



CASCADE CHARTER TOWNSHIP

2865 Thornhills SE Grand Rapids, Michigan 49546-7140

NOTICE OF PUBLIC MEETING VIA VIDEO CONFERENCE

In accordance with Executive Order 2020-48, which declares that public bodies subject to the Open Meetings Act can use telephone and/or video conferencing technology to meet and conduct business during the ongoing COVID-19 pandemic, the Cascade Charter Township Board of Trustees will conduct a regular meeting on Wednesday, April 22, 2020 at 7pm utilizing the Zoom video conferencing platform, for the purpose of conducting official business while complying with Executive Order 2020-42 and the Michigan Department of Health and Human Services recommendations designed to help prevent the spread of COVID-19. For up-to-date information regarding the ongoing public health crisis, please visit:

<http://www.Michigan.gov/coronavirus> or <http://www.CDC.gov/coronavirus>

INSTRUCTIONS FOR ACCESS AND PARTICIPATION

Meeting ID: 990 7315 4096

Please click the link below to join the webinar:

<https://zoom.us/j/99073154096>

iPhone one-tap :

US: +13126266799,,99073154096#

or

+19292056099,,99073154096#

Telephone:

(for higher quality, dial a number based on your current location):

+1 312 626 6799

or +1 929 205 6099

or +1 346 248 7799

or +1 669 900 6833

or +1 253 215 8782

or +1 301 715 8592

International numbers available: <https://zoom.us/u/adrxAXMLIP>

Members of the public with disabilities may utilize the Michigan Relay System (7-1-1) to participate in the meeting. If other aids or services are needed for individuals with disabilities please contact the Township Deputy Clerk, Padley Gallagher, at pgallagher@cascadetwp.com or 616-949-1500 at least 24 hours prior to the meeting

PUBLIC PARTICIPATION

Members of the public will be able to listen to and view all discussion by the Township Board and all official materials for this meeting prepared for the Township Board will be included in the meeting packet and available to the public on the Township website www.cascadetwp.com Individuals will be permitted to speak during public comment periods in accordance with the Township Remote Public Meeting Procedure Policy.

If you would like to contact the Cascade Township Board about any matter, on the agenda or otherwise, please do so via email at the addresses below a minimum of 8 hours prior to the meeting. If you wish comments to be read into the public record during the public comment period, you must indicate so and draft communication that can be read in the allotted 3-minute timeframe.

Supervisor Rob Beahan: rbeahan@cascadetwp.com

Clerk Sue Slater: sslater@cascadetwp.com

Treasurer Ken Peirce: kpeirce@cascadetwp.com

Trustee Jim Koessel: jkoessel@cascadetwp.com

Trustee Jack Lewis: jlewis@cascadetwp.com

Trustee Tom McDonald: tmcdonald@cascadetwp.com

Trustee John Shipley: jshipley@cascadetwp.com

Manager Ben Swayze: bswayze@cascadetwp.com

**AGENDA
CASCADE CHARTER TOWNSHIP
REGULAR BOARD MEETING**

Wednesday, April 22, 2020
7:00 P.M.

Expected Meeting Procedures

1. During public comments you may speak on any item not noted on the agenda for a public hearing.
2. Please limit comments to 3 minutes per person and the Board may or may not choose to respond.
3. Please limit your comments to a specific issue.
4. Please turn OFF cellular phones.

- Article 1. Call to Order, Roll Call**
- Article 2. Pledge of Allegiance to the Flag**
- Article 3. Approval of Agenda**
- Article 4. Presentations**
- Article 5. Public Comments-Anything on the Agenda not scheduled for a public hearing. (limit comments to 3 minutes)**
- Article 6. Approval of Consent Agenda**
- a. Receive and File Various Meeting Minutes
 1. Regular Township Board Meeting Minutes February 12, 2020
 2. Regular Township Board Meeting Minutes February 26, 2020
 3. Regular Township Board Meeting Minutes March 11, 2020
 - b. Receive and File Reports
 1. Treasurers Report—December 2019
 2. Inspectors Report – March 2020
- Article 7. Financial Actions**
- Article 8. Unfinished Business**
- Article 9. New Business**
- 015-2020 Consider Approval of 2020 Local Road Improvements**
- 016-2020 Consider Approval of Contract with Hamilton Helicopter Inc. for Gypsy Moth Suppression Services.**
- 017-2020 Consider Approval of Public Hearing for Moratorium for Certain Required Water and/or Sewer Connections in Cascade Township.**
- Article 11. Public Comments – Any comments...whether it is on the Agenda or not. (limit comments to 3 minutes)**
- Article 12. Manager Comments**

Article 13. Board Member Comments

Article 14. Adjournment

**MINUTES OF THE
CASCADE CHARTER TOWNSHIP
REGULAR BOARD MEETING**

Wednesday, February 12, 2020
7:00 P.M.

