and plantings can reduce heat island experiences, energy consumption, stormwater runoff, and flood impacts.



Greenspace and Ecosystem Health

Northbrook's Tree Canopy

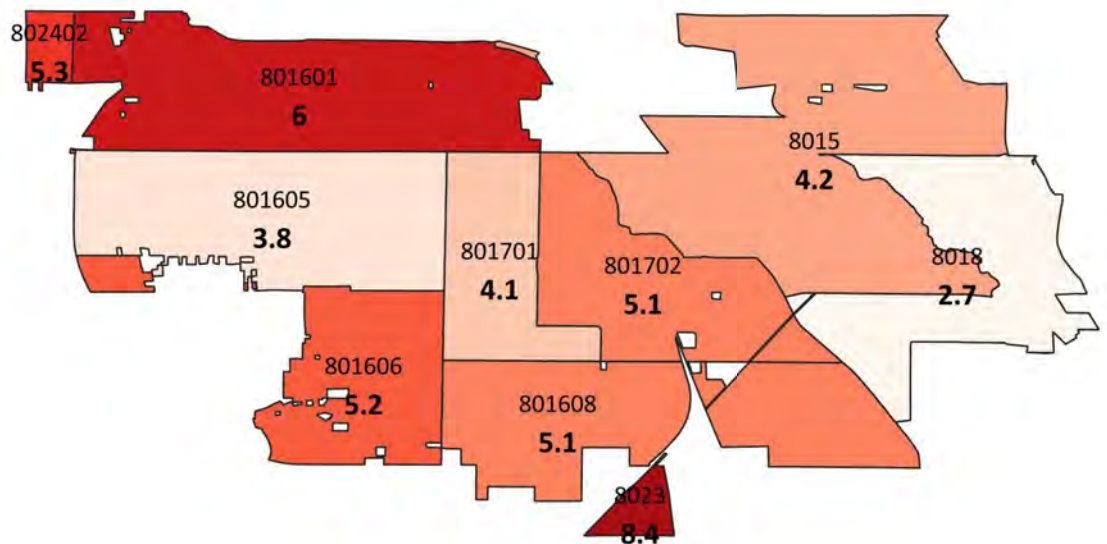
The City's average existing Tree Canopy coverage of 37.08% is above the national average, however, it is at the 38th percentile of peer communities in the Chicago area. There are also portions of the village with coverage as low as 13% which could benefit from increased tree canopy.



Northbrook's Heat Island Contribution

Heat island refers to the phenomenon of higher atmospheric and surface temperatures occurring in developed areas than those experienced in the surrounding rural areas due to human activities and infrastructure. Increased heat indices during summer months due to heat island effects effectively raise human discomfort and health risk levels in developed areas, especially during heat waves.

Based on a 2006 study done by Minnesota State University and the University of Minnesota, the relationship between impervious surface percentage of a Village and the corresponding degree of heat island temperature increase can be understood as a ratio. Northbrook's average heat island contribution is calculated at 4.6°F.



Greenspace and Ecosystem Health

Tree Canopy Goal

The recommended goals for 2040 Tree Canopy coverage are based on individual neighborhood calculations, corresponding to the neighborhood prioritizations outlined in the Findings Section of the Tree Survey and Carbon Sequestration Assessment. 2040 Tree Canopy goals are first calculated as Tree Stock goals, that is, goals calculated against the total potential Tree Stock area (existing tree canopy area + existing lawn/grass/shrub area), with a progressive percentage increase goal based on neighborhood prioritization. As the total Tree Stock area (potential tree canopy) varies by neighborhood, the resulting Tree Canopy percentage varies for each neighborhood.

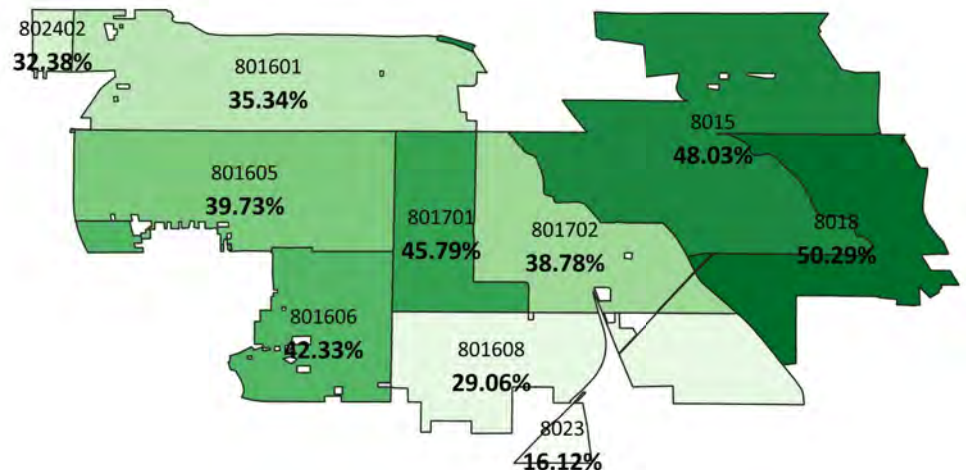
The recommended Tree Stock increase goals are:

For neighborhoods in the top 1/3 rd Neighborhood Priority Ranking:	10%
For neighborhoods in middle 1/3 rd Neighborhood Priority Ranking:	7%
For neighborhoods in bottom 1/3 rd Neighborhood Priority Ranking:	2.5%

City Wide Average 2040 Tree Canopy Coverage Goal (CT)



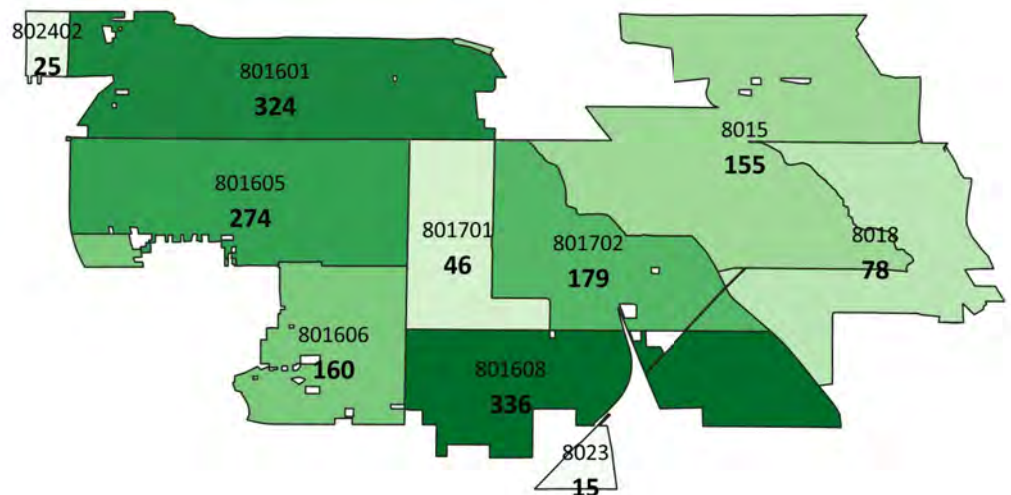
40.8%
Total



New Tree Planting Annual Target to Meet 2040 Goal

To meet the community wide tree canopy goal, the community will need to plant:

1,584 **15**
Trees Annually Acres Annually



Greenspace and Ecosystem Health

Equity Considerations

- Lower income neighborhoods and neighborhoods with higher proportions of people of color regularly have lower tree canopy coverage, and the environmental, economic, and quality of life benefits trees support than more affluent neighborhoods.
- “Heat islands” and “micro heat islands” are built up areas that are hotter than other nearby areas. This is caused by lack of adequate greenspace and healthy tree canopy coverage combined with too many hard surfaces like roads, parking lots, and hard building surfaces. Frequently neighborhoods with higher vulnerable populations have the highest heat island impacts.

Strategies Supporting Sector Goals

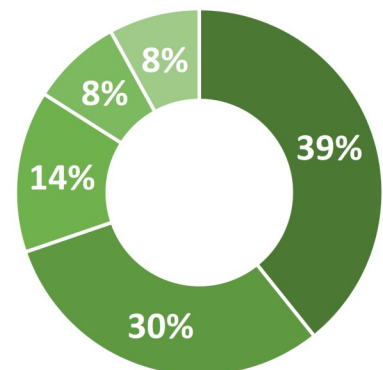
- 1 **Strategy GS 1:** Increase Tree Cover and Diversity.
- 2 **Strategy GS 2:** Increase the resilience and use of Native Species and Pollinator Restorations Areas with a targeted increase of 1.5% communitywide land pollinator restoration coverage (a conversion of 110 acres by 2030).
- 3 **Strategy GS 3:** Reduce, repurpose, and reimagine lawn space.
- 4 **Strategy GS 4:** Reduce Heat Island Effect through Village Wide impervious surface reduction of 2% by 2030 and 5% by 2040.



Community Survey Responses Supporting Actions in Sector

How concerned are you about the possible tree loss impacts of climate change effects?

- Extremely Concerned
- Very Concerned
- Moderately Concerned
- Slightly Concerned
- Not at all Concerned



Greenspace and Ecosystem Health

1

Strategy GS 1:

Increase Tree Cover and Diversity (Community wide Tree Canopy coverage goal from 37.08% to 39% by 2030 and 40.8% by 2040).

Actions	Implementation Phase
GS 1- 1 Develop an "All Things Green" implementation plan to establish annual tree and native planting coverage goals. Include identification of priority planting areas. Implementation plan should include species diversity goals for the Village, prioritizing drought, flood, and pest-resistant varieties and varieties likely to be resistive to changing climate and our USDA Hardiness zone (5b). Include resources on follow-up care for newly planted trees such as watering and pruning to promote longevity in tree canopy. Resource guides and species recommendation list to be distributed to and promoted among residents, businesses, and contractors within the Village	1
GS 1- 2 Assist Village residents to plant trees on their property by offering trees at cost through a Village sponsored sale. Encourage community groups to make tree seedlings available at appropriate venues such as Earth Day or the Farmer's Market. goal of 500+ per year. (Example: Naperville's annual sale https://www.naperville.il.us/residents/our-urban-forest/arbor-day-tree-sale/)	1
GS 1- 3 Accelerate tree replacement programming in neighborhoods that will be most impacted by urban heat island effect and Emerald Ash Borer.	1
GS 1- 4 Conduct a Solar and Tree Compatibility study to actively identify the best sites in the city for tree canopy expansion as well as the best locations for solar PV installations. Following study, work to direct and encourage tree planting and solar PV development in areas identified	2
GS 1- 5 Identify vulnerable urban tree canopy and street tree sections and develop policies to incentivize, encourage, or require strategic tree planting for heat island mitigation.	2
GS 1- 6 Add or modify park and boulevard plantings in under-served areas, and increase maintenance to sustain mature tree canopy, decrease tree hazards and delay tree replacement needs.	2
GS 1- 7 Preserve existing forested areas through practices that re-purpose already developed areas, such as establishing codes that retain minimum canopy cover on new developments and minimize removal of native soil, ground cover, and shrubs.	2
GS 1- 8 Explore options for public and private partnerships to help reduce or share the cost of tree planting and maintenance.	2
GS 1- 9 Work with local government and developers to ensure all socio-economic groups have access to trees and nature	2
GS 1- 10 Conduct a community-wide ground cover study every 5 years or less to track and account for ground cover changes and tree gain and loss within Village limits	2
GS 1- 11 Review and improve strategies for responding to pest and disease invasions	2
GS 1- 12 Alter zoning codes to promote diversity of native tree cover, establish minimum tree coverage requirements, and performance based tree island within parking lots with goals on percentage of pavement shaded. Ordinance should encourage a mix of canopy trees, shrubs, groundcovers, and raingarden components appropriate to the lot and its surroundings. Revise Chapter 25 of the Northbrook Municipal Code to include a Tree Bank alternative compliance mechanism within code (example, City of Milton GA)	2
GS 1- 13 Create a pavement-to-parks de-pavement plan for neighborhoods to improve water absorption and decrease macro and micro-heat island impacts.	3



Actions	Implementation Phase
GS 1-14 Require new development to meet site plan review illustrating their capacity to meet village-wide tree canopy coverage goal (village wide average 40.8% by 2040) as well as on-site solar utilization in a manner that minimizes conflict between solar and trees.	3
GS 1-15 Adopt a No Net Loss policy for street trees and other publicly owned trees—every public tree that is removed shall be replaced by a tree of sufficient size (minimum 2” caliper). If a tree is removed in a location in which it is not feasible to replant, a new tree shall be planted in a nearby void space. Develop a municipal Tree Bank policy (example: Oregon City OR)	3

2

Strategy GS 2:

Increase the resilience and use of Native Species and Pollinator Restorations Areas with a targeted increase of 1.5% community wide land pollinator restoration coverage (a conversion of 110 acres by 2030).

Actions	Implementation Phase
GS 2-1 Implement invasive species control programs including Integrated Pest Management, Protect the Best, Early Detection and Rapid Response and public and private invasive species identification and control. Identify specific areas for invasive species control based on data and observation and schedule removal and monitoring schedule to maintain invasive species removal as appropriate.	1
GS 2-2 Increase the ability of green space to withstand drought conditions through replacement of turf with native prairie, wildflower, and native savanna plantings. (Green Zone certification: https://agza.net/green-zone-certifications/)	1
GS 2-3 Establish and effectively manage native-habitat corridors along sidewalks, trails and utility easement areas to restore and maintain landscape connectivity	1
GS 2-4 Restore Village-owned vacant properties to native plants and ecosystem types under the advice of native plant experts. (NWF Wildlife Habitat Certification: https://www.nwf.org/CertifiedWildlifeHabitat)	1
GS 2-5 Establish a lighting control ordinance to protect native plants, species, biodiversity, and improve night sky quality.	1
GS 2-6 Establish and promote a voluntary "Lights Out Northbrook" program durring months of high migratory bird activity. Program to encourage residents and businesses to voluntarily reduce or turn off lighting durring specific hours durring key migratory timeframes. Example: Lights Out Philly: https://cutt.ly/UvXfVdQ	1
GS 2-7 Support IL state house bill 3118 to allow local regulation of pesticide usage. When possible, establish a policy to eliminate spray pyrethroid and neonicotinoids in Village practices. Encourage churches, schools, YMCA, Park District, and other public and private agencies to establish similar policies.	2
GS 2-8 Conduct a park and Village facility turf analysis and conversion study to identify lesser maintenance turf and ground cover types, to determine Native Plant and Pollinator Restoration Opportunities, and to establish a conversion master plan. Master plan should recommend a minimum amount of pollinator-friendly native plantings for all village owned properties.	2
GS 2-9 Conduct a city-wide pollinator habitat assessment and pollinator corridor master plan.	2

3

Strategy GS 3:

Reduce, repurpose, and reimagine lawn space.

Actions		Implementation Phase
GS 3-1	Commit to sustained participation in the Mayors Monarch Pledge to support pollinators, native plant landscaping, and discourage pesticides.	1
GS 3-2	Promote "Carbon Gardening" and "landscaping for absorption" practices among residents for lawns, ornamental gardens, and produce gardens. Strategies include native moisture tolerant perennial plantings and shrubs, elimination of synthetic fertilizer and pesticide use, high mow deck settings, use of biochar amendments, and polyculture lawn mixture	1
GS 3-3	Establish a policy committing to Integrated Pest Management practices and non-petrochemical fertilizer use on Village owned property. Promote reduced use community-wide through community education. Explore establishing "demonstration yards" on Village owned property to exhibit strategies for increasing pollinator friendly, native plantings, permaculture, and other strategies	1
GS 3-4	Develop or promote existing guidelines and recommendations for types of vegetation for particular areas, such as parks, other open areas, and household backyards	1
GS 3-5	Cooperate with county, township, and urban governmental agencies, schools, clubs, libraries, neighborhoods, faith communities, and NGOs to provide and publicize workshops on gardening, landscaping, composting, and their importance in mitigating and adapting to the stresses of climate change on quality of life	1
GS 3-6	Explore and develop partnerships with the largest land owners in the village to engage in turf replacement projects and establish demonstration / pilot projects illustrating strategies.	2

4

Strategy GS 4:

Reduce Heat Island Effect through Village Wide impervious surface reduction of 2% by 2030 and 5% by 2040.