Article 1. Trustee Koessel called the meeting to order.
Present: Clerk Slater, Treasurer Peirce, Trustees Lewis, Koessel, McDonald and Shipley.
Absent: Supervisor Beahan
Also Present: Manager Swayze, Community Development Assistant Stephanie Fast, Community Development Manager Steve Peterson, Building and Grounds Supervisor Jim McDonald, and those listed in Supplement #1.

Article 2. Trustee Koessel led the Pledge of Allegiance.

Article 3. Approval of Agenda
Motion was made by Trustee Shipley and supported by Trustee McDonald to approve the Agenda as presented. Motion carried unanimously.

Article 4. Presentations

Article 5. Public Comments
Mark Konyndyk, 6707 Turnberry Dr. SE, addressed the board about the bike paths and walkways.

Vanessa Walstra, Manager Cascade District Library, thanked the board for the support of the Library and addressed the board about the retirement of long-term librarian Jackie Viol at the end of the month.

Article 6. Approval of Consent Agenda

- a. Receive and File Various Meeting Minutes
 - 1. Regular Township Board Minutes 1/22/2020.
 - 2. Regular Planning Commission Minutes 12/16/2019.
- b. Receive and File Various Reports
 - 1. Building Department Monthly Report—January 2020
 - 2. Treasurers Report— November 2019
 - 3. Community Development Annual Report—2019

Motion was made by Treasurer Peirce and supported by Trustee Shipley to approve the Consent Agenda as presented. Motion carried unanimously.

Article 7. Financial Actions

- a. Consider Approval of December, 2019 Payroll, Payables and Transfers.
Motion was made by Trustee Lewis and supported by Trustee McDonald to approve the December, 2019 Payroll, Payables and Transfers. Motion carried unanimously.
- b. Consider Approval of December, 2019 Financial Reports.
Motion was made by Trustee McDonald and supported by Trustee Shipley to approve the December, 2019 Financial Reports. Motion carried unanimously.

Article 8. Unfinished Business

Article 9. New Business

- 004-2020 Consider Approval of Resolution of Support to vacate a portion of Washburn Avenue as an amendment of McCord's Plat.**
 Motion was made by Trustee McDonald and supported by Trustee Shipley to approve the Resolution of Support to vacate a portion of Washburn Avenue as an amendment of McCord's Plat. Motion carried unanimously by roll call vote.
- 005-2020 Consider Approval of Laraway Lake KCDC Lake Level Project.**
 Motion was made by Trustee McDonald and supported by Trustee Shipley to approve the Resolution for Laraway Lake KCDC Lake Level Project. Motion carried unanimously.
- 006-2020 Consider Approval of Purchase of New Excavator.**
 Motion was made by Trustee Shipley and supported by Trustee McDonald to approve the Purchase of New Excavator. Motion carried unanimously.
- 007-2020 Consider Approval of 30th Street Cemetery Expansion Project.**
 Motion was made by Trustee McDonald and supported by Clerk Slater to approve 30th Street Cemetery Expansion Project. Motion carried unanimously.

008-2020 – Consider Approval of Updated Personnel Policies for Full-Time Staff.

Motion was made by Trustee Shipley and supported by Trustee McDonald to approve the Updated Personnel Policies for Full-Time Staff. Motion carried unanimously.

Article 11. Public Comments – Any comments...whether it is on the Agenda or not. (limit comments to 3 minutes)

Article 12. Manager Comments

Manager Swayze offered the following comments:

- Thanked everyone for helping out while he was on vacation. We're working hard on getting a plan set up for moving into the new building.

Article 13. Board Member Comments

Trustee Shipley offered the following comment:

- Thanked everyone for attending the meeting. He congratulated Jackie Viol on her retirement from the Library.

Treasurer Peirce offered the following comment:

- Told the board that we had a fabulous dog license year and our interest revenues are up from 2018 thanks to our Deputy Treasurer.

Clerk Slater offered the following comment:

- Reminded everyone that we are getting ready for the March 10 Election so the Clerk's office is very busy.

Trustee Lewis offered the following comment:

- He is excited for all of the new things happening for the township.

Trustee McDonald offered the following comment:

- Talked about the Capital Improvement Plan from 2016 in regards to the Laraway Lake Project and money that could be used for a pathway.

Article 14. Adjournment

Motion was made by Treasurer Peirce and supported by Trustee Shipley to adjourn. Motion carried unanimously.

Meeting adjourned at 7:34 p.m.

Respectfully submitted,

Padley Gallagher
Deputy Clerk

Approved by:

Susan B. Slater, Clerk

Robert S. Beahan, Supervisor

DRAFT

**MINUTES OF THE
CASCADE CHARTER TOWNSHIP
REGULAR BOARD MEETING**

Wednesday, February 26, 2020
7:00 P.M.

- Article 1.** Supervisor Beahan called the meeting to order.
Present: Supervisor Beahan, Clerk Slater, Treasurer Peirce, Trustees Lewis, Koessel, McDonald and Shipley.
Also Present: Manager Swayze, Assistant Manager Stephanie Fast, Community Development Director Steve Peterson, and those listed in supplement #1.
- Article 2.** Supervisor Beahan led the Pledge of Allegiance.
- Article 3. Approval of Agenda**
Motion was made by Trustee Shipley and supported by Trustee Lewis to approve the Agenda as presented. Motion carried unanimously.
- Article 4. Presentations**
- Article 5. Public Comments**
- Article 6. Approval of Consent Agenda**
- a. Receive and File Various Meeting Minutes
 - 1. Regular Township Board Minutes 2/12/2020.
 - 2. Regular Zoning Board Minutes 11/12/2019.
 - b. ~~Receive and File Education Requests~~
 - 1. Lieutenant Mike Bolt and Fire/Command Staff—Fire Staff and Command School—Eastern Michigan University—5 Classes in 2020
 - 2. Colin Forzley—Michigan Fire Inspectors Society Winter Educational Seminar—East Lansing, MI—March 3-5, 2020.
 - 3. Jeff Knowles—2020 Michigan HazMat Responder Conference—Thompsonville, MI—April 16-18, 2020
 - 4. Jeff Knowles—Advanced Monitoring and Detection Specialty Pilot Program—Lansing, MI—April 6-8, 2020.
 - 5. Eric Melse and Michael Lemkuil—Live Fire Training Camp—Indianapolis, IN
 - 6. Aaron Newton—Michigan Municipal Treasurers Association 2020 Basic Institute—Mt. Pleasant, MI—April 26-May 1, 2020.
 - 7. Padley Gallagher—Michigan Municipal Clerks Association Summer Conference and Clerk Boot Camp—Mackinac Island, MI—June 8-12, 2020.
 - 8. Dennis Rowlader—COCM 2020 Spring Conference—Bay City, MI—May 11-13, 2020.
 - 9. Bill Benoit—COCM 2020 Spring Conference—Bay City, MI—May 11-13, 2020.
 - c. Receive and File Reports
 - 1. Water Sewer Rate Study—2019
 - 2. Historical Society Annual Report—2019
 - d. Receive and File Communication
 - 1. Comcast Pricing Changes
 - 2. Kent District Library Leadership
 - 3. Consumers Electric Company
 - 4. The Right Place

Motion was made by Trustee Koessel and supported by Trustee Shipley to approve the consent agenda as presented. Motion carried unanimously.

Article 7. Financial Actions

Article 8. Unfinished Business

Article 9. New Business

009-2020 Consider Approval of MERS Healthcare Savings Program.
Motion was made by Trustee Koessel and supported by Trustee Shipley to approve the MERS Healthcare Savings Program.
Motion carried unanimously.

010-2020 Consider Approval of Resolutions for Tris4Health Triathlon on June 14, 2020.
Motion was made by Trustee McDonald and supported by Trustee Koessel to approve the Resolutions for Tris4Health Triathlon on June 14, 2020. Motion carried unanimously by roll call vote.

011-2020 Consider Approval for Improvements to Schoolhouse Creek.
Motion was made by Trustee McDonald and supported by Trustee Shipley to approve the Improvements to Schoolhouse Creek. Motion carried unanimously.

012-2020 Consider Approval of Resolution for Consolidation of Precinct 10 to Caledonia Township for May 5, 2020 School Election.
Motion was made by Trustee Shipley and supported by Trustee Koessel to approve the Resolution for Consolidation of Precinct 10 to Caledonia Township for May 5, 2020 School Election.
Motion carried unanimously by roll call vote.

Article 11. Public Comments – Any comments...whether it is on the Agenda or not. (limit comments to 3 minutes)

Article 12. Manager Comments

Manager Swayze offered the following comments:

- The Cemetery Project approved in the previous meeting is in full swing.
- The Township Hall Project and the Fire Station Study also have a lot going on.
- Two full-time positions are posted—Human Resources & a Planner.
- Cascades long-time Director of Inspections, Butch Visser passed away unexpectedly.

Article 13. Board Member Comments

Trustee Shipley offered the following comment:

- Thanked everyone for attending the meeting.
- He expressed his appreciation for all of the Township Employees furthering their education with all of the Conference requests.

Trustee McDonald offered the following comment:

- Congratulated Trustee Lewis on his many years of service on the Board and the Planning Commission.

Article 14. Adjournment

Motion was made by Treasurer Peirce and supported by Trustee McDonald to adjourn. Motion carried unanimously.

Meeting adjourned at 7:25 p.m.

Respectfully submitted,

Padley Gallagher
Deputy Clerk

Approved by:

Susan B. Slater, Clerk

Robert S. Beahan, Supervisor

DRAFT

**MINUTES OF THE
CASCADE CHARTER TOWNSHIP
REGULAR BOARD MEETING**

Wednesday, March 11, 2020

7:00 P.M.