Actions		Implementation Phase
GS 4-1	Develop educational and informational resources explaining the drivers and impacts of heat island and solutions which may offer multiple benefits for property owners and users to share with residents and businesses.	1
GS 4-2	Identify a Village owned building to implement as a cool roof pilot project, or partner with another public agency within the Village such as the school district, park district, library, etc.	1
GS 4-3	Establish a Green Roof policy to promote and advance the development of green roofs on existing buildings and new construction. Encourage rooftop garden / farm installations which advance food security. Examples of incentive programs can be found at: https://cutt.ly/KkmZLDE	2
GS 4-4	Explore development of Green Roof, "Green Wall" / "Live Wall" and "vertical garden" incentives (demonstration projects, voluntary programs, incentivized program, ordinance / policy, tax credits or Stormwater Credits, no-interest loans,) to meet long-range dark impervious surface reduction goals.	2





Greenspace and Ecosystem Health

Actions	Implementation Phase
GS 4-5 Develop a policy that requires all commercial development projects receiving Village funding, PUD approval, and/or Conditional Use Permitting to implement commercial scale heat island mitigation strategies including cool surfaces, solar-friendly landscape shading strategies, impervious surface reduction, and breeze capture. Reference City's Net Zero Energy Building Guide for relevant strategies (see Buildings and Energy sector).	2
GS 4-6 The Village of Northbrook shall set standards for paving systems that reduce localized heating and promote groundwater retention [or minimize rainwater runoff], and shall update those standards every five years.	2
GS 4-7 Establish a cool roofs policy for Village owned buildings. Explore policy to establish cool roof requirement for new residential developments.	3
GS 4-8 Establish ordinances and/or incentives for developers to plant shade and water-absorbing trees and replace turf landscaping with native prairie, wild flower, and savanna plantings. Revise Sec. 25-34. "Ornamental and native grasses" of the Northbrook Municipal Code to include a "right to natural landscaping" clause to permit native natural grasses and landscapes. (Example: City of Minneapolis)	3

What You Can Do

You can support the goals of the Greenspace and Ecosystem Health section of the Northbrook Climate Action Plan as an individual, household, or a business. Here are just a few things you can do:

- Plant a rain garden with native plantings to absorb storm water and replenish our aquifers.
- Plant trees in your yard to provide shade and cooling in summer heat. Select trees suited for the changing climate of Northbrook. (https://www.chicagobotanic.org/plantinfo/tree_alternatives)
- Replace your lawn and landscape with drought-resistant, native or well-adapted, non-invasive plants.
- Make your backyard a Certified Wildlife Habitat with the National Wildlife Federation. www.nwf.org/garden-for-wildlife/certify
- Remove pavement and increase permeable surfaces. De-pave areas wherever possible to encourage stormwater infiltration onsite.
- Install bioswales/rain gardens or rainwater diversion systems to reduce impact on the stormwater system.
- Install a Green Roof (living roof) to reduce your energy consumption. Decrease heat island impacts, and reduce stormwater runoff.





Section 09 Climate Economy



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Why Climate Economy Is Important

Climate change and the economy are inexorably linked. Left unabated, the impacts of man-made climate change through the end of this century will cost the United States billions of dollars. According to a 2019 EPA study, the difference in economic impact between the global warming we face under “business-as-usual” increases and the global warming reduction goal established in the Paris Agreement may account for as much as \$224 billion in economic impact annually by 2090. According to a 2019 World Bank report on trends in carbon pricing, a carbon price range of \$40-\$80 per ton is necessary by 2020 to reach the goals set by the 2015 Paris Agreement, while other studies have placed the full cost of carbon at \$200-\$400 per ton. The calculations outlined in Section 1 of this plan estimate a conservative localized cost for carbon at over \$99 per ton.

The economy is also directly linked to climate action as well. One common reason given by those who wish not to see action taken on climate change is that the economy will be damaged. Setting aside the avoidance of the future costs should we not act to mitigate climate change, evidence is building a clear case that acting on climate change, and reducing fossil fuel emissions can be done without weakening the economy. Since 2010, Northbrook has seen village-wide GHG emissions drop over 21% while during that same period the village’s GDP has **increased** over 13%.

“Climate Economy” refers to an economy that is both resilient to the projected impacts of climate change as well as supportive of reducing community-wide emissions in line with the goals of the Climate Action Plan. Many of the climate actions included in this plan can reduce Northbrook’s contributions to global greenhouse gas levels, deal with the risks posed by climate change, and achieve economic growth and opportunity. Transformative change is needed now in how we build our cities, produce and use energy, transport people and goods, and manage our landscapes. This change also represents opportunities to improve our quality of life, improve health outcomes, and provide opportunities for workforce development, new job creation, and economic development. Additionally, many of the jobs potentials in Climate Action redirect funds away from less labor intensive (but more material resource intensive) sectors of the economy to support greater overall employment combined with less resource utilization. In general, economic opportunities include:



**Energy Efficiency
Jobs**



**Public Transit
Jobs**



**Renewable Energy
Jobs**



Economic Savings

Climate Change Considerations



Climate Hazards

In many sectors, climate change will impact water and energy consumption and costs. Extreme weather and increasing variability in temperatures and precipitation may stress transportation systems and fleets. Increasing extreme weather hazards may threaten supply material and product supply chains.



Opportunities

Climate mitigation strategies like transformation of Northbrook’s energy system, improvements to the energy efficiency of the village’s building stock, enhancement of transportation alternatives, and the implementation of goals like tree canopy increases and reduction to impervious surfaces represent opportunities for the development of new businesses and job creation.



Equity Considerations

- Low income individuals in our communities are especially prone to the impacts of climate change and bear a greatly disproportionate share of the costs—including vulnerability to job instability that can be brought about by extreme weather events and other climate change impacts.
- Income inequality is rising in the US, with September 2019 levels being the highest in 50 years—and the impacts of the COVID-19 pandemic have only increased these inequities. High inequality leads to lower life spans, increased instances of mental health issues, and increased obesity rates among other social impacts. Because the impacts and the costs of climate change are disproportionately felt by vulnerable populations and low-income individuals, climate change impacts will exacerbate income inequality in our communities.

Strategies Supporting Sector Goals

- ① **Strategy CE 1:** Capture local economic potential of climate action.
- ② **Strategy CE 2:** Increase workforce development for the climate economy.
- ③ **Strategy CE 3:** Build marketplace climate resilience.
- ④ **Strategy CE 4:** Financing The Village’s climate action implementation.

① **Strategy CE 1:** Capture local economic potential of climate action.

Actions		Implementation Phase
CE 1-1	Continue the Green Leadership Awards program to promote Northbrook as an environmentally friendly destination by highlighting the businesses and residents that are taking steps to reduce resource consumption. https://www.northbrook.il.us/933/Green-Leadership-Awards	1
CE 1-2	Identify and promote locations for green businesses	1
CE 1-3	Encourage “green” businesses that are non-polluting, offer or support environmentally sustainable goods or services, and/or actively promote telecommuting, alternative work schedules, and alternative transportation modes.	1
CE 1-4	Foster small business and green business development, particularly those which increase renewable energy, climate mitigation and adaptation resources within the community.	2



Climate Economy

2

Strategy CE 2:

Increase workforce development for the climate economy.

Actions		Implementation Phase
CE 2-1	Review the Affordable Housing Ordinance adopted by the Board of Trustees on 12 8, 2020 and identify current and future need for affordable housing including scenarios anticipating climate immigration and migration potentials. Plan should also integrate strategies, actions, and priorities which support the goals of this CAP plan such as prioritization of transit oriented affordable development sites, advancement of increased energy efficiency, renewable energy, and electrification strategies, and integration of climate adaptation, ground cover, and tree canopy considerations. Project example: https://cutt.ly/6vXjDVM	1
CE 2-2	Work with local partners to develop a community green jobs electronic bulletin board promoting local green job opportunities	2
CE 2-3	Promote alternatives to traditional building demolition such as relocation, deconstruction and salvage. Collaborate with partners to establish a jobs training program focused on building workforce with deconstruction skills and capacities. Job training program should focus on establishing job skills and placement for low income individuals. See Better Futures Program (https://betterfuturesminnesota.com/services/)	2

3

Strategy CE 3:

Build marketplace climate resilience.

Actions		Implementation Phase
CE 3-1	Work with the Northbrook Chamber of Commerce and community businesses to explore the creation of an incentivized “buy local” campaign to enhance resilience of small local businesses.	1
CE 3-2	Make sure key business infrastructure is recognized in the Village and County’s general hazard mitigation plan and emergency response plan	1
CE 3-3	Ensure redundancy in telecommunications and broadband networks to protect commerce and public safety in the event of natural or manmade disasters	2





4

Strategy CE 4:

Strategy CE 4: Financing The Village's climate action implementation.

Actions	Implementation Phase
CE 4- 1 Add a Carbon Impact Fee to all new development as a percentage of the building permit fee. Additional funds raised to be used for Climate Mitigation and Adaptation implementation. Projects may apply for a refund if they install on-site renewable energy system and provide documentation that demonstrates the system will offset a minimum of 40% of the site's energy consumption, with sliding scale refunds provided for projects offsetting over 40%. https://www.cityofwatsonville.org/DocumentCenter/View/198/Frequently-Asked-Questions-About-the-Carbon-Fund-Ordinance-PDF https://www.cityofwatsonville.org/DocumentCenter/View/3944/Carbon-Fund-Voluntary-Compliance-Worksheet?bidId=	1
CE 4- 2 Establish a policy that designates Village Utility Franchise Fee Income as funding source for Climate Initiatives. Explore options for allocation of utility franchise fees for advancement of Village CAP goals prior to the next franchise fee agreement negotiation. (https://ilsr.org/energy/utility-franchise-fees/)	2

What You Can Do

You can support the goals of the Climate Economy section of the Northbrook Climate Action Plan as an individual, household, or a business. Here are just a few things you can do:

- Stay informed on local climate action news, events and progress by following the Village on Facebook, Twitter and Instagram
- Attend a Village-sponsored event or a Village Board of Trustees meeting to show your support for climate action.
- Shop and buy locally. We make Northbrook a more liveable, sustainable, equitable community when we spend our money here. Plus, it reduces the climate impacts of packaging and shipping.
- Buy a DNR Environmental License Plate for your vehicle. The proceeds will go toward protect Illinois' lands, waters and wildlife.
- Volunteer to help an organization — your employer, church, school, neighborhood association — with climate action. Not sure where to volunteer? Contact the Village and we'll help you find an opportunity.
- Write to your state representative and senator, telling them you support strong building codes and clean, renewable energy.
- Start a sustainable business! (<https://www.nerdwallet.com/article/small-business/sustainable-business-ideas>)



Section 10 Climate Action Implementation



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Climate Action Implementation

The first few years after plan adoption are critical to its success. Establishing roles, both internal and external, and identifying funding will help establish the implementation phase of the plan and ensure the community is on track to achieve its goals. This plan includes robust goals for significant GHG emission reductions and addressing climate resilience. This vision requires commitment and integration of the CAP into Village operations, functions, and services.

Implementation is For Everyone

Implementation actions are detailed items that should be completed in order to carry out the vision and strategies identified in the plan. Some actions will need to be led by Village Board of Trustees, Village departments, and/or the business community; and there are some things that households and individuals can do to make an impact. While many actions will require Village Board of Trustees to amend a policy there will be opportunities for businesses, organizations, households, and individuals to support the Village Board of Trustees policy changes and provide input on and feedback on those policies. Ultimately, achieving the visionary energy efficiency, renewable energy, alternative transportation, and climate resilience goals outlined in this plan will require engagement and a sense of responsibility not only by the Village of Northbrook leadership and government, but by the community itself as well. It is critical for all to remain engaged and active, advancing and advocating for actions you feel are important.

General Implementation Recommendations

The following are foundational recommendations to support the long-range implementation of the CAP:

Building Internal Capacity

Continuing to build internal capacity will be important to help establish the CAP as a priority integral to internal operations as well as fostering connections to community partners, businesses, and individuals through outreach, education, special projects, and service delivery.

1. Establish clear guidance and direction for the participation in and support of the CAP implementation actions by all Village of Northbrook departments.
2. Establish a Village “Climate Action Team” or “Green Team” made up of representatives from all key departments to meet on a regular basis to coordinate on CAP action implementation efforts.
3. Fund and support Sustainability staffing required to:
 - Facilitate discussion among large users to reduce emissions through business and industrial strategies.
 - Participate in technical resource programs as they are available through County, State, Federal, and non-profit provider partners.
 - Support Village of Northbrook department managers and staff as they implement CAP actions within their service area or area of expertise.
 - Convene an internal Village climate working group that meets regularly and provides updates on progress and success, identifies additional support or resources needed to advance actions of the CAP, and collaboratively discusses strategies for more complex challenges.
 - Ensure the establishment and maintenance of a Village of Northbrook Climate Action webpage supporting CAP resources for the community.
 - Coordinate and organize volunteer groups and events.
 - Engage Village boards and commissions (e.g., Environmental Commission, Tree Commission, Commission on Sustainability, Park Department’s Environmental Resources Advisory Council, Planning Commission, Village Board of Trustees Climate Action & Resilience Committee, etc.) to ensure the CAP is integrated into their work plans.
4. Review Climate Action Plan implementation progress and impacts on a regular basis (1-2 year cycle). Review should include development of an updated community wide GHG inventory. Strategies and actions should be reviewed for implementation progress and for continued appropriateness. Based on the review, adjust, add, and remove detailed CAP actions as appropriate.



Climate Action Implementation

External Support

Village staff and elected officials will not be able to implement this plan without robust support from community members and coordination with jurisdictional, institutional, and organizational partners.

1. Change the name of the EQC to “Sustainability Commission” with a change in mission and scope of work for the commission to support the mission of the Climate Action Plan, coordinate with Village staff in all relevant departments, and to receive updates on Village CAP projects and progress.
2. Establish a designated Village Board representative participant in the Village’s internal climate working group in support of CAP implementation.
3. Establish a coordinated communication and education campaign supporting the educational and informational actions included in each of the CAP sections. The campaign should also look to help community members:
 - Understand why change at the individual, community, Village, and business level needs to occur,
 - How to make those changes correctly, and
 - What the benefit/incentive to them might be, for example, articulating that switching to solar energy and or an electric bus fleet might help reduce bills
4. Establish jurisdictional partnerships that advance CAP strategies to advance and accelerate action. This can include government entities like Cook County, the State of Illinois, conservation districts, utilities like ComEd and Nicor Gas; institutions like Oakton Community College or University of Illinois; Northbrook businesses, and community groups.

Funding

Funding the implementation of the CAP will require reallocation/reconsideration of existing Village funds, raising new Village funds, and identifying outside resources and funding opportunities. Some funds will need to be dedicated toward long-term support like staffing, while other funding will be on a project-by-project basis.

1. Maintain a budget and identify funding sources for staff dedicated to the implementation of the CAP.
2. Identify a budget necessary to support projects on an annual basis as per the detailed actions outlined in the Climate Economy section of the plan and climate actions.
3. Utilize no-cost technical assistance offerings as available.

Climate Action Implementation Support Tools

To support the Village in its initial implementation phase, the paleBLUEDot team has created a number of tools including:

- Implementation and Monitoring Matrix
- Example Climate Action Policies and Ordinances

The paleBLUEDot team has assembled example policies and ordinances supporting some of the strategies and actions included in the Northbrook Climate Action Plan.

The examples can be found on the following webpage:

<https://palebluedot.llc/northbrook-cap-policy-examples>



Section A1

GHG Forecast Assumptions



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Village of Northbrook

GHG Forecast Assumptions:

Demographics:

- **Population:** Total Population projections through 2050 are projected based on Village's share of projected growth of the Local Area Allocation (LAA) developed in support of CMAP's ON TO 2050 forecast of population.
- **Households:** Total household counts through 2050 are projected based on Village's share of projected growth of the Local Area Allocation (LAA) developed in support of CMAP's ON TO 2050 forecast of households.
- **Jobs:** Total commercial and industrial jobs through 2050 are projected based on Village's share of projected growth of the Local Area Allocation (LAA) developed in support of CMAP's ON TO 2050 forecast of employment (note, share of commercial jobs and industrial jobs are projected using current percentages of total employment).

Climate Data

- **Cooling Degree Days (CDD):** Projected climate changes for the region will include increased summer temperatures. The increase in temperatures will result in an increase, or variability, in air conditioning demand. The forecast calculates annual changes in air conditioning demand based on projections provided by the "Climate Explorer" tool developed by US NOAA in support of the National Climate Assessment work. <https://crt-climate-explorer.nemac.org/>
- **Heating Degree Days (HDD):** Projected climate changes for the region will include increased winter temperatures. The increase in temperatures will result in a decrease, or variability, in building heating demand. The forecast calculates annual changes in heating demand based on projections provided by the "Climate Explorer" tool developed by US NOAA in support of the National Climate Assessment work. <https://crt-climate-explorer.nemac.org/>

Electricity:

- **Residential:** Demand is based on a per household basis and modified based on the projected Cooling Degree Days for each year, assuming 15% of electricity is used for cooling (RCP 8.5 model). 50% of projected increased electrical vehicle usage is attributed to residential EV charging.
- **Commercial and Industrial:** Demand is based on a per job basis and modified based on projected cooling degree days for each year, assuming that 15% of commercial and 7.5% of industrial electricity is used for cooling. (RCP 8.5 model). 50% of projected increased electrical vehicle usage is attributed to commercial EV charging
- **All electricity emission factors** are calculated using estimated emissions factors for 2030, 2040, and 2050 based on current, known, supplier commitments. For electrical suppliers with unknown or unestablished emission commitments, and for electricity purchased from the SERC grid, electricity emission factors are calculated based on EPA forecasts (<https://fas.org/sgp/crs/misc/R45453.pdf>). Estimated emissions factors are reduced 5% by 2030, 10% by 2040, and 15% by 2050.

Natural Gas:

- **Residential:** Demand is based on a per household basis and modified based on the projected Heating Degree Days for each year, assuming 75% of natural gas is used for heating (RCP 8.5 model).

- Commercial and Industrial: Demand is based on a per job basis and modified based on projected heating degree days for each year, assuming that 40% of commercial and 20% of industrial natural gas is used for heating (RCP 8.5 model).
- Natural Gas emissions factors are projected to be unchanged.

Transportation:

- Vehicle Miles Traveled is based on *Chicago* Metropolitan Agency for Planning (CMAP) projections. Trip data projections include trips with origin and destination within Village and trips with origin OR destination within Village. Trips with neither origin nor destination within Village (pass through only) are not included.
- https://www.fhwa.dot.gov/policyinformation/tables/vmt/vmt_forecast_sum.cfm
Vehicle fuel use is calculated based on US Energy Information Agency projected rolling stock average fuel efficiency projections, modified to 85% projected MPG to account for heavy duty vehicle MPG share (based on US Department of Transportation data on current light duty to average all vehicle MPG ratios)
<https://www.eia.gov/todayinenergy/detail.php?id=31332>
- Total vehicle stock is based on per household projections maintaining existing average number of vehicles per household through 2030 (2.556) and then reducing the average vehicle per household 10% through 2050 (2.3).
- Electric Vehicle Adoption: National projections expect an increased uptake of electric vehicles in coming years. The Edison Electric Institute has estimated that electric vehicle will be 7% of all vehicles on the road in the country by 2030. This projection is similar to the State of Illinois projections by the Citizens Utility Board in their report “Charging Ahead, Driving Value From Electric Vehicles For All Electricity Customers.”
(<http://www.ehcar.net/library/rapport/rapport233.pdf>, <https://www.citizensutilityboard.org/wp-content/uploads/2019/03/Charging-Ahead-Deriving-Value-from-Electric-Vehicles-for-All-Electricity-Customers-v6-031419.pdf>, <https://berla.co/average-us-vehicle-lifespan/>
<https://www.autosinnovate.org/resources/electric-vehicle-sales-dashboard>).

Solid Waste:

- Total Solid Waste handled is based on total number of households and maintaining existing volume per household and emissions factors per ton handled.

Wastewater:

- Total Wastewater handled is based on total number of households and maintaining existing volume per household and emissions factors per household.

Note:

GHG emissions forecasts are not predictions of what will happen, but rather modeled projections of what may happen given certain assumptions and methodologies. GHG forecasts in this report should be interpreted with a clear understanding of the assumptions that inform them and the limitations inherent in any modeling effort.

Section A2

Glossary of Terms



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A

Activity Data

Data on the magnitude of a human activity resulting in emissions or removals taking place during a given period of time. Data on energy use, metal production, land areas, management systems, lime and fertilizer use and waste arisings are examples of activity data. ([IPCC](#))

Adaptive Capacity

The social, technical skills, and financial capacities of individuals and groups to implement and maintain climate actions.

Aerosols

A collection of airborne solid or liquid particles, with a typical size between 0.01 and 10 micrometer that reside in the atmosphere for at least several hours. Aerosols may be of either natural or anthropogenic origin. Aerosols may influence climate in several ways: directly through scattering and absorbing radiation, and indirectly by acting as cloud condensation nuclei or modifying the optical properties and lifetime of clouds. ([IPCC2](#))

Afforestation

Planting of new forests on lands that historically have not contained forests. ([IPCC2](#))

Air Pollutant

Any man-made and/or natural substance occurring in the atmosphere that may result in adverse effects to humans, animals, vegetation, and/or materials. ([CARB](#))

Anthropogenic

The term "anthropogenic", in the context of greenhouse gas inventories, refers to greenhouse gas emissions and removals that are a direct result of human activities or are the result of natural processes that have been affected by human activities. ([USEPA2](#))

Atmosphere

The gaseous envelope surrounding the Earth. The dry atmosphere consists almost entirely of nitrogen (78.1% volume mixing ratio) and oxygen (20.9% volume mixing ratio), together with a number of trace gases, such as argon (0.93% volume mixing ratio), helium and radiatively active greenhouse gases such as carbon dioxide (0.035% volume mixing ratio) and ozone. In addition, the atmosphere contains the greenhouse gas water vapor, whose amounts are highly variable but typically around 1% volume mixing ratio. The atmosphere also contains clouds and aerosols. ([IPCC2](#))

B

Baseline Emissions

A baseline is a measurement, calculation, or time used as a basis for comparison. Baseline emissions are the level of emissions that would occur without policy intervention or without implementation of a project. Baseline estimates are needed to determine the effectiveness of emission reduction programs (also called mitigation strategies).

Base Year

The starting year for the inventory. Targets for reducing GHG emissions are often defined in relation to the base year.

Biogenic

Produced by the biological processes of living organisms. Note that we use the term "biogenic" to refer only to recently produced (that is non-fossil) material of biological origin. IPCC guidelines recommend that peat be treated as a fossil carbon because it takes a long time to replace harvested peat.

Biogeochemical Cycle

Movements through the Earth system of key chemical constituents essential to life, such as carbon, nitrogen, oxygen, and phosphorus. ([NASA](#))

Biomass

Either (1) the total mass of living organisms in a given area or of a given species usually expressed as dry weight; or (2) Organic matter consisting of or recently derived from living organisms (especially regarded as fuel) excluding peat. Includes products, by-products and waste derived from such material. (IPCC1)

Biomass Waste

Organic non-fossil material of biological origin that is a byproduct or a discarded product. "Biomass waste" includes municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural crop byproducts, straw, and other biomass solids, liquids, and gases; but excludes wood and wood-derived fuels (including black liquor), biofuels feedstock, biodiesel, and fuel ethanol. Note: EIA "biomass waste" data also include energy crops grown specifically for energy production, which would not normally constitute waste. ([EIA](#))

Black Carbon

Operationally defined aerosol species based on measurement of light absorption and chemical reactivity and/or thermal stability; consists of soot, charcoal and/or possible light absorbing refractory organic matter (Charlson and Heintzenberg, 1995, p. 401). ([IPCC2](#))

C**Carbon Cycle**

All parts (reservoirs) and fluxes of carbon. The cycle is usually thought of as four main reservoirs of carbon interconnected by pathways of exchange. The reservoirs are the atmosphere, terrestrial biosphere (usually includes freshwater systems), oceans, and sediments (includes fossil fuels). The annual movements of carbon, the carbon exchanges between reservoirs, occur because of various chemical, physical, geological, and biological processes. The ocean contains the largest pool of carbon near the surface of the Earth, but most of that pool is not involved with rapid exchange with the atmosphere. ([NASA](#))

Carbon Dioxide (CO₂)

A naturally occurring gas, and also a by-product of burning fossil fuels and biomass, as well as land-use changes and other industrial processes. It is the principal anthropogenic greenhouse gas that affects the Earth's radiative balance. It is the reference gas against which other greenhouse gases are measured and therefore has a Global Warming Potential of 1. ([IPCC2](#))

Carbon Dioxide Equivalent (CO₂e)

A metric used to compare emissions of various greenhouse gases. It is the mass of carbon dioxide that would produce the same estimated radiative forcing as a given mass of another greenhouse gas. Carbon dioxide equivalents are computed by multiplying the mass of the gas emitted by its global warming potential.

Carbon Disclosure Project (CDP)

An international organization that administers a platform for organizations and cities to publicly disclose their environmental impacts, such as climate risk. CDP is one of the approved disclosure platforms utilized by GCoM.

Carbon Emissions

The release of carbon dioxide into the atmosphere. Primary human sources of the release of carbon dioxide occur from burning oil, coal, and gas for energy use.

Carbon Equivalent (CE)

A metric measure used to compare the emissions of the different greenhouse gases based upon their global warming potential. Carbon equivalents can be calculated from to carbon dioxide equivalents by multiplying the carbon dioxide equivalents by 12/44 (the ratio of the molecular weight of carbon to that of carbon dioxide). The use of carbon equivalent is declining in GHG inventories.

Carbon Intensity

The amount of carbon by weight emitted per unit of energy consumed. A common measure of carbon intensity is weight of carbon per British thermal unit (Btu) of energy. When there is only one fossil fuel under consideration, the carbon intensity and the emissions coefficient are identical. When there are several fuels, carbon intensity is based on their combined emissions coefficients weighted by their energy consumption levels. ([EIA](#))

Carbon Neutrality

For the purposes of the Plan, Carbon Neutrality refers to the point at which the organization / organization's net greenhouse gas emissions reach 0. This will likely be achieved through a combination of reducing emission sources and offsetting and sequestering any remaining emissions.

Carbon Sinks

A forest, ocean, or other natural environment viewed in terms of its ability to absorb carbon dioxide from the atmosphere.

Carbon Sequestration

This refers to the capture of CO₂ from the atmosphere and its long term storage in oceans (oceanic carbon sequestration), in biomass and soils (terrestrial carbon sequestration) or in underground reservoirs (geologic carbon sequestration).

Chlorofluorocarbons (CFCs)

Greenhouse gases covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Because they are not destroyed in the lower atmosphere, CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are being replaced by other compounds, including hydrochlorofluorocarbons and hydrofluorocarbons, which are greenhouse gases covered under the Kyoto Protocol. ([IPCC3](#))

Circular Economy

An alternative to a traditional linear economy (make, use, dispose) in which an economy is a regenerative system where resource input and waste are minimized. This is achieved through long-lasting product design, repair, reuse, remanufacturing, and recycling. Circular economy strategies are often cited as systems level approaches to reducing waste generation through product and system design.

Climate

Climate in a narrow sense is usually defined as the "average weather" or more rigorously as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands or millions of years. The classical period is 30 years, as defined by the World Meteorological Organization (WMO). These relevant quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system. ([IPCC2](#))

Climate Adaptation or Resilience

The capacity of a natural environment to prevent, withstand, respond to, and recover from a disruption. The process of adjusting to new climate conditions in order to reduce risks to valued assets.

Climate Change

Climate change refers to a statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer). Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use. ([IPCC2](#))

Climate Hazard

An extreme climate event or condition that can harm human health, livelihoods, or natural resources. It can include abrupt changes to the climate system such as extreme precipitation, storms, droughts, and heat waves.

Climate Risk

The potential for consequences where something of value is at stake and where the outcome is uncertain, recognizing the diversity of values. Risk is often represented as probability of occurrence of hazardous events or trends multiplied by the impacts if these events or trends occur. Risk results from the interaction of vulnerability and hazard. (IPCC):

Climate Vulnerability

Is the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude and rate of climate change and variation to which a system is exposed, its sensitivity, and its capacity to adapt.

Vulnerability = potential impact (sensitivity x exposure) – adaptive capacity (IPCC):

Climate Vulnerability Assessment

A report used to identify and define the risks posed by climate change and inform adaptation measures needed to combat climate change. Reports can be about a wide range of fields including food security, poverty analysis, and extreme weather events.

Cogeneration

Cogeneration is an industrial structure, installation, plant, building, or self-generating facility that has sequential or simultaneous generation of multiple forms of useful energy (usually mechanical and thermal) in a single, integrated system. ([CARB](#))

Combined Heat and Power (CHP)

Combined heat and power is the simultaneous production of both electricity and useful heat for application by the producer or to be sold to other users with the aim of better utilisation of the energy used. Public utilities may utilise part of the heat produced in power plants and sell it for public heating purposes. Industries as auto-producers may sell part of the excess electricity produced to other industries or to electric utilities. ([IPCC](#))

Community Solar

Solar facilities shared by multiple community subscribers who receive credit on their electricity bills for their share of the power produced. Community solar allows members of a community to share the benefits of solar power on their property without installing it on their own property. Electricity generated by the community solar farm typically costs less than the price from utility companies.

Complete Streets

A “complete street” is a design approach that requires streets to be designed to support safe, convenient and comfortable travel and access for users of all ages and abilities regardless of their mode of transportation.

Consistency

Consistency means that an inventory should be internally consistent in all its elements over a period of years. An inventory is consistent if the same methodologies are used for the base and all subsequent years and if consistent data sets are used to estimate emissions or removals from sources or sinks. ([IPCC](#))

Continuous Emission Monitor (CEM)

A type of air emission monitoring system installed to operate continuously inside of a smokestack or other emission source. ([CARB](#))

Criteria Air Pollutant

An air pollutant for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set. Examples include: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and PM10 and PM2.5. The term "criteria air pollutants" derives from the requirement that the U.S. EPA must describe the characteristics and potential health and welfare effects of these pollutants. The U.S. EPA and CARB periodically review new scientific data and may propose revisions to the standards as a result. ([CARB](#))

D**Deforestation**

Those practices or processes that result in the change of forested lands to non-forest uses. This is often cited as one of the major causes of the enhanced greenhouse effect for two reasons: 1) the burning or decomposition of the wood releases carbon dioxide; and 2) trees that once removed carbon dioxide from the atmosphere in the process of photosynthesis are no longer present and contributing to carbon storage. ([UNFCCC](#))

Distillate Fuel Oil

A general classification for one of the petroleum fractions produced in conventional distillation operations. It includes diesel fuels and fuel oils. Products known as No. 1, No. 2, and No. 4 diesel fuel are used in on-highway diesel engines, such as those in trucks and automobiles, as well as off-highway engines, such as those in railroad locomotives and agricultural machinery. Products known as No. 1, No. 2, and No. 4 fuel oils are used primarily for space heating and electric power generation. ([EIA](#))

E**Emissions**

The release of a substance (usually a gas when referring to the subject of climate change) into the atmosphere. ([USEPA1](#))

Emission Factor

A coefficient that quantifies the emissions or removals of a gas per unit activity. Emission factors are often based on a sample of measurement data, averaged to develop a representative rate of emission for a given activity level under a given set of operating conditions. ([IPCC](#))

Emission Inventory

An estimate of the amount of pollutants emitted into the atmosphere from major mobile, stationary, area-wide, and natural source categories over a specific period of time such as a day or a year. ([CARB](#))

Emission Rate

The weight of a pollutant emitted per unit of time (e.g., tons / year). ([CARB](#))

Environmental Justice

The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies

Estimation

Estimation is the assessment of the value of an unmeasurable quantity using available data and knowledge within stated computational formulas or mathematical models.