- Article 1.** Supervisor Beahan called the meeting to order.
Present: Supervisor Beahan, Clerk Slater, Treasurer Peirce, Trustees Lewis, Koessel, McDonald and Shipley.
Also Present: Manager Swayze, and those listed in Supplement #1.
- Article 2.** Supervisor Beahan led the Pledge of Allegiance.
- Article 3. Approval of Agenda**
Motion was made by Trustee Shipley and supported by Trustee Koessel to approve the Agenda as revised. Motion carried unanimously.
- Article 4. Presentations**
- Article 5. Public Comments**
- Article 6. Approval of Consent Agenda**
- a. Receive and File Various Meeting Minutes
 - 1. Regular Planning Commission Minutes 01/20/2020
 - b. Receive and File Education Requests
 - 1. Vincent Milito – 2020 MIAM Spring Conference - April 30-May 1, 2020 – Clare, MI
 - 2. Vincent Milito – PLAM Spring Conference – April 16-17, 2020 – Bay City, MI
 - 3. Padley Gallagher – 2020 IIMC Annual Conference – May 17-20, 2020 – Saint Louis, MO
 - c. Receive and File Reports
 - 1. Cascade Township 2019 Tax Collection Report
 - 2. Inspectors Report – February 2020
- Motion was made by Trustee Koessel and supported by Trustee Shipley to approve the Consent Agenda as presented. Motion carried unanimously.
- Article 7. Financial Actions**
- a. Consider Approval of Pay Draw #4 for the Centennial Park Sidewalks and Medians Project. Motion was made by Trustee Shipley and Supported by Trustee Lewis. Motion carried unanimously.
- Article 8. Unfinished Business**
- Article 9. New Business**
- Article 11. Public Comments – Any comments...whether it is on the Agenda or not. (limit comments to 3 minutes)**
Laura St. Louis, Disability Advocates of Kent County – addressed the board about the Kent County Disability Awareness Day held on March 27th.
- Article 12. Manager Comments**
Manager Swayze offered the following comments:

- The finance and Infrastructure committees have met to talk about the local road program for 2020.
- Addressed the board about the happenings and updates on COVID-19.

Article 13. Board Member Comments

Trustee Shipley offered the following comment:

- Thanked everyone for attending the meeting.

Clerk Slater offered the following comment:

- Thanked everyone for their moral support upon the successful completion of the Presidential Primary Election.

Trustee McDonald

- Asked for excusal from the next board meeting on March 25th.
- Expressed his interest and support for some of the things coming up on future agendas for the Library projects.

Article 14. Adjournment

Motion was made by Treasurer Peirce and supported by Trustee Lewis to adjourn. Motion carried unanimously.

Meeting adjourned at 7:09 p.m.

Respectfully submitted,

Padley Gallagher
Deputy Clerk

Approved by:

DRAFT

Susan B. Slater, Clerk

Robert S. Beahan, Supervisor

TREASURER'S DEPARTMENT
CASCADE CHARTER TOWNSHIP
TAX ACCOUNTS
DECEMBER 2019

BANK BALANCES

TOWNSHIP BALANCES

BANK	AMOUNT
<u>FLAGSTAR BANK</u>	
TAX CHECKING	\$5,725,760.77
<u>FLAGSTAR BANK</u>	
DELINQUENT TAX	\$1,764.83
<u>FLAGSTAR BANK</u>	
TAX WIRE ACCT	\$253,841.36
GRAND TOTAL	<u><u>\$5,981,366.96</u></u>

REGISTER	AMOUNT
<u>FLAGSTAR BANK</u>	
TAX CHECKING	\$5,725,760.77
<u>FLAGSTAR BANK</u>	
DELINQUENT TAX	\$1,764.83
<u>FLAGSTAR BANK</u>	
TAX WIRE ACCT	\$253,841.36
GRAND TOTAL	<u><u>\$5,981,366.96</u></u>

Oxana Sourine 3/20/2020
 Submitted by Date
 OXANA SOURINE
 DEPUTY TREASURER

Kenneth B. Peirce 4/15/2020
 Reviewed by Date
 KENNETH B. PEIRCE
 TREASURER

FUND	INSTITUTION	DEMAND DEPOSIT		CDs			SECURITIES			TOTALS	
		\$	%	\$	%	DATE	\$	%	DATE	\$	%
101 GENERAL FUND	FLAGSTAR	812,150.66	0.80								
	FLAGSTAR MMA	510,079.76	1.30								
	KENT CTY POOL	1,160,771.19	2.11								
	MI CLASS	476,589.88	1.82								
	INDEPENDENT				1.20	9/27/2019					
	MERCANTILE			535,196.94	2.45	7/28/2022					
	COMERICA BANK			546,167.21	1.80	3/23/2021					
	HORIZON BANK			512,673.80	2.80	3/9/2020					
	GRAND RIVER			515,829.42	2.75	12/19/2020					
	CONSUMERS CU			282,175.00	2.00	1/8/2021					
	LMCU			1,000,000.00	2.85	6/2/2020					
	MACATAWA			262,944.89	2.80	5/21/2020					
	CIBC/ fna PRIVATE			500,000.00	1.50	3/15/2020					
	COMERICA SECUR/WF						500,000.00	2.80	8/17/2020		
COMERICA SECUR/ TN							2.34	11/30/2019			
TOTAL GENERAL FUND		2,959,601.37	1.56	4,134,787.06	2.37		500,000.00	2.80		7,594,388.43	2.09
161 CEMETERY	LMCU	113,435.45	0.50							113,435.45	0.50
206 FIRE FUND	FLAGSTAR	11,121.90	1.30								
	MI CLASS	1,147,475.72	1.82								
	COM CHOICE CU			261,290.23	3.05	4/18/2021					
	LEVEL ONE			272,368.49	2.00	11/21/2020					
	ADVENTURE CU			255,693.63	1.50	3/23/2020					
	COMERICA SECUR/ CP										
	COMERICA SECUR/ JPM						500,000.00	2.40	9/20/2019		
TOTAL FIRE FUND		1,158,597.62	1.82	789,352.35	2.19		500,000.00	2.00	9/30/2022	2,447,949.97	1.97
207 POLICE FUND	FLAGSTAR	240,263.61	1.30								
	NORTHPOINTE BANK			264,005.12	2.30	5/9/2020					
	CIBC/ fna PRIVATE			788,499.63	1.95	3/25/2022					
	FIRST COMMUNITY BANK			250,000.00	1.00	3/13/2020					
TOTAL POLICE FUND		240,263.61	1.30	1,302,504.75	1.84					1,542,768.36	1.75
208 HAZMAT FUND	LMCU	31,443.17	0.35							31,443.17	0.35
209 OPEN SPACE	CHEMICAL	387,132.58	0.75								
	MI CLASS	373,662.43	1.82								
TOTAL OPEN SPACE		760,795.02	1.28							760,795.02	1.28
DAM REPAIR	MI CLASS	399,189.78	1.82								
	LMCU			328,671.95	2.50	3/10/2020					
TOTAL DAM REPAIR		399,189.78	1.82	328,671.95	2.50					728,161.73	2.13
216 PATHWAY FUND	MACATAWA	235,084.46	0.30								
	MI CLASS	306,610.42	1.82								
	CIBC/ fna PRIVATE			503,000.00	2.05	10/17/2020					
	GRAND RIVER			518,170.99	2.05	10/4/2022					
	ADVENTURE CU			541,910.74	2.80	4/9/2020					
TOTAL PATHWAY FUND		541,694.88	1.16	1,563,081.73	2.24					2,104,776.61	1.96
246 PUBLIC UTILITY	FLAGSTAR	351,154.42	1.30								
	IRF	845,682.89	1.82								
	CHEMICAL BANK			514,640.80	2.25	1/5/2020					
TOTAL PUBLIC UTILITY		1,196,837.31	1.67	514,640.80	2.25					1,711,478.11	1.84
248 DDA FUND	FLAGSTAR	284,945.72	1.30								
	MI CLASS	425,078.65	1.82								
	UNION BANK			250,000.00	2.70	8/26/2020					
	ADVENTURE CU			204,555.60	1.50	2/24/2020					
TOTAL DDA FUND		690,024.27	1.62	454,555.90	2.16					1,144,580.17	1.83
249 BLDG. INSPECTION	FLAGSTAR BANK	217,531.61	1.30								
	FLAGSTARL BANK R.	57,474.82	1.30								
	MI CLASS	106,460.68	1.82								
	CONSUMERS CU			305,310.87	1.00	3/10/2020					
	CHEMICAL BANK			669,763.35	1.93	10/28/2022					
	CHEMICAL BANK			307,919.91	2.50	4/30/2021					
	FNB OF AMERICA			301,649.28	1.80	10/19/2020					
	FNB OF AMERICA			105,533.99	1.85	12/18/2020					
	FNB OF AMERICA			219,121.47	2.50	9/18/2020					
	FNB OF MI			529,133.59	2.70	2/11/2020					
	5/3 BANK				2.00	12/4/2019					
INDEPENDENT BANK			321,327.11	2.25	6/19/2021						
TOTAL BLDG. INSPECT.		381,467.31	1.45	2,659,749.55	2.11					3,041,216.86	2.03
270 LIBRARY FUND	UNITED BANK	432,125.56	0.40								
	MI CLASS	483,264.44	1.82								
	LMCU			428,459.83	2.85	3/27/2020					
	WMCB			258,829.54	2.80	6/1/2020					
TOTAL LIBRARY FUND		895,390.00	1.13	1,235,141.43	2.35					2,130,531.43	1.84
701 T & A	CHEMICAL BANK	160,309.48	0.53							160,309.48	0.53
701 JAMES TIMMONS	CHEMICAL BANK			12,400.00	2.00	3/21/2022				12,400.00	2.00
701 JACK SMITH INV.	CHEMICAL BANK	23,111.76	0.53							23,111.76	0.53
701 HENRY KRAMER	CHEMICAL BANK	15,372.16	0.53							15,372.16	0.53
TOTAL		9,567,533.19	1.49	12,995,185.52	2.23		1,000,000.00	2.40		23,562,718.71	1.93