F**Fluorocarbons**

Carbon-fluorine compounds that often contain other elements such as hydrogen, chlorine, or bromine. Common fluorocarbons include chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). ([UNFCCC](#))

Flux

Either (1) Raw materials, such as limestone, dolomite, lime, and silica sand, which are used to reduce the heat or other energy requirements of thermal processing of minerals (such as the smelting of metals). Fluxes also may serve a dual function as a slagging agent. (2) The rate of flow of any liquid or gas, across a given area; the amount of this crossing a given area in a given time. (e.g., "Flux of CO₂ absorbed by forests"). ([IPCC](#))

Fossil Fuel

Geologic deposits of hydrocarbons from ancient biological origin, such as coal, petroleum and natural gas.

Fuel Combustion

Fuel combustion is the intentional oxidation of materials within an apparatus that is designed to provide heat or mechanical work to a process, or for use away from the apparatus. ([IPCC](#))

Fugitive Emissions

Emissions that are not emitted through an intentional release through stack or vent. This can include leaks from industrial plant and pipelines. ([IPCC](#))

G**Geologic Carbon Sequestration**

It is the process of injecting CO₂ from a source, such as coal-fired electric generating power plant, through a well into the deep subsurface. With proper site selection and management, geologic sequestration could play a major role in reducing emissions of CO₂. Research efforts to evaluate the technical aspects of CO₂ geologic sequestration are underway. ([USEPA4](#))

Global Warming

Global warming is an average increase in the temperature of the atmosphere near the Earth's surface and in the troposphere, which can contribute to changes in global climate patterns. Global warming can occur from a variety of causes, both natural and human induced. In common usage, "global warming" often refers to the warming that can occur as a result of increased emissions of greenhouse gases from human activities. Also see Climate Change ([USEPA1](#))

Global Warming Potential (GWP)

An index, based upon radiative properties of well-mixed greenhouse gases, measuring the radiative forcing of a unit mass of a given well-mixed greenhouse gas in the present-day atmosphere integrated over a chosen time horizon, relative to that of carbon dioxide. The GWP represents the combined effect of the differing times these gases remain in the atmosphere and their relative effectiveness in absorbing outgoing thermal infrared radiation. The Kyoto Protocol is based on GWPs from pulse emissions over a 100-year time frame. ([IPCC2](#))

GCOM Global Covenant of Mayors:

GCoM is the largest global alliance for city climate leadership, built upon the commitment of over 10,000 cities and

local governments. The alliance's mission is to mobilize and support climate and energy action in communities across the world.

Green Streets

A "green street" is a stormwater management approach that incorporates vegetation, soil, and engineered systems to slow, filter, and cleanse stormwater runoff from impervious surfaces.

Greenhouse Effect

Trapping and build-up of heat in the atmosphere (troposphere) near the earth's surface. Some of the heat flowing back toward space from the earth's surface is absorbed by water vapor, carbon dioxide, ozone, and several other gases in the atmosphere and then reradiated back toward the earth's surface. If the atmospheric concentrations of these greenhouse gases rise, the average temperature of the lower atmosphere will gradually increase. ([UNFCC](#))

Global Protocol for Community-Scale Greenhouse Gas Emissions Inventories:

A robust, transparent and globally-accepted framework that cities and local governments can use to consistently identify, calculate and report on city greenhouse gas emissions.

Greenhouse Gas

Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include, but are not limited to, water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrochlorofluorocarbons (HCFCs), ozone (O₃), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). ([UNFCC](#))

Green Infrastructure

An approach to managing precipitation by reducing and treating stormwater at its source while delivering environmental, social, and economic benefits. Stormwater runoff can carry trash, bacteria, and other pollutants and is a major cause of water pollution in urban areas.

Gross Domestic Product (GDP)

The sum of gross value added, at purchasers' prices, by all resident and non-resident producers in the economy, plus any taxes and minus any subsidies not included in the value of the products in a country or a geographic region for a given period, normally one year. It is calculated without deducting for depreciation of fabricated assets or depletion and degradation of natural resources. ([IPCC3](#))

H

Halocarbons

A collective term for the group of partially halogenated organic species, including the chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs), halons, methyl chloride, methyl bromide, etc. Many of the halocarbons have large Global Warming Potentials. The chlorine and bromine-containing halocarbons are also involved in the depletion of the ozone layer. ([IPCC2](#))

Hydrocarbons

Strictly defined as molecules containing only hydrogen and carbon. The term is often used more broadly to include any molecules in petroleum which also contains molecules with S, N, or O. An unsaturated hydrocarbon is any hydrocarbon containing olefinic or aromatic structures. ([IPCC](#))

Hydrofluorocarbons (HFCs)

Compounds containing only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are powerful greenhouse gases with global warming potentials ranging from 140 (HFC-152a) to 11,700 (HFC-23). ([USEPA1](#))

I

ICLEI Local Governments for Sustainability:

A membership organization for local governments to pursue reductions in carbon pollution and improvements in advancing sustainable urban development. ICLEI's members and team of experts work together through peer exchange, partnerships and capacity building to create systemic change for urban sustainability.

Intergovernmental Panel on Climate Change

The IPCC was established jointly by the United Nations Environment Programme and the World Meteorological Organization in 1988. The purpose of the IPCC is to assess information in the scientific and technical literature related to all significant components of the issue of climate change. The IPCC draws upon hundreds of the world's expert scientists as authors and thousands as expert reviewers. Leading experts on climate change and environmental, social, and economic sciences from some 60 nations have helped the IPCC to prepare periodic assessments of the scientific underpinnings for understanding global climate change and its consequences. With its capacity for reporting on climate change, its consequences, and the viability of adaptation and mitigation measures, the IPCC is also looked to as the official advisory body to the world's governments on the state of the science of the climate change issue. For example, the IPCC organized the development of internationally accepted methods for conducting national greenhouse gas emission inventories. ([USEPA1](#))

K

Kilowatt Hour (kWh):

A measure of electrical energy equivalent to a power consumption of 1,000 watts for one hour.

Kyoto Protocol

The Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC) was adopted in 1997 in Kyoto, Japan, at the Third Session of the Conference of the Parties (COP) to the UNFCCC. It contains legally binding commitments, in addition to those included in the UNFCCC. Countries included in Annex B of the Protocol (most Organisation for Economic Cooperation and Development countries and countries with economies in transition) agreed to reduce their anthropogenic greenhouse gas emissions (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride) by at least 5% below 1990 levels in the commitment period 2008 to 2012. The Kyoto Protocol entered into force on 16 February 2005. ([IPCC2](#))

L

Land Use and Land Use Change

Land use refers to the total of arrangements, activities and inputs undertaken in a certain land cover type (a set of human actions). The term land use is also used in the sense of the social and economic purposes for which land is managed (e.g., grazing, timber extraction and conservation). Land use change refers to a change in the use or management of land by humans, which may lead to a change in land cover. Land cover and land use change may have an impact on the surface albedo, evapotranspiration, sources and sinks of greenhouse gases, or other properties of the climate system and may thus have a radiative forcing and/or other impacts on climate, locally or globally. ([IPCC2](#))

Living Streets

A "living street" combines the concepts of complete streets and green streets while putting additional focus on quality of life aspects for City residents.

LULUCF

Acronym for "Land Use, Land Use Change and Forestry", a category of activities in GHG inventories.

M

Megawatt Hour (MWh):

A measure of electrical energy equivalent to a power consumption of 1,000,000 watts for one hour.

Methane (CH₄)

A hydrocarbon that is a greenhouse gas with a global warming potential most recently estimated at 25 times that of carbon dioxide (CO₂). Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion. The GWP is from the IPCC's Fourth Assessment Report (AR4).

Metric Ton

The tonne (t) or metric ton, sometimes referred to as a metric tonne, is an international unit of mass. A metric ton is equal to a Megagram (Mg), 1000 kilograms, 2204.6 pounds, or 1.1023 short tons.

Million Metric Tons (MMT)

Common measurement used in GHG inventories. It is equal to a Teragram (Tg).

Mitigation:

Actions taken to limit the magnitude or rate of long-term global warming and its related effects. Climate change mitigation generally involves reductions in human emissions of greenhouse gases.

Mobile Sources

Sources of air pollution such as automobiles, motorcycles, trucks, off-road vehicles, boats, and airplanes. ([CARB](#))

Mode Share

The percentage of travelers using a particular type of transportation. Modal share is an important component in developing sustainable transport within a city or region because it reveals the level of utilization of various transportation methods. The percentage reflects how well infrastructure, policies, investments, and land-use patterns support different types of travel.

Model

A model is a quantitatively-based abstraction of a real-world situation which may simplify or neglect certain features to better focus on its more important elements. ([IPCC](#))

Municipal Solid Waste (MSW)

Residential solid waste and some non-hazardous commercial, institutional, and industrial wastes. This material is generally sent to municipal landfills for disposal. ([USEPA1](#))

N**Natural Sources**

Non-manmade emission sources, including biological and geological sources, wildfires, and windblown dust. ([CARB](#))

Net-zero Emissions (NZE)

Building A building or property that generates or offsets all energy consumed. If the City develops a NZE building code, this definition will have to be refined to provide additional guidance on calculating emissions and offsets to achieve net-zero emissions.

Nitrogen Fixation

Conversion of atmospheric nitrogen gas into forms useful to plants and other organisms by lightning, bacteria, and blue-green algae; it is part of the nitrogen cycle. ([UNFCCC](#))

Nitrogen Oxides (NO_x)

Gases consisting of one molecule of nitrogen and varying numbers of oxygen molecules. Nitrogen oxides are produced in the emissions of vehicle exhausts and from power stations. In the atmosphere, nitrogen oxides can contribute to formation of photochemical ozone (smog), can impair visibility, and have health consequences; they are thus considered pollutants. ([NASA](#))

Nitrous Oxide (N₂O)

A powerful greenhouse gas with a global warming potential of 298 times that of carbon dioxide (CO₂). Major sources of nitrous oxide include soil cultivation practices, especially the use of commercial and organic fertilizers, manure management, fossil fuel combustion, nitric acid production, and biomass burning. The GWP is from the IPCC's Fourth Assessment Report (AR4).

O**Ozone (O₃)**

Ozone, the triatomic form of oxygen (O₃), is a gaseous atmospheric constituent. In the troposphere, it is created both naturally and by photochemical reactions involving gases resulting from human activities (smog).

Tropospheric ozone acts as a greenhouse gas. In the stratosphere, it is created by the interaction between solar ultraviolet radiation and molecular oxygen (O₂). Stratospheric ozone plays a dominant role in the stratospheric radiative balance. Its concentration is highest in the ozone layer. ([IPCC2](#))

Ozone Depleting Substances (ODS)

A compound that contributes to stratospheric ozone depletion. Ozone-depleting substances (ODS) include CFCs, HCFCs, halons, methyl bromide, carbon tetrachloride, and methyl chloroform. ODS are generally very stable in the troposphere and only degrade under intense ultraviolet light in the stratosphere. When they break down, they release chlorine or bromine atoms, which then deplete ozone. ([IPCC](#))

P**Perfluorocarbons (PFCs)**

A group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly CF₄ and C₂F₆) were introduced as alternatives, along with hydrofluorocarbons, to the ozone depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are also used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they are powerful greenhouse gases: CF₄ has a global warming potential (GWP) of 7,390 and C₂F₆ has a GWP of 12,200. The GWP is from the IPCC's Fourth Assessment Report (AR4).

Photosynthesis

The process by which plants take carbon dioxide from the air (or bicarbonate in water) to build carbohydrates, releasing oxygen in the process. There are several pathways of photosynthesis with different responses to atmospheric carbon dioxide concentrations. ([IPCC2](#))

Point Sources

Specific points of origin where pollutants are emitted into the atmosphere such as factory smokestacks. ([CARB](#))

Power Purchase Agreement (PPA)

A power purchase agreement (PPA), or electricity power agreement, is a contract between two parties; one party generates electricity (the seller) and the other party looks to purchase electricity (the buyer). Individual customers and organizations may enter into PPAs with individual developers or may join together to seek better prices as a group. PPAs can allow longer term commitments to renewable energy as well as a form of "direct" investing in new renewable energy generation.

Property-Assessed Clean Energy (PACE)

A program created for financing energy efficiency and renewable improvements on private property. Private property can include residential, commercial or industrial properties. Improvements can include energy efficiency, renewable energy and water conservation upgrades to a building.

Process Emissions

Emissions from industrial processes involving chemical transformations other than combustion. ([IPCC](#))

R

Radiative Forcing

A change in the balance between incoming solar radiation and outgoing infrared (i.e., thermal) radiation. Without any radiative forcing, solar radiation coming to the Earth would continue to be approximately equal to the infrared radiation emitted from the Earth. The addition of greenhouse gases to the atmosphere traps an increased fraction of the infrared radiation, reradiating it back toward the surface of the Earth and thereby creates a warming influence. ([UNFCCC](#))

Reforestation

Planting of forests on lands that have previously contained forests but that have been converted to some other use. ([IPCC2](#))

Regeneration

The act of renewing tree cover by establishing young trees, naturally or artificially - note regeneration usually maintains the same forest type and is done promptly after the previous stand or forest was removed. ([CSU](#))

Renewable Energy

Energy resources that are naturally replenishing such as solar, wind, hydro and geothermal energy.

Renewable Energy Credits (RECs)

A market-based instrument that represents the property rights to the environmental, social and other non-power attributes of renewable electricity generation. RECs are issued when one megawatt-hour (MWh) of electricity is generated and delivered to the electricity grid from a renewable energy resource. The single largest category of reductions in Evanston's emissions has been through the purchase of RECs.

Residence Time

Average time spent in a reservoir by an individual atom or molecule. Also, this term is used to define the age of a molecule when it leaves the reservoir. With respect to greenhouse gases, residence time usually refers to how long a particular molecule remains in the atmosphere. ([UNFCCC](#))

Reservoir

Either (1) a component or components of the climate system where a greenhouse gas or a precursor of a greenhouse gas is stored; or (2) Water bodies regulated for human activities (energy production, irrigation, navigation, recreation etc.) where substantial changes in water area due to water level regulation may occur. ([IPCC](#))

Respiration

The process whereby living organisms convert organic matter to carbon dioxide, releasing energy and consuming molecular oxygen. ([IPCC2](#))

Retro-commissioning

The systematic process to improve an existing building's performance ensuring the building controls are running efficiently and balancing the designed use and the actual use of the building.

Ride-share

The practice of sharing transportation in the form of carpooling or vanpooling. It is typically an arrangement made through a ride-matching service that connects drivers with riders.

S**Scope 1:**

Scope 1 includes emissions being released within the city limits resulting from combustion of fossil fuels and from waste decomposition in the landfill and wastewater treatment plant.

Scope 2:

Scope 2 includes emissions produced outside the city that are induced by consumption of electrical energy within the city limits.

Scope 3:

Scope 3 includes emissions of potential policy relevance to local government operations that can be measured and reported but do not qualify as Scope 1 or 2. This includes, but is not limited to, outsourced operations and employee commute.

Short Ton

Common measurement for a ton in the United States. A short ton is equal to 2,000 lbs or 0.907 metric tons. ([USEPA1](#))

Sink

Any process, activity or mechanism that removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas or aerosol from the atmosphere. ([IPCC2](#))

Social Cost of Carbon

The social cost of carbon is a measure of the economic harm from climate change impacts, expressed as the dollar value of the total damages from emitting one ton of carbon dioxide into the atmosphere.