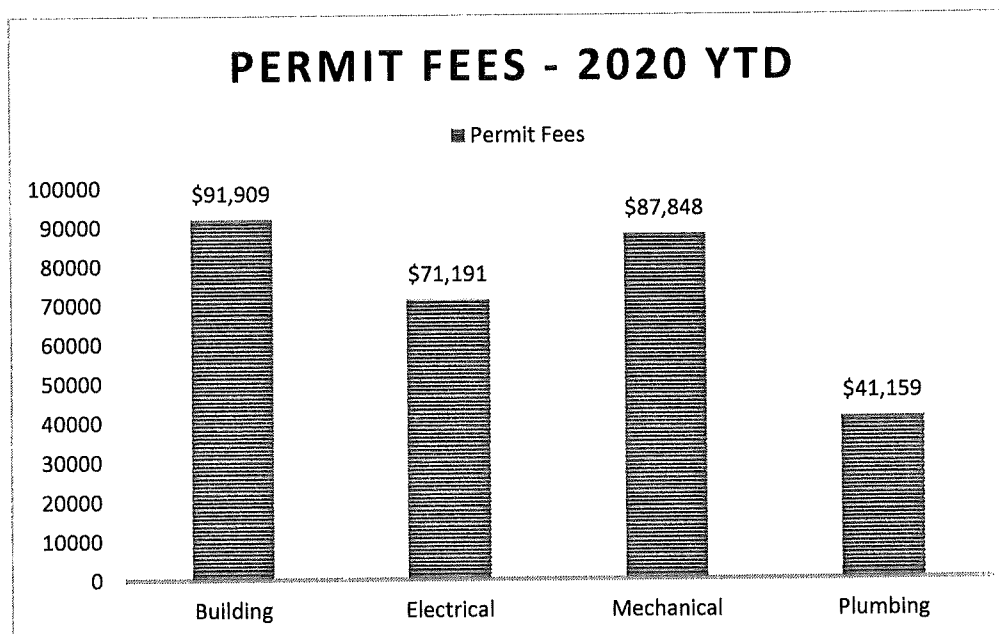
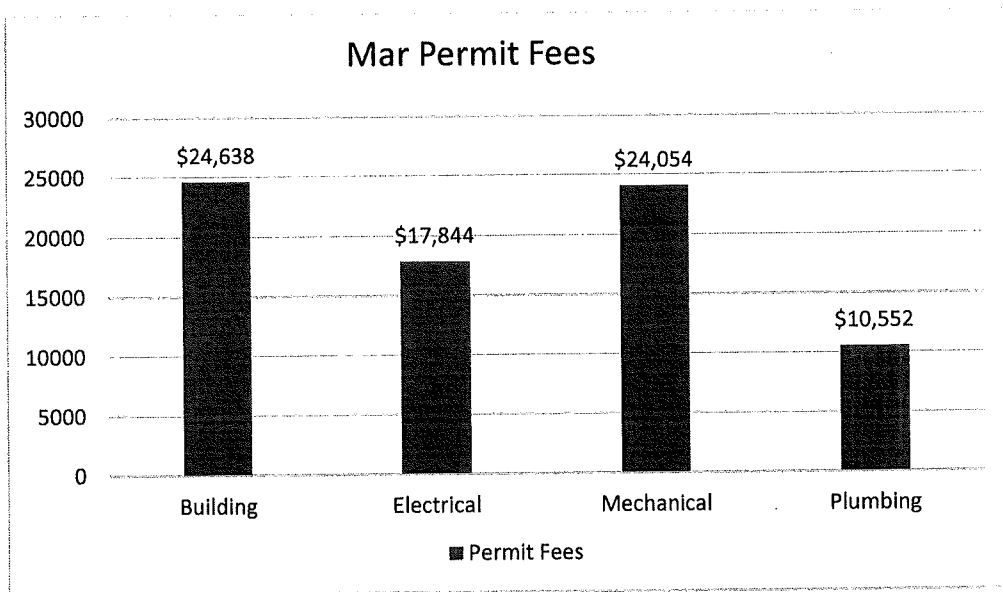
Submitted by Oxana Sourine Date 4.14.20
Oxana Sourine Deputy Treasurer