Solar Radiation

Electromagnetic radiation emitted by the Sun. It is also referred to as shortwave radiation. Solar radiation has a distinctive range of wavelengths (spectrum) determined by the temperature of the Sun, peaking in visible wavelengths. ([IPCC2](#))

Source

Any process, activity or mechanism that releases a greenhouse gas, an aerosol or a precursor of a greenhouse gas or aerosol into the atmosphere. ([IPCC2](#))

Stationary Sources

Non-mobile sources such as power plants, refineries, and manufacturing facilities which emit air pollutants. ([CARB](#))

Sulfur Dioxide (SO₂)

A compound composed of one sulfur and two oxygen molecules. Sulfur dioxide emitted into the atmosphere through natural and anthropogenic processes is changed in a complex series of chemical reactions in the atmosphere to sulfate aerosols. These aerosols are believed to result in negative radiative forcing (i.e., tending to cool the Earth's surface) and do result in acid deposition (e.g., acid rain). ([UNFCCC](#))

Sulfur Hexafluoride (SF₆)

A colorless gas soluble in alcohol and ether, slightly soluble in water. A very powerful greenhouse gas with a global warming potential most recently estimated at 22,800 times that of carbon dioxide (CO₂). SF₆ is used primarily in

electrical transmission and distribution systems and as a dielectric in electronics. This GWP is from the IPCC's Fourth Assessment Report (AR4).

T

Terrestrial Carbon Sequestration

It is the process through which carbon dioxide (CO₂) from the atmosphere is absorbed by trees, plants and crops through photosynthesis, and stored as carbon in biomass (tree trunks, branches, foliage and roots) and soils. The term "sinks" is also used to refer to forests, croplands, and grazing lands, and their ability to sequester carbon. Agriculture and forestry activities can also release CO₂ to the atmosphere. Therefore, a carbon sink occurs when carbon sequestration is greater than carbon releases over some time period. ([USEPA3](#))

Therm:

A unit of measure for energy that is equivalent to 100,000 British Thermal units, or roughly the energy in 100 cubic feet of natural gas. Often used for measuring natural gas usage for billing purposes.

Total Organic Gases (TOG)

Gaseous organic compounds, including reactive organic gases and the relatively unreactive organic gases such as methane. ([CARB](#))

Transparency

Transparency means that the assumptions and methodologies used for an inventory should be clearly explained to facilitate replication and assessment of the inventory by users of the reported information. The transparency of inventories is fundamental to the success of the process for the communication and consideration of information. ([IPCC](#))

Trend

The trend of a quantity measures its change over a time period, with a positive trend value indicating growth in the quantity, and a negative value indicating a decrease. It is defined as the ratio of the change in the quantity over the time period, divided by the initial value of the quantity, and is usually expressed either as a percentage or a fraction. ([IPCC](#))

U

Urban Tree Canopy

Describes the makeup and characteristics of trees within the urban environment.

V

VMT Vehicle Miles Traveled:

A unit used to measure vehicle travel made by private vehicles, including passenger vehicles, truck, vans and motorcycles. Each mile traveled is counted as one vehicle mile regardless of the number of persons in the vehicle.

Vision Zero:

Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all. <https://visionzeronetwork.org/>

W

Water Vapor

The most abundant greenhouse gas; it is the water present in the atmosphere in gaseous form. Water vapor is an important part of the natural greenhouse effect. While humans are not significantly increasing its concentration, it contributes to the enhanced greenhouse effect because the warming influence of greenhouse gases leads to a positive water vapor feedback. In addition to its role as a natural greenhouse gas, water vapor plays an important

role in regulating the temperature of the planet because clouds form when excess water vapor in the atmosphere condenses to form ice and water droplets and precipitation. ([UNFCCC](#))

Weather

Atmospheric condition at any given time or place. It is measured in terms of such things as wind, temperature, humidity, atmospheric pressure, cloudiness, and precipitation. In most places, weather can change from hour-to-hour, day-to-day, and season-to-season. Climate in a narrow sense is usually defined as the "average weather", or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands or millions of years. The classical period is 30 years, as defined by the World Meteorological Organization (WMO). These quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system. A simple way of remembering the difference is that climate is what you expect (e.g. cold winters) and 'weather' is what you get (e.g. a blizzard). ([USEPA1](#))

Z

Zero Emission Vehicles (ZEV)

A vehicle that does not emit harmful emissions during operation. Harmful emissions can have a negative impact on human health and the environment. Electric (battery-powered) cars, electric trains, hydrogen-fueled vehicles, bicycles, and carriages are considered to produce zero emissions.

Zero Waste

A cyclical system in which products are designed for reuse, which creates no waste. A zero waste system eliminates the volume and toxicity of waste and materials and conserves current resources through reuse.

Section A3

Supporting Research



[Click here to
return to TOC](#)

Supporting Research

Climate Action Baseline Study

To support the Village of Northbrook Climate Action Plan planning team members, the paleBLUEDot team assembled the Climate Action Baseline Study. This document provided a review of a wide range of community wide metrics, data, and comparisons against regional peer communities for each of the climate action plan sectors included in this report. The document also included preliminary sector specific draft strategic goal recommendations for the Climate Action Plan planning team to consider, discuss, and revise at the beginning of the planning team effort.

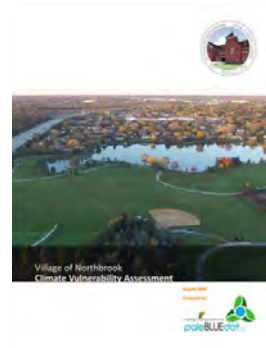
Click on the link below or scan the QR code to access the document:
<https://view.publitas.com/palebluedot/northbrook-climate-action-baseline-assessment-and-strategy-goal-recommendations-wdwbog88kdqa/>



Climate Vulnerability Assessment

At the beginning of the Climate Action Planning effort, the paleBLUEDot team developed a Climate Vulnerability Assessment for the Village of Northbrook. The assessment included the identification of vulnerable populations within the community and possible impacts and risks associated with projected climate change for the region. paleBLUEDot mapped the vulnerable populations within the Village as well as existing Village infrastructure and resources which may be capable of supporting climate adaptation strategies. These assessments provided a basis for understanding vulnerabilities and resources which supported the decision making process needed for identifying and prioritizing climate adaptation measures to be included in the final Climate Action Plan. The Assessment focused on Village-Wide vulnerabilities with a particular focus on climate vulnerable populations to ensure all populations benefit from proposed implementation measures.

Click on the link below or scan the QR code to access the document:
<https://view.publitas.com/palebluedot/northbrook-climate-vulnerability-assessment/>



Community Wide GHG Inventory

paleBLUEDot compiled a Community Greenhouse Gas Inventory. The assessment included collection of raw data and calculation of greenhouse gas emissions for each of the primary emissions sectors included in this Climate Action Plan. The inventory included both community-wide emissions as well as municipal operations. The report included community-wide emissions comparisons against communities within the State and region.

Click on the link below or scan the QR code to access the document:
<https://view.publitas.com/palebluedot/northbrook-community-ghg-inventory/>



Supporting Research

Community Wide Tree Survey and Carbon Sequestration Study

paleBLUEdot conducted a baseline assessment of Village-Wide ground cover and tree canopy extent. This baseline expanded on information available through the Village of Northbrook Forestry Department's Village owned and boulevard tree survey and covered Village-wide conditions. The study identified ground cover conditions (grass, water, wetland, tree canopy) Village-wide as well as by neighborhood/census tract. Based on the groundcover data, calculations were made for annual carbon sequestration rates, carbon stock, tree canopy/green space economic value, and pollution absorption rates (CO, O3, NO2, SO2, particulate pollution).

Included in this assessment was an assessment of Village-Wide heat island characteristics and conditions. The study identified impervious surface conditions and coverage (sidewalks, roadway, parking, and building) and compiled data in subcategories of light reflective and light absorbent conditions. Baseline calculations were made for overall heat island contribution coefficient by neighborhood (expressed as summer night time degrees F above natural conditions, calculations based on research and formulas compiled by the University of Minnesota and Minnesota State University).

Click on the link below or scan the QR code to access the document:
<https://view.publitas.com/palebluedot/northbrook-tree-canopy-survey-report/>

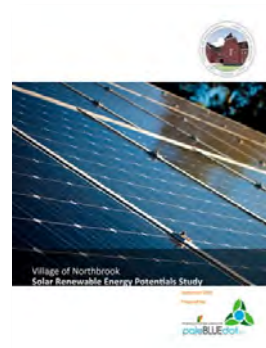


Community Wide Solar Energy Potentials Study

In support of development of effective renewable energy goalsetting and to establish strategies addressing renewable energy development, paleBLUEdot conducted a Community-Wide solar pv potentials study including economic and environmental benefits. This effort included:

- 1) Collect Village-wide satellite data (NREL, NOAA, and NASA data).
- 2) Determine building roof stock characteristics and solar suitable buildings, calculate total suitable areas by roof configuration/orientation.
- 3) Calculate total rooftop solar capacity and annual energy generation by roof configuration/orientation.
- 4) Identify cost efficient annual energy generation potential.
- 5) Research solar market at national, State and regional levels. Identify low, medium, and high solar market absorption rates and Village-wide solar pv goals.
- 6) Identify environmental and economic benefit of solar including economic development and job creation potential. (NREL JEDI model)
- 7) Develop Village-Wide Renewable Solar Energy Potentials report.

Click on the link below or scan the QR code to access the document:
<https://view.publitas.com/palebluedot/northbrook-renewable-potential/>



Section A4

Northbrook Climate Infographics



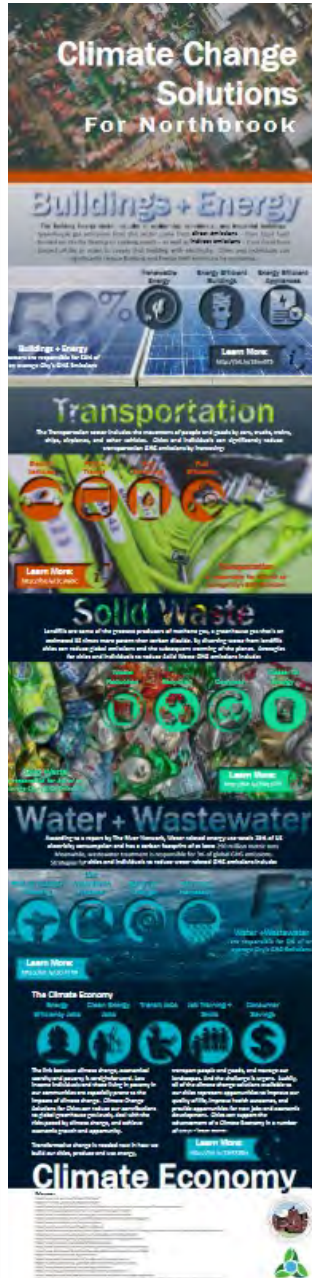
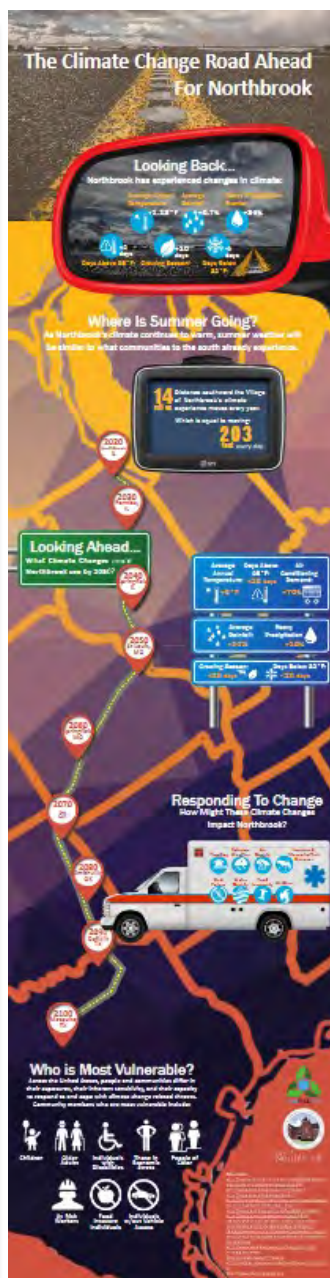
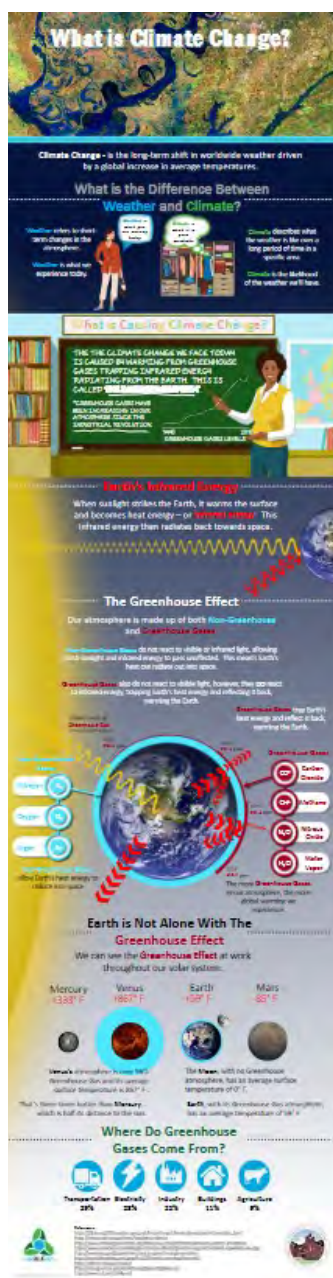
[Click here to
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Northbrook Climate Infographics

Below are infographics developed during the Climate Action Plan planning effort in support of the Village's communications.

Click on the link below or scan the QR code to access the infographics:

<https://palebluedot.llc/northbrook-climate-action-infographics>



Section A5

Cumulative Potential Cost Savings



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return to TOC](#)

Summary of Estimated Cumulative Savings of Modeled Reductions Village of Northbrook

Notes Transportation

VTM Reductions (public transit, bike, walk, etc)

Formula:

Cumulative vehicle miles saved x Average vehicle operation cost per mile = Gross VMT savings

VTM saved (year 10) 10,963,210

Cumulative vehicle miles saved: 60,297,657

1 Average vehicle operating cost per mile: \$0.688

Gross VMT savings \$41,484,788

1 Savings per VMT based on AAA estimates <https://exchange.aaa.com/automotive/driving-costs/#.YGUQZD9OIPY> ,
<https://www.slashgear.com/aaa-says-it-costs-about-74-cents-per-mile-to-drive-23496316/> <https://www.thesimpledollar.com/save-money/is-it-really-cheaper-to-ride-the-bus/>

Increased Public Transit Use (commuter)

Formula:

Cumulative increased public transit mileage x Average public transit cost per mile (commuter) = Increased spending on public transit

Increased public transit miles (year 10) 4,231,414

Cumulative increased public transit miles: 23,272,788

2 Average public transit cost per mile \$0.127

Increased spending on public transit \$2,961,991

2 Cost per commuter public transit mile calculated using cost of monthly transit pass divided by average monthly commuter miles.
<https://www.census.gov/programs-surveys/sis/resources/data-tools/quickfacts.html> <https://www.transitchicago.com/passes/>

EV and Alt Fuel Conversions

Formula:

Cumulative VMT converted to EV/alt fuel x Average vehicle operation cost savings per mile = Gross EV VMT savings

VTM converted to EV/Alt fuel (year 10) 8,223,472

Cumulative VMT converted to EV/alt fuel 45,229,095

3 Average cost savings per mile: \$0.103

Gross EV VMT savings \$4,651,059

3 Savings per VMT converted from ICE to EV <https://www.energy.gov/eere/electricvehicles/saving-fuel-and-vehicle-costs>
Savings per VMT converted from ICE to EV <https://www.energy.gov/eere/electricvehicles/saving-fuel-and-vehicle-costs>

Potential Total Cumulative Transportation Cost Savings

Formula:

Gross VMT savings - Increased spending on public transit + Gross EV VMT savings = Potential Total Cumulative Transportation Cost Savings

Gross VMT savings \$41,484,788

Increased spending on public transit \$2,961,991

Gross EV VMT savings \$4,651,059

Potential Total Cumulative Transportation Cost Savings \$43,173,856

Summary of Estimated Cumulative Savings of Modeled Reductions Village of Northbrook

Notes Energy - Residential

Residential Savings - grid electricity to solar

Formula:

Cumulative kWh converted to solar x Average cost savings per kWh = Residential solar savings

Residential kWh converted (year 10) 17,929,383

Cumulative residential kWh converted 98,611,609

3 Average solar cost savings per kWh \$0.052

Residential solar savings \$5,147,526

Residential Savings - community solar

Formula:

Cumulative kWh converted to community solar x Average cost savings per kWh = Residential community solar savings

Residential kWh converted (year 10) 13,447,038

Cumulative residential kWh converted 73,958,707

3 Average solar cost savings per kWh \$0.001

Residential solar savings \$77,213

3 The average cost savings per kWh of community solar subscription is estimated at 10%. The average cost savings per kWh consumed through on-site solar is calculated at 50% of the retail solar rate for residential and 30% for commercial. This assumes an average solar array payback period of 15 years (note, average residential payback period is estimated at 8 to 12 years and average commercial at 8 to 10 years see: <https://www.solarreviews.com/blog/how-to-calculate-your-solar-payback-period> and: <https://www.paradisepowerenergy.com/blog/payback-and-roi-of-solar-energy-for-farms-businesses>).

The average solar array effective life span is typically anticipated as 30 years (see: <https://www.solarpowerworldonline.com/2017/01/life-expectancy-solar-array/>) The average cost savings per kWh of community solar subscription is estimated at 10%. The average cost savings per kWh consumed through on-site solar is calculated at 50% of the retail solar rate for residential and 30% for commercial. This assumes an average solar array payback period of 15 years (note, average residential payback period is estimated at 8 to 12 years and average commercial at 8 to 10 years see: <https://www.solarreviews.com/blog/how-to-calculate-your-solar-payback-period> and: <https://www.paradisepowerenergy.com/blog/payback-and-roi-of-solar-energy-for-farms-businesses>).

The average solar array effective life span is typically anticipated as 30 years (see: <https://www.solarpowerworldonline.com/2017/01/life-expectancy-solar-array/>)

Residential Savings - electrical energy efficiency

Formula:

Cumulative kWh saved from energy efficiency x Average cost per kWh = Residential electrical energy efficiency savings

Residential kWh saved (year 10) 19,909,660

Cumulative residential kWh saved 109,503,130

4 Average cost per kWh \$0.104

Residential electrical energy efficiency savings \$11,432,127

4 Energy efficiency savings per kWh saved based on average electricity cost per kWh: <https://www.electricitylocal.com/>

Residential Savings - natural gas energy efficiency

Formula:

Cumulative therms saved from energy efficiency x Average cost per therm = Residential natural gas energy efficiency savings

Residential therms saved (year 10) 2,639,536

Cumulative residential therms saved 14,517,446

5 Average cost per therm \$0.663

Residential electrical energy efficiency savings \$9,625,066

5 Energy efficiency savings for natural gas is based on average natural gas cost per therm <https://naturalgaslocal.com/>

Residential Savings - increased electrical expenditures from fuel switching

Formula:

(Cumulative increased kWh from fuel switching + Cumulative increased kWh from electric vehicle charging) x Average cost per kWh =

Residential increased electrical costs

Residential increased kWh from fuel switching (year 10) 6,927,894

Residential increased kWh from EV charging (year 10) 3,340,501

Cumulative increased kWh 56,476,167

4 Average cost per kWh \$0.104

Residential increased electrical costs \$5,896,112

Potential Total Cumulative Residential Energy Cost Savings

Formula:

Residential solar savings + Residential community solar savings + Residential electrical efficiency savings + Residential natural gas energy efficiency savings - Residential increased electrical costs = Potential Total Cumulative Residential Energy Savings

Residential solar savings \$5,147,526

Residential community solar savings \$77,213

Residential electrical efficiency savings \$11,432,127

Residential natural gas energy efficiency savings \$9,625,066

Residential increased electrical costs \$5,896,112

Potential Total Cumulative Residential Energy Savings \$20,385,820

Summary of Estimated Cumulative Savings of Modeled Reductions Village of Northbrook

Notes Energy - Commercial

Commercial Savings - grid electricity to solar

Formula:

Cumulative kWh converted to solar x Average cost savings per kWh = Commercial solar savings

Commercial kWh converted (year 10) 53,237,725

Cumulative residential kWh converted 292,807,489

3 Average solar cost savings per kWh \$0.012

Commercial solar savings \$3,557,611

Commercial Savings - community solar

Formula:

Cumulative kWh converted to community solar x Average cost savings per kWh = Commercial community solar savings

Commercial kWh converted (year 10) 0

Cumulative commercial kWh converted 0

3 Average solar cost savings per kWh \$0

Commercial solar savings \$0

3 The average cost savings per kWh of community solar subscription is estimated at 10%. The average cost savings per kWh consumed through on-site solar is calculated at 50% of the retail solar rate for residential and 30% for commercial. This assumes an average solar array payback period of 15 years (note, average residential payback period is estimated at 8 to 12 years and average commercial at 8 to 10 years see: <https://www.solarreviews.com/blog/how-to-calculate-your-solar-payback-period> and: <https://www.paradisepowerenergy.com/blog/payback-and-roi-of-solar-energy-for-farms-businesses>).

The average solar array effective life span is typically anticipated as 30 years (see: <https://www.solarpowerworldonline.com/2017/01/life-expectancy-solar-array/>) The average cost savings per kWh of community solar subscription is estimated at 10%. The average cost savings per kWh consumed through on-site solar is calculated at 50% of the retail solar rate for residential and 30% for commercial. This assumes an average solar array payback period of 15 years (note, average residential payback period is estimated at 8 to 12 years and average commercial at 8 to 10 years see: <https://www.solarreviews.com/blog/how-to-calculate-your-solar-payback-period> and: <https://www.paradisepowerenergy.com/blog/payback-and-roi-of-solar-energy-for-farms-businesses>).

The average solar array effective life span is typically anticipated as 30 years (see: <https://www.solarpowerworldonline.com/2017/01/life-expectancy-solar-array/>)

Commercial Savings - electrical energy efficiency

Formula:

Cumulative kWh saved from energy efficiency x Average cost per kWh = Commercial electrical energy efficiency savings

Commercial kWh saved (year 10) 72,959,376

Cumulative commercial kWh saved 401,276,569

4 Average cost per kWh \$0.041

Commercial electrical energy efficiency savings \$16,251,701

4 Energy efficiency savings per kWh saved based on average electricity cost per kWh: <https://www.electricitylocal.com/>

Commercial Savings - natural gas energy efficiency

Formula:

Cumulative therms saved from energy efficiency x Average cost per therm = Commercial natural gas energy efficiency savings

Commercial therms saved (year 10) 2,085,047

Cumulative commercial therms saved 11,467,757

5 Average cost per therm \$0.663

Commercial electrical energy efficiency savings \$7,603,123

5 Energy efficiency savings for natural gas is based on average natural gas cost per therm <https://naturalgaslocal.com/>

Commercial Savings - increased electrical expenditures from fuel switching

Formula:

(Cumulative increased kWh from fuel switching + Cumulative increased kWh from electric vehicle charging) x Average cost per kWh =

Commercial increased electrical costs

Commercial increased kWh from fuel switching (year 10) 5,098,709

Commercial increased kWh from EV charging (year 10) 6,014,340

Cumulative increased kWh 61,121,767

4 Average cost per kWh \$0.041

Commercial increased electrical costs \$2,475,432

Potential Total Cumulative Commercial Energy Cost Savings

Formula:

Commercial solar savings + Commercial community solar savings + Commercial electrical efficiency savings + Commercial natural gas energy efficiency savings - Commercial increased electrical costs = Potential Total Cumulative Commercial Energy Savings

Commercial solar savings \$3,557,611

Commercial community solar savings \$0

Commercial electrical efficiency savings \$16,251,701

Commercial natural gas energy efficiency savings \$7,603,123

Commercial increased electrical costs \$2,475,432

Potential Total Cumulative Commercial Energy Savings \$24,937,003

Summary of Estimated Cumulative Savings of Modeled Reductions Village of Northbrook

Notes Solid Waste - Residential

Residential savings - Food Waste Reduction

Formula:

Cumulative tons of food waste reduced and diverted x Average cost savings per ton = Residential food waste savings

Residential food waste reduced (year 10) 2,640

Cumulative residential food waste reduced 14,522

6 Average cost savings per ton reduced \$2,469

Residential food waste savings \$35,853,925

6 Value per ton of residential food waste avoided is based on average for Prevent and Recover strategies by ReFED "A ROADMAP TO REDUCE U.S. FOOD WASTE" <https://refed.com/downloads/the-roadmap-to-reduce-u-s-food-waste/> .

Potential Total Cumulative Residential Solid Waste Reduction Cost Savings

Residential food waste savings \$35,853,925

Notes Solid Waste - Commercial

Commercial savings - Solid Waste Reduction

Formula:

Cumulative participant/years x Average reported cost savings per participant/year = Commercial solid waste savings

Participating businesses (year 10) 120

Cumulative participant/years 660

7 Average cost savings per participant/year \$475

Commercial solid waste savings \$313,500

7 Savings per business engaged in waste reduction programs are based on MN WasteWise reported average business savings (\$431) escalated to 5 year (mid point) Cumulative savings assume businesses remain. See <https://www.mnchamber.com/your-opportunity/waste-wise-operating-within-savings-regime>. Savings per business engaged in waste reduction programs are based on MN WasteWise reported average business savings (\$431) escalated to 5 year (mid point) Cumulative savings assume businesses continue savings strategies. See <https://www.mnchamber.com/your-opportunity/waste-wise-operating-within-savings-regime>

Commercial savings - Food Waste Reduction

Formula:

Cumulative tons of food waste reduced and diverted x Average cost savings per ton = Commercial food waste savings

Commercial food waste reduced (year 10) 3,227

Cumulative residential food waste reduced 17,749

8 Average cost savings per ton reduced \$494

Commercial food waste savings \$8,764,293

8 Values for commercial food waste are estimated at 20% of residential (retail) rates by ReFED "A ROADMAP TO REDUCE U.S. FOOD WASTE" <https://refed.com/downloads/the-roadmap-to-reduce-u-s-food-waste/> .

Potential Total Cumulative Solid Waste Savings

Formula:

Residential Food Waste Savings + Commercial Solid Waste Savings + Commercial Food Waste Savings = Potential Total Cumulative Solid Waste Savings

Residential Food Waste Savings \$35,853,925

Commercial Solid Waste Savings \$313,500

Commercial Food Waste Savings \$8,764,293

Potential Total Cumulative Solid Waste Savings \$44,931,718



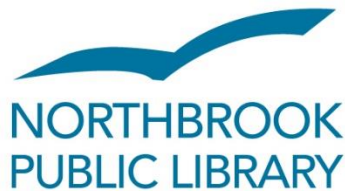
Prepared by:



2515 White Bear Ave, A8
Suite 177
Maplewood, MN 55109

Contact:

Ted Redmond
tredmond@paleBLUEdot.llc



Memorandum

DATE: September 14, 2021

TO: Board of Trustees

FROM: Kate Hall, Executive Director

RE: Fiction & Media Construction Plan Update

We are in the final stages of the design part of the Fiction & Media Staff space and have run into a challenge. As part of this project, we need to move shelving and when we were working on the plan to do that we realized that this would be a much bigger shift than we originally had planned. Pepper is also reporting that construction prices are still high as many businesses are catching up on delayed construction from 2020 and costs are running about 7% over budget (pre-bid estimates).

We want to be thoughtful and fiscally responsible in the projects we undertake and feel that moving forward with this project on the planned timeline would not serve our patrons.

As such, I am asking the board to allow us to shift our plan. Originally, the next years of the master plan were:

- FY22-Fiction & Media Staff Space
- FY23- Youth Services Teen and Tween Space
- FY24- Remainder of Youth Services
- FY25-Fiction & Media Patron Space

I am requesting that we instead shift the plan to the following:

- FY22-no project
- FY23- All of Fiction & Media
- FY24- All of Youth Services
- FY25-Reference (formerly in FY26)

The facility plan as it currently stands and with the proposed changes is attached. As you will see, there is no change in terms of the budgetary needs if we make this shift.

I look forward to discussing this with the board.

FACILITY PLAN - APPROVED BY BOARD

	expenses paid prior to FY20	FY19/20	FY20/21	FY21/22	FY22/23	FY23/24	FY24/25	FY25/26	FY26/27	FY27/28	project cost	project budget
Site Elements												
Asphalt Pavement	2,515.85	209,882.15			30,000.00			30,000.00			212,398.00	252,000.00
Concrete Driveway					5,000.00							
Concrete Sidewalks & Stairs					5,000.00							
Concrete Curbing					5,000.00							
Landscaping and Hardscape				160,125.00								
Railing and Handrails				160,125.00		5,000.00						
Pole Mounted Light Fixtures						42,000.00						
Roofing												
Main roof								575,000.00				
Barreled roof						630,000.00						
Facada												
Brick Masonry							10,000.00					
Corrugated Metal Panels												
Mechanical Penthouse Wall Cladding		22,760.13	149,964.38								172,724.51	275,000.00
Window Wall System (1999 addition)						40,000.00						
Soffits							10,000.00					
Exterior Façade and Painting Project	24,066.20	138,900.82	468,726.20								631,693.22	1,000,000.00
Interior Finishes and Fixtures												
Technology & Communications												
Phone System		34,683.63	(1,325.00)								33,358.63	100,000.00
Security Cameras					75,000.00							
Alarm System					75,000.00							
Access Control System					60,000.00							
Masterplan												
Tech services/Main Remodel	274,812.87	122,777.37									397,590.24	425,000.00
Study Rooms		139,286.55	271,084.12								410,370.67	400,000.00
Marketplace												
RFID			134,952.00									
Circulation Remodel		37,143.14	769,286.50	112,210.36							1,205,000.00	1,420,000.00
Automated Material Handler				121,408.00								
Locker System			275.00	29,725.00								
Fiction & Media Staff Space					575,000.00							
Middle & High School Space						740,000.00						
Youth Services							740,000.00					
Fiction & Media Patron Space								575,000.00				
Reference									873,000.00			
Core										2,277,000.00		
Mechanical, Electrical, Plumbing & Fire Protection												
Air Handlers				12,000.00								
Split System Air Conditioners						30,000.00						
Boilers					80,000.00	20,000.00						
HVAC and Plumbing Pumps						8,000.00				5,000.00		
Exhaust Fans			3,000.00			12,000.00						
Domestic Water Heater		2,480.00								3,000.00	2,480.00	3,000.00
Temperature Control Air Compressor						8,000.00						
Boiler Room Venilation Project*		16,376.30	43,492.86	14,414.62							74,283.78	30,000.00
Fire Sprinklers		18,955.57	12,200.00								31,155.57	35,000.00
Pollak Room Lighting Project				18,000.00								
Siemens Automation Project				100,000.00								
Fire Panel Replacement Project				30,000.00								
Expensed items		19,310.74	10,580.00									
Present Day Estimated Expense												
Inflation Rate		762,556.40	1,859,236.06	761,007.98	910,000.00	1,535,000.00	760,000.00	1,180,000.00	873,000.00	2,285,000.00		
Future Estimated Expense		-	-	-	971,425.00	1,674,531.50	847,324.00	1,344,610.00	1,016,608.50	2,719,607.00		
Beginning Reserve Fund Balance												
Regular transfer to CIF from Operating		2,150,110.00	6,177,274.95	5,444,047.63	5,063,039.65	4,521,614.65	5,982,083.15	5,564,759.15	4,650,149.15	4,063,540.65		
Transfer to CIF due to debt service reduction		75,000.00	75,000.00	75,000.00	75,000.00	75,000.00	75,000.00	75,000.00	75,000.00	75,000.00		
Operating Fund transfer		488,000.00	350,000.00	300,000.00	350,000.00	350,000.00	350,000.00	350,000.00	350,000.00	350,000.00		
		85,000.00	690,000.00									
Per Capita Grant Transfer		82,925.00										
Bond Issuance		4,010,000.00				2,705,000.00						
Future Estimated Expense		(762,556.40)	(1,859,236.06)	(761,007.98)	(971,425.00)	(1,674,531.50)	(847,324.00)	(1,344,610.00)	(1,016,608.50)	(2,719,607.00)		
Interest		48,796.35	11,008.74	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00		
Ending Reserve Fund Balance		6,177,274.95	5,444,047.63	5,063,039.65	4,521,614.65	5,982,083.15	5,564,759.15	4,650,149.15	4,063,540.65	1,773,933.65		