Reviewed by Ken Peirce Date 4/15/2020
Ken Peirce Treasurer

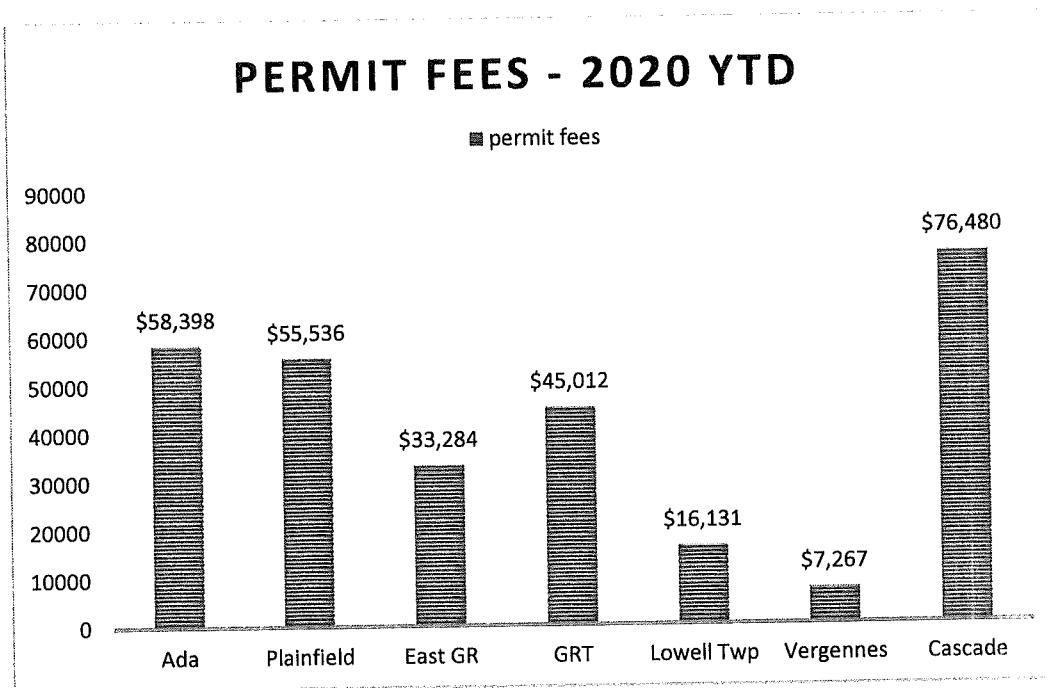
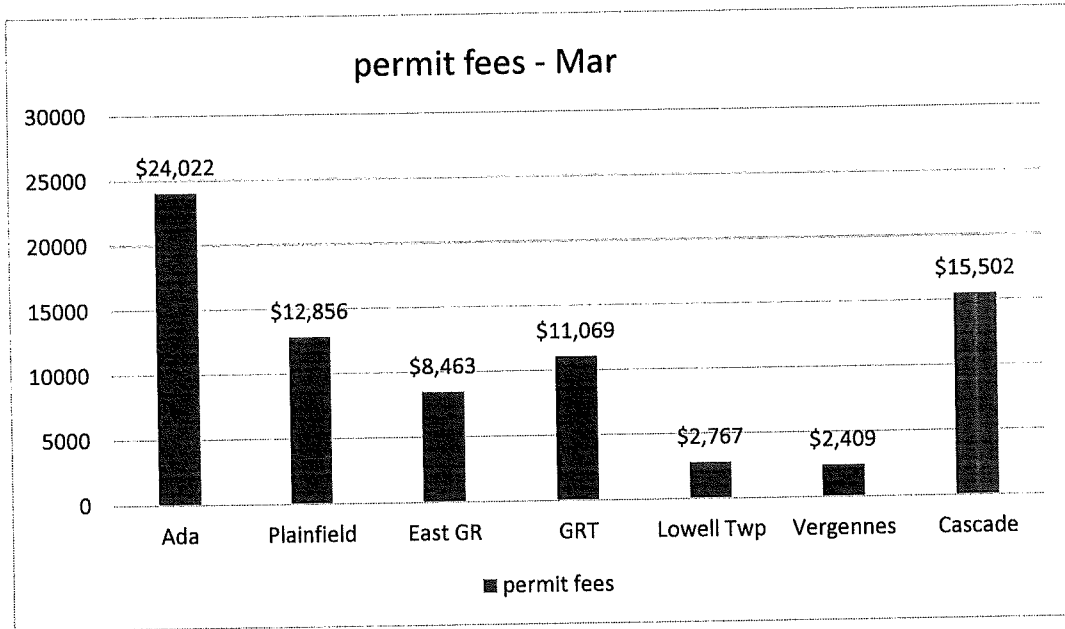
Cascade Inspection Services

Mar 2020

Permit Fees by Type



Permit Fees by Municipality



Township	#of Per Building	#of Per Electrical	# of Per Mechanical	# of Per Plumbing	Total Permits	Total Fees				
PREV YTD TOTAL	176	\$67,271.00	325	\$53,347.00	549	\$63,794.25	251	\$30,607.00	1301	\$215,019.25
MARCH										
Cascade	24	\$4,179.00	24	\$4,133.00	34	\$4,420.00	23	\$2,770.00	105	\$15,502.00
Lowell Twp	4	\$842.00	5	\$650.00	8	\$1,215.00	1	\$60.00	18	\$2,767.00
Ada	23	\$12,720.00	21	\$3,841.00	36	\$4,965.25	17	\$2,496.00	97	\$24,022.25
Vergennes			4	\$956.00	6	\$735.00	3	\$718.00	13	\$2,409.00
GR Twp	16	\$4,075.00	16	\$1,996.00	35	\$3,845.00	9	\$1,153.00	76	\$11,069.00
EGR	14	\$2,822.00	16	\$2,326.00	26	\$2,750.00	4	\$565.00	60	\$8,463.00
Plainfield			17	\$3,942.00	46	\$6,123.50	19	\$2,790.00	82	\$12,855.50
MONTH TOTAL	81	\$ 24,638.00	103	\$ 17,844.00	191	\$ 24,053.75	76	\$ 10,552.00	451	\$77,087.75