* Boiler Room Ventilation Project estimate from consultant was not accurate based upon bids received during public bid process

PROPOSED FACILITY PLAN - SEPTEMBER 2021

	expenses paid prior to FY20	FY19/20	FY20/21	FY21/22	FY22/23	FY23/24	FY24/25	FY25/26	FY26/27	FY27/28	project cost	project budget
Site Elements												
Asphalt Pavement	2,515.85	209,882.15			30,000.00			30,000.00			212,398.00	252,000.00
Concrete Driveway					5,000.00							
Concrete Sidewalks & Stairs					5,000.00							
Concrete Curbing					5,000.00							
Landscaping and Hardscape				160,125.00								
Railing and Handrails				160,125.00		5,000.00						
Pole Mounted Light Fixtures						42,000.00						
Roofing												
Main roof								575,000.00				
Barreled roof						630,000.00						
Facada												
Brick Masonry							10,000.00					
Corrugated Metal Panels												
Mechanical Penthouse Wall Cladding		22,760.13	149,964.38								172,724.51	275,000.00
Window Wall System (1999 addition)						40,000.00						
Soffits							10,000.00					
Exterior Façade and Painting Project	24,066.20	138,900.82	468,726.20								631,693.22	1,000,000.00
Interior Finishes and Fixtures												
Technology & Communications												
Phone System		34,683.63	(1,325.00)								33,358.63	100,000.00
Security Cameras					75,000.00							
Alarm System					75,000.00							
Access Control System					60,000.00							
Masterplan												
Tech services/Main Remodel	274,812.87	122,777.37									397,590.24	425,000.00
Study Rooms		139,286.55	271,084.12								410,370.67	400,000.00
Marketplace												
RFID			134,952.00									
Circulation Remodel		37,143.14	769,286.50	112,210.36							1,205,000.00	1,420,000.00
Automated Material Handler				121,408.00								
Locker System			275.00	29,725.00								
Fiction & Media Staff Space						575,000.00						
Middle & High School Space							740,000.00					
Youth Services							740,000.00					
Fiction & Media Patron Space						575,000.00						
Reference								873,000.00				
Core									2,277,000.00			
Mechanical, Electrical, Plumbing & Fire Protection												
Air Handlers				12,000.00								
Split System Air Conditioners						30,000.00						
Boilers					80,000.00	20,000.00						
HVAC and Plumbing Pumps						8,000.00				5,000.00		
Exhaust Fans				3,000.00		12,000.00						
Domestic Water Heater		2,480.00								3,000.00	2,480.00	3,000.00
Temperature Control Air Compressor						8,000.00						
Boiler Room Venilation Project*		16,376.30	43,492.86	14,414.62							74,283.78	30,000.00
Fire Sprinklers		18,955.57	12,200.00								31,155.57	35,000.00
Pollak Room Lighting Project				18,000.00								
Siemens Automation Project				100,000.00								
Fire Panel Replacement Project				30,000.00								
Expensed items		19,310.74	10,580.00									
Present Day Estimated Expense												
Inflation Rate		762,556.40	1,859,236.06	761,007.98	335,000.00	1,945,000.00	1,500,000.00	1,478,000.00	2,277,000.00	8,000.00		
Future Estimated Expense			-	-	357,612.50	2,121,800.50	1,672,350.00	1,684,181.00	2,651,566.50	9,521.60		
Beginning Reserve Fund Balance												
Regular transfer to CIF from Operating		2,150,110.00	6,177,274.95	5,444,047.63	5,063,039.65	5,135,427.15	3,443,626.65	2,201,276.65	947,095.65	25,529.15		
Transfer to CIF due to debt service reduction		75,000.00	75,000.00	75,000.00	75,000.00	75,000.00	75,000.00	75,000.00	75,000.00	75,000.00		
Operating Fund transfer		488,000.00	350,000.00	300,000.00	350,000.00	350,000.00	350,000.00	350,000.00	350,000.00	350,000.00		
		85,000.00	690,000.00									
Per Capita Grant Transfer		82,925.00										
Bond Issuance		4,010,000.00							1,300,000.00			
Future Estimated Expense		(762,556.40)	(1,859,236.06)	(761,007.98)	(357,612.50)	(2,121,800.50)	(1,672,350.00)	(1,684,181.00)	(2,651,566.50)	(9,521.60)		
Interest		48,796.35	11,008.74	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00		
Ending Reserve Fund Balance		6,177,274.95	5,444,047.63	5,063,039.65	5,135,427.15	3,443,626.65	2,201,276.65	947,095.65	25,529.15	446,007.55		

* Boiler Room Venilation Project estimate from consultant was not accurate based upon bids received during public bid process

**ILLINOIS LIBRARIES PRESENT:
INTERGOVERNMENTAL AGREEMENT FOR JOINT PURCHASING
OF LIBRARY PROGRAMMING, EVENTS AND SERVICES**

This Intergovernmental Agreement (“Agreement”) also known as “Illinois Libraries Present” is entered into this _____, 202__, by and between the Northbrook Public Library an Illinois public library, (“Northbrook Library”), and LIBRARY an Illinois public Library or Library District (the “Library”), and the Reaching Across Illinois Library System (“RAILS”), for the purpose of facilitating the joint purchasing of programming, events and services for the parties’ use.

WHEREAS, Article VII, Section 10 of the Illinois Constitution of 1970 authorizes units of local government to contract to exercise, combine or transfer any power or function not prohibited to them by law or ordinance;

WHEREAS, the Intergovernmental Cooperation Act (5 ILCS 220/1 *et seq.*) authorizes units of local government to exercise jointly with any public agency of the State, including other units of local government, any power, privilege or authority which may be exercised by a unit of local government individually, and to enter into contracts for the performance of governmental services, activities or undertakings;

WHEREAS, the Government Joint Purchasing Act (30 ILCS 525/1, *et seq.*) authorizes governmental units to purchase personal property, supplies and services jointly with one or more other governmental units, all of which are parties to a joint purchasing agreement;

WHEREAS, the Northbrook Public Library desires to contract with other Illinois public libraries and library districts in order to purchase and procure library programing, events and services;

WHEREAS, the Northbrook Library and the LIBRARY desire to exercise their intergovernmental cooperation and joint purchasing authority by engaging in this Agreement whereby Northbrook Library and the LIBRARY may receive the programming, events and services and benefits therefrom and achieve economies of scale resulting from Northbrook Library’s and the LIBRARY’S jointly negotiating and contracting for programming

NOW, THEREFORE, IN CONSIDERATION for the mutual covenants herein contained, and other good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the Northbrook Library and LIBRARY agree as follows:

Section 1. Authority. The parties agree that the foregoing recitals describe the power and authority by which they intend to engage in the joint purchasing and intergovernmental cooperation described in this Agreement. In the event of the termination, failure or amendment of either of the powers described herein so that this agreement would otherwise become invalid, it is the parties’ intent for this agreement to rest on the other power which they are lawfully exercising.

Section 2. Shared Services.

A. The Northbrook Library agrees to: (i) competitively bid the procurement of the materials, programming, events and services described in Exhibit A for the use and benefit of Northbrook Library and LIBRARY, and (ii) negotiate contract(s) with the lowest responsible and responsive bidder(s) (each, a “ CONTRACTING PROVIDER OF THE PROGRAM”) so that CONTRACTING PROVIDER OF THE PROGRAM shall allocate sufficient manpower and resources to provide its materials, programming, events and services (the “Services”) to satisfy the demands of both the Northbrook Library and the LIBRARY. However, by law, some contracts will not be subject to competitive bidding where the ability or fitness of the individual plays an important part. The contract with the CONTRACTING PROVIDER OF THE PROGRAM shall include requirements for CONTRACTING PROVIDER OF THE PROGRAM to (i) extend all contractual obligations to the LIBRARY to the same extent performed for the Northbrook Library, and (ii) designate personnel who will have direct contact to fulfill the provisions of this Agreement.

B. The scope of the Services required by and for the Northbrook Library and LIBRARY are more specifically described in Exhibit A, attached hereto and incorporated as though fully set forth herein.

C. The Northbrook Library hereby assigns to the LIBRARY all of its rights, privilege and authority to enforce the terms of the CONTRACTING PROVIDER OF THE PROGRAM Contract and obtain any available remedies allowed thereunder, but only with respect to the Services performed for the LIBRARY, and provided that the LIBRARY shall not have the power to terminate the CONTRACTING PROVIDER OF THE PROGRAM’s Contract, except as to services for the LIBRARY, without Northbrook Library’s express, written consent. The Northbrook Library shall cooperate with the LIBRARY, at the LIBRARY’s sole expense, to the extent it is necessary for the LIBRARY to obtain any remedy described in this paragraph.

Section 3. Cost Allocation.

A. The parties agree to share the cost of Services as outlined in the attached scope of service according to the equitable formula for sharing costs agreed by the parties to this Agreement and outlined in Exhibit B, attached to this Agreement and incorporated as though fully set forth herein. Annually, RAILS shall send an invoice to the LIBRARY with a written calculation describing the share of such invoice for which the LIBRARY shall pay RAILS on behalf of Illinois Libraries Present. The LIBRARY shall also reimburse RAILS for its share of each invoice in accordance with the IL Prompt Payment Act. At the request of either party, CONTRACTING PROVIDER OF THE PROGRAM may provide additional resources and project work, outside the scope of Attachment A, to the Northbrook Library or LIBRARY. The party requesting the work shall be responsible for 100% of the cost.

B. The LIBRARY covenants to appropriate, budget and, when necessary, levy sufficient amounts in each fiscal year for the estimated fees for which it will be liable for the Services it receives.

C. RAILS agrees to fund costs of this Agreement for any and all programs and services provided through June 30, 2022. All Libraries, parties to this contract, prior to June 30, 2022, will be invoiced for reimbursement to RAILS for RAILS' costs.

Section 4. Termination. Either Party to this Agreement may terminate its participation in this Agreement upon ninety (90) days written notice to the other party (provided that if the CONTRACTING PROVIDER OF THE PROGRAM shall require greater advance notice, the CONTRACTING PROVIDER OF THE PROGRAM Contract shall control). Each Party shall remain liable for all costs accrued during the term prior to the effective date of the termination of this Agreement. The Library agrees that if it terminates its participation in this Agreement, that all pre-payments or deposits it has made for future programs are forfeited to Illinois Library Presents.

Section 5. Records. Neither Party to this Agreement claims any proprietary interest of any nature whatsoever in any of the records of the other Party to this Agreement, provided that each Party shall cooperate with the other to the extent either Party receives a public records request related to the subject matter of this Agreement. Nothing herein shall be construed to require either Party to waive any available exemptions from disclosure described under applicable law.

Section 6. Miscellaneous.

A. Each party agrees that it will be responsible for its own acts and the result thereof to the extent authorized by law and shall not be responsible for the acts of the other party and the results thereof. Except as otherwise provided herein, no Party may, by its own actions, obligate the other Party to this Agreement. This division of liability is solely intended to be between the Parties to this Agreement and should not be construed as a waiver of any defenses and immunities each Party may have against third party claims.

B. The Parties to this Agreement agree to abide by all of the general rules and regulations applicable to them.

C. Severability. The Parties intend for this Agreement to remain in full force and effect to the greatest extent permitted by law, and for all applications allowed by law, notwithstanding whether any particular provision or application hereof is found to be unenforceable. Any invalid provision and any unenforceable application shall be deemed severable from the remainder of the Agreement.

D. Term. This Agreement shall continue until terminated in accordance with Section 4.

E. Notice. All notices hereunder shall be in writing, and shall be deemed given when delivered by email, in person, or by United States certified mail, with return receipt requested, and if mailed, with postage prepaid. All notices shall be addressed as follows:

If to the Northbrook Public Library:

Executive Library Director
Northbrook Public Library
1201 Cedar Lane
Northbrook, Illinois 60062

If to the LIBRARY:

LIBRARY CONTACT NAME AND ADDRESS

If to RAILS:

Reaching Across Illinois Library System
Re: Illinois Libraries Present
125 Tower Dr
Burr Ridge, IL 60527

F. Interpretation. This Agreement constitutes the entire agreement between the Parties and supersedes any and all prior agreements and negotiations between the parties, whether written or oral, relating to the subject matter of this Agreement. No amendment or modification to this Agreement shall be effective until it is reduced to writing and approved and executed by all parties to this Agreement in accordance with applicable law.

G. Additional Parties. This Agreement may be amended to add additional libraries. Each new library must adopt a resolution agreeing to be bound to the terms of this Agreement and the Northbrook Library must approve the addition of the new party.

H. Substitute Administrative Party. From time to time a library other than Northbrook Library may serve as the administrative party for the purpose of performing competitive bidding and contracting with CONTRACTING PROVIDER OF THE PROGRAMS. In those cases, the library serving as the administrative party shall have all the rights and responsibilities otherwise assigned to Northbrook Library in this Agreement and all other terms and conditions shall apply respectively.

I. Counterparts. This Agreement may be executed by facsimile, portable document format (.pdf) or other electronic means, and in any number of counterparts, each of which when so executed shall be deemed to be an original and all of which taken together shall constitute one and the same agreement.

SO AGREED.

NORTHBROOK PUBLIC LIBRARY

LIBRARY

By: _____

By: _____

Date: _____

Date: _____

REACH ACROSS ILLINOIS LIBRARY SYSTEM

By: _____

Date: _____

EXHIBIT A

SCOPE OF SERVICES AND CONTRACT CONTRACTING PROVIDER OF THE PROGRAM

Illinois Libraries Present will provide one virtual program a month for all member libraries for a total of 6 programs during the January-June 2022 pilot period. Illinois Libraries Present aims to offer virtual programs featuring bestselling fiction and nonfiction authors, well-known presenters who speak on equity, diversity, and inclusion, and diverse speakers on topics of broad interest for a range of ages.

Member libraries may choose which programs they market to their patrons. Patrons may sign up to watch themselves or libraries may elect to broadcast the presentation for their patrons. Illinois Libraries Present will provide technical assistance, marketing collateral, and post program data analysis for member libraries.

Member libraries may elect to have staff participate in one of the Illinois Libraries Present committees and assist in the planning and execution of the events:

- Steering Committee
- Programming Committee
- Event Production Committee
- Marketing Committee
- Data Analysis Committee

The committees will be responsible for carrying out the work of Illinois Libraries Present and contract with vendors with approval from Northbrook Library.

Following the pilot program, Illinois Libraries Present intends to offer one program a month. Libraries shall sign up for an annual membership and receive access to all programs offered during the membership year of January 1 -December 31.

SAMPLE CONTRACT

Service Contract

Northbrook Public Library
c/o Illinois Libraries Present
1201 Cedar Lane
Northbrook, Illinois 60062
(847) 272-6224

Date:

This is a contract between the Board of Library Trustees of the Village of
Northbrook (Library) and _____ (Contractor).

Address:

City, State, Zip:

Telephone number:

Arrangements will be made through _____, (Library representative).

Date and Time of Program:

Virtual Performance Platform: Zoom

Title of program:

Payment Terms:

The Library will pay the Contractor, as compensation for services rendered, \$ _____.
Payment is due within 30 days of the program date and payable to _____.

Technical requirements:

Please attach a sheet with any specific requirements for virtual performance requirements for the program. The Contractor agrees to arrive _____ before the performance is scheduled.