2020 YTD	257	\$ 91,909.00	428	\$ 71,191.00	740	\$ 87,848.00	327	\$ 41,159.00	1752	\$ 292,107.00
TOTAL-2019	1675	\$ 631,143.50	2288	\$ 347,205.00	3478	\$ 406,781.95	1469	\$ 206,608.00	8910	\$ 1,591,688.45
TOTAL-2018	1705	\$ 920,876.00	2116	\$ 380,754.00	3585	\$ 456,603.00	1654	\$ 238,664.00	9060	\$ 1,996,897.00
TOTAL-2017	1758	\$ 753,389.00	2210	\$ 376,979.00	3273	\$ 412,867.25	1485	\$ 219,324.00	8726	\$ 1,762,559.25
TOTAL-2016	1475	\$529,552.24	1992	\$310,463.00	3217	\$383,718.00	1404	\$190,762.00	8088	\$ 1,414,495.24
TOTAL-2015	1510	\$ 665,025.51	1948	\$ 327,865.00	3070	\$ 385,822.30	1361	\$ 216,089.00	7889	\$ 1,594,801.81
TOTAL-2014	1354	\$ 615,191.80	1780	\$ 297,971.00	2860	\$ 359,989.90	1257	\$ 196,553.00	7251	\$ 1,469,705.70
TOTAL-2013	1241	\$644,712.00	1667	\$288,442.06	2583	\$334,045.70	969	\$142,474.00	6460	\$ 1,409,673.76
TOTAL-2012	1,122	\$511,272.00	1,349	\$188,766.99	2,134	\$247,625.30	835	\$118,335.00	5,440	\$ 1,065,999.29
TOTAL-2011	949	\$410,550.75	990	\$148,549.50	1585	\$189,180.10	753	\$111,023.00	4277	\$ 859,303.35
TOTAL-2010	850	\$309,779.00	1330	\$162,994.00	1644	\$188,927.25	625	\$94,790.00	4449	\$ 756,490.25
TOTAL-2009	712	\$222,039.00	875	\$125,848.00	1313	\$149,101.75	554	\$74,397.00	3463	\$ 571,382.75
TOTAL-2008	848	\$582,100.75	1043	\$147,674.00	1348	\$164,271.30	697	\$91,695.00	3933	\$ 951,266.55
TOTAL-2007	1032	\$336,749.55	1069	\$137,857.00	1447	\$151,002.60	778	\$98,270.00	4326	\$ 723,879.15
TOTAL-2006	1181	\$481,673.30	1547	\$215,121.00	2147	\$243,076.90	1243	\$162,020.00	5173	\$ 940,523.41
TOTAL-2005	1032	\$419,355.30	1369	\$191,694.00	1874	\$211,234.15	1111	\$144,926.00	5386	\$ 967,209.45

CASCADE CONSOLIDATED FEES

YEAR 2020

MONTH	Building	Building	Electrical	Mechanical	Plumbing	TOTAL
	Comm.	Residential				
JANUARY	\$2,741.00	\$3,852.00	\$4,500.00	\$8,380.50	\$3,568.00	\$23,041.50
FEBRUARY	\$16,296.00	\$6,013.00	\$5,977.00	\$6,090.00	\$3,560.00	\$37,936.00
MARCH	\$1,468.00	\$2,711.00	\$4,133.00	\$4,420.00	\$2,770.00	\$15,502.00
APRIL						
MAY						
JUNE						
JULY						
AUGUST						
SEPTEMBER						
OCTOBER						
NOVEMBER						
DECEMBER						
YEAR END TOTAL	\$20,505.00	\$12,576.00	\$14,610.00	\$18,890.50	\$9,898.00	\$76,479.50
PERMIT # FOR MONTH	7	17	24	34	23	105
PREV PERMIT TOTAL	18	39	75	138	68	338
PERMIT TOTAL FOR YR	25	56	99	172	91	443
YEAR TO DATE	2020	\$76,479.50				
YEAR TO DATE	2019	\$63,562.00				
OVER	\$12,917.50					

CASCADE SINGLE FAMILY HOMES

	MAR	YTD 2020	2019	2018	2017
Number of Permits					
New Residential Homes	1	3	38	43	57
VALUE - RESIDENTIAL	\$ 450,000.00	\$ 2,467,810.00	\$ 18,187,545.00	\$ 28,327,352.00	\$ 32,980,308.00

Cascade Twp -Permit Report by Category/ Fe

Printed: 04/13/2020

3/1/2020 12:00:00 to 3/31/2020 12:00:00

Permit	Applicant	Address	Issue Date	Project Value	Permit Fee
Res. Single Family					
PB20000231	JDH CUSTOM HOMES	15650 MCCORDS AVE SE	03/10/2020	450,000	809.00
				450,000	809.00
1	Permits	Value Total		450,000	809



CASCADE CHARTER TOWNSHIP

2865 Thornhills SE Grand Rapids