In accordance with the Americans with Disabilities Act, some programs may be live captioned by a certified captioner. Performers are required to provide in a timely manner, upon request, information including but not limited to: outlines, powerpoints, lists of unique words or phrases, and/or a list of names used for programs that will be live captioned. All certified captioners are bound by the [National Association of Court Reporters and Captioners Code of Ethics](#). Any information supplied will be destroyed after the event.

Any performer that wishes to record their performance must request so in writing at least one week prior to the performance. The library reserves the right, in its sole discretion, to deny the recording of any program. The Library reserves the right, in its sole discretion, to deny the Contractor the right to record any virtual performance.

Force Majeure:

If either party is prevented from performing the obligations created because of illness, acts of God, strikes, etc. beyond the control of either of the parties, neither party shall be liable to the other.

Governing Law:

This Contract shall be governed by and construed in accordance with the laws of the State of Illinois, and venue for any dispute arising from this Contract will be in the courts of Cook County, Illinois.

Waiver:

Waiver by any party of any breach of any term, covenant or condition contained in this Contract shall not be deemed to be a waiver of such term, covenant or condition, or any subsequent breach of the same or any other term, covenant or condition contained in this Contract.

Termination:

The Library may terminate this Contract at any time, with or without cause. This Contract also may be terminated at any time upon the mutual agreement of the Library and Contractor. In the event this Contract is terminated for any reason, Contractor will not be entitled to any compensation or remuneration.

Library Recordings:

The Library reserves the right to audio or video record any live program, including virtual performances unless otherwise indicated. The Library may retain the record in its files, may make it available on the Internet, or make it available otherwise for educational or promotional purposes. The Library shall provide a copy of the recording to the Contractor, upon the Contractor's request.

- ☐ Contractor hereby authorizes the Library to capture and use images and/or video of Contractor's program for educational and promotional purposes, including any virtual performances.
- ☐ Contractor does not authorize the Library to capture and use images and/or video of Contractor's program for educational and promotional purposes, including any virtual performances.

If the Contractor is providing the Library with a recording of the Program, the Library will make the recording of the Contractor's program available to Library patrons who register for the Program until _____(insert date that program will be available). After that date, the Library will no longer make the recording of the Contractor's Program available to Library patrons. The Contractor will retain all intellectual property rights to the Contractor's Program.

Indemnification/Assumption of Risk:

I, the undersigned, agree that I _____will indemnify and hold harmless the Northbrook Public Library, the Board of Library Trustees of the Village of Northbrook, its officers, agents and employees from and against any and all losses, liabilities, claims, demands, penalties, causes of action, damages, and costs and expenses (including reasonable attorneys' fees and court costs) arising out of or related to the acts and/or omissions of Contractor or in any way connected with the performance of this Contract.

Intellectual Property:

Contractor, and any of its performers or presenters, are solely responsible for complying with any and all applicable licensing, trademark, copyright, and other intellectual property laws and regulations relating to the Contractor's programs, performances, and merchandise sales.

Entire Agreement:

This Contract sets forth all the promises, inducements, agreements, conditions and understandings between the parties hereto relative to the subject matter thereof, and there are no promises, agreements, conditions or understandings, either oral or written, express or implied, between them, other than are herein set forth. Except as herein otherwise provided, no subsequent alteration, amendment, change or addition to this Agreement shall be binding upon the parties hereto unless authorized in accordance with law and reduced in writing and signed by both parties. The duties and obligations of this Contract may not be assigned by Contractor without the express written approval of the Library

By signing this Contract, the parties stipulate that they have read and understand this Contract in its entirety. Each person signing the Contract represents that they have the authority to sign the Contract on behalf of their respective party.

LIBRARY: _____ DATE: _____

CONTRACTOR: _____ DATE: _____

EXHIBIT B

PRICE FORMULA AND LIBRARY'S AGREED CONTRIBUTION

Pricing shall be based upon the library's operating budget as recorded in the Illinois Public Library Annual Report 8.17 TOTAL receipts (8.1 + 8.7 + 8.12 + 8.15) [PLSC 304]. Prices shall be equitably set based on budgets within six membership tiers. Overall costs will be determined by the total number of participating libraries and estimated expenses for the coming year.

\$0-\$249,999
\$250,000-\$749,999
\$750,000-\$1,499,999
\$1,500,000-\$2,999,999
\$3,000,000-\$4,999,999
\$5,000,000+

The initial cost for the program will be for the 6-month pilot and cover all expenses including zoom licensing, presenter fees, marketing, legal, and other administrative costs.

Library's Operating Budget	Total Pilot Cost
\$0-\$249,999	\$40.00
\$250,000-\$749,999	\$75.00
\$750,000-\$1,499,999	\$200.00
\$1,500,000-\$2,999,999	\$375.00
\$3,000,000-\$4,999,999	\$750.00
\$5,000,000+	\$1,150.00

Annual costs will be billed based on the same model and updated annually based on cost projections for the coming year. Illinois Libraries Present will aim to operate on a cost recovery basis and keep enough funds in the fund balance to provide for 6 months of expenses.



1201 Cedar Lane, Northbrook, IL 60062
847-272-6224

DATE: 9/14/21
TO: Trustees
FROM: Anna Amen
RE: 2021 Levy – Draft I

To prepare the 2021 Levy, the following information was reviewed

- prior year revenue and expenditure data
- climate action plan and equity, diversity and inclusion initiatives
- facility plan
- technology plan

Based upon this review, most of FY2023 expenses lines remained the same as FY2022 budget, excluding the following expenditure lines

- Payroll increased due to
 - filling the open positions (11% under staffed)
 - adjusting compensation to align with the salary benchmarking analysis that will be completed in FY2023
 - annual salary increases
- Insurance increased 5% based upon prior year data
 - medical, dental, vision, general, workers compensation, unemployment
- Software increased 3% based upon prior year data
- Professional services increased for expected consulting costs related to climate action plan and equity, diversity and inclusion consultants

This exercise shows that a minimum levy amount of approximately \$7.562 million is needed to continue offering the current level of services to patrons. This represents a 1.7% Total Levy increase. Given the unknown costs to related to climate action plan and equity, diversity and inclusion initiatives and other unforeseen situations that may arise in the coming year, we recommend a 2.5% Total Levy increase.

I have provided levy options on page 5 that show the following scenarios

- Total Levy remains flat
- Operating Levy remains flat
- Levy based upon estimate – approximately a 1.7% Total Levy increase
- 3% Operating Levy increase which is a 2.5 % Total Levy increase
- 3% Total Levy increase

The levy amounts are submitted to the Village after the October Library Board meeting.

**Northbrook Public Library
General Fund - Expenses
2021 Levy (FY2023) - Draft I**

	Description	FY19 Actual	FY20 Actual	FY21 Actual	FY22 Forecast	FY23 Levy
PERSONAL SERVICES						
Salaries and Wages		3,489,313	3,637,891	3,617,765	3,581,656	3,859,900
Maintenance		155,715	165,952	177,485	151,685	167,400
Total Personal Services		\$ 3,645,027	\$ 3,803,844	3,795,250	\$ 3,733,341	4,027,300
FRINGE BENEFITS						
Group Insurance	Medical, Dental, Vision, Life	496,171	595,621	648,701	656,463	689,300
Unemployment/ Worker's Comp		36,051	25,820	25,075	26,329	27,650
Training & Development	Staff membership, Conferences, Mileage, Anniversary Gifts, Staff day	62,958	73,320	28,819	62,903	70,000
Total Fringe Benefits		\$ 595,179	\$ 694,760	702,595	\$ 745,695	\$ 786,950
COMMODITIES						
Materials	Books, Ebooks, Periodicals, Audio Visual, Videos/DVD's	859,747	875,000	893,794	949,000	949,000
Programs	Fiction& Media, Reference, Young Adult, Youth Services, Maker Services, Admin	117,050	102,750	75,024	101,000	117,000
Office & Library Supplies	Supplies less than \$500	56,556	65,283	70,197	70,000	70,000
Software	Blackbaud, Boopsie, Adobe, Getty, 3M, Evanced, Titlesource, Remote Printing	73,712	94,023	99,903	103,000	106,100
Postage		15,604	15,876	16,801	20,199	20,000
Community Relations	Promotional items, Float, Newsletters, Email marketing, Northbrook Chamber, Rotary	48,079	36,642	34,605	37,255	44,000
Janitorial Supplies	Supplies, Paper, Chemicals, Uniforms, Rugs, Paint, Filters, Landscaping	45,771	43,742	42,115	45,000	45,000
Total Commodities		\$ 1,216,519	\$ 1,233,316	\$ 1,232,439	\$ 1,325,454	\$ 1,351,100
CONTRACTUAL						
OCLC		23,902	24,537	23,735	26,251	26,650
CCS Shared Costs		75,923	81,544	79,293	78,816	80,000
Photocopy	Copy machine lease payment, Supplies & page charges, Coin op lease payment, My PC lease payment, Papercut lease payment, SimpleScan lease payment	51,100	30,467	23,328	29,586	37,500
General Insurance	General liability, Auto, Property, Cyber, Flood	53,216	55,880	58,129	63,000	66,150
Telephone	Phone lines, Fiber optic cable	14,878	29,995	48,058	39,781	43,000

**Northbrook Public Library
General Fund - Expenses
2021 Levy (FY2023) - Draft I**

	Description	FY19 Actual	FY20 Actual	FY21 Actual	FY22 Forecast	FY23 Levy
Professional Services	Attorney, Auditor, Independent contractor (IT, EDI)	231,878	246,929	243,612	246,599	300,000
Equipment Rental/Maintenance	Piano, Laminator, Microfilm readers, Computer switches, Postage machine, Phone system, Binding, AMH, RFID	14,854	14,967	4,436	9,442	42,000
Vehicle Expense		620	3,093	483	600	3,000
Utilities	Gas, Water, Garbage, Composting	60,720	54,364	47,123	49,108	54,000
Building Repairs	HVAC, Elevator, Plumbing, Electrical, Parking stops, Sprinklers, Parking lot repairs, Curtain Wall	24,019	14,728	18,710	19,207	30,000
Contracted Services	Alarm, Backflow service, Elevator, Cleaning, Email, Snow removal, Carpet cleaning, HVAC, Sprinkler	116,658	130,263	133,639	138,201	135,000
Recruiting		388	118	0	2,241	2,500
Total Contractual Services		\$ 668,157	\$ 686,883	\$ 680,546	\$ 702,833	\$ 819,800
CAPITAL OUTLAY						
Furniture and Equipment	Items greater than \$500	81,704	89,195	30,048	50,000	50,000
Total Capital Outlay		\$ 81,704	\$ 89,195	\$ 30,048	\$ 50,000	\$ 50,000
OTHER						
Contingency & Misc Exp		4,374	4,282	3,341	100,000	100,000
Net Loss on Investment		1,495	(2,841)			
Board Development		754	395	216	1,750	2,000
Total Other		\$ 6,623	\$ 1,836	\$ 3,557	\$ 101,750	\$ 102,000
DESIGNATED EXPENSES		\$ 63,303	\$ 44,036	\$ 74,930	\$ 100,000	\$ 100,000
TOTAL EXPENSES BEFORE TRANSFERS		\$ 6,276,512	\$ 6,553,870	\$ 6,519,365	\$ 6,759,073	\$ 7,237,150
TRANSFERS						
Debt Service Transfer		\$ 9,095	\$ 15,785	16,150	\$ 25,000	\$ 25,000
Capital Improvements		\$ 1,115,000	\$ 730,925	1,115,000	\$ 425,000	\$ 425,000
Total Transfers		\$ 1,124,095	\$ 746,710	\$ 1,131,150	\$ 450,000	\$ 450,000
TOTAL EXPENSES		\$ 7,400,608	\$ 7,300,580	\$ 7,650,515	\$ 7,209,073	\$ 7,687,150

**Northbrook Public Library
Operating Fund - Revenue
2021 Levy (FY2023) - Draft 1**

Levy	7,562,200
Uncollectable Levy	(150,000)
Replacement Tax	125,000
Fines & Fees	25,000
Interest Income	25,000
Other Income - Gifts	100,000
Total Estimated Income	<u>7,687,200</u>
 Total Expense	 7,687,150
 Surplus/(Deficit)	 <u><u>50</u></u>

**Northbrook Public Library
Property Tax Levy History**

Levy Year	Fiscal Year	General	IMRF	FICA	Total Operating	Debt Service	Total Library	% Increase
2021 - 3% total levy increase	21-22	7,681,480	425,000	289,000	8,395,480	757,550	9,153,030	3.0%
2021 - 3% operating increase / 2/5% total levy increase	21-22	7,662,364	425,000	289,000	8,376,364	757,550	9,133,914	2.5%
2021 - based upon estimate	21-22	7,562,200	425,000	289,000	8,276,200	757,550	9,033,750	1.7%
2021- operating levy remains flat	21-22	7,439,188	425,000	289,000	8,153,188	757,550	8,910,738	0.3%
2021- total levy remains flat	21-22	7,414,887	425,000	289,000	8,128,887	757,550	8,886,437	0.0%

2020	21-22	7,439,188	400,000	289,000	8,128,188	758,249	8,886,437	1.6%
2019	20-21	7,439,188	490,000	289,000	8,218,188	527,476	8,745,664	-0.4%
2018	19-20	7,479,000	490,000	280,000	8,249,000	528,404	8,777,404	3.0%
2017	18-19	7,219,783	490,000	280,000	7,989,783	528,137	8,517,920	4.2%
2016	17-18	6,411,000	475,000	270,000	7,156,000	1,016,420	8,172,420	2.4%
2015	16-17	6,235,000	470,000	265,000	6,970,000	1,010,891	7,980,891	2.6%
2014	15-16	6,069,135	440,000	260,000	6,769,135	1,008,141	7,777,276	1.0%
2013	14-15	6,015,000	410,000	255,000	6,680,000	1,019,486	7,699,486	6.0%
2012	13-14	5,845,000	380,000	250,000	6,475,000	787,970	7,262,970	4.1%
2011	12-13	5,625,000	320,000	240,000	6,185,000	789,566	6,974,566	5.0%
2010	11-12	5,355,490	275,000	236,000	5,866,490	777,385	6,643,875	3.0%
2009	10-11	5,194,000	261,000	228,000	5,683,000	768,889	6,451,889	6.0%
2008	09-10	4,850,000	255,000	218,000	5,323,000	765,664	6,088,664	6.1%
2007	08-09	4,526,100	240,000	208,000	4,974,100	765,702	5,739,802	6.1%
2006	07-08	4,230,000	240,000	180,000	4,650,000	760,189	5,410,189	3.2%
2005	06-07	4,080,000	213,000	180,000	4,473,000	767,099	5,240,099	3.7%
2004	05-06	3,880,000	206,000	186,000	4,272,000	782,763	5,054,763	4.9%
2003	04-05	3,682,000	156,000	158,000	3,996,000	822,450	4,818,450	9.0%
2002	03-04	3,412,000	55,000	163,000	3,630,000	789,754	4,419,754	6.9%
2001	02-03	3,175,000	6,000	154,000	3,335,000	800,750	4,135,750	6.0%
2000	01-02	2,958,000	0	131,000	3,089,000	814,434	3,903,434	3.9%
1999	00-01	2,740,000	85,000	120,000	2,945,000	813,125	3,758,125	4.9%
1998	99-00	2,567,250	105,000	125,000	2,797,250	784,297	3,581,547	5.0%
1997	98-99	2,445,000	112,000	108,000	2,665,000	744,818	3,409,818	32.8%
1996	97-98	2,360,000	105,000	102,000	2,567,000		2,567,000	1.1%
1995	96-97	2,313,196	120,000	105,000	2,538,196		2,538,196	3.3%
1994	95-96	2,213,036	130,000	114,000	2,457,036		2,457,036	4.8%
1993	94-95	2,107,500	132,000	105,000	2,344,500		2,344,500	4.6%
1992	93-94	2,016,000	121,500	104,500	2,242,000		2,242,000	9.6%
1991	92-93	1,816,000	130,000	99,500	2,045,500		2,045,500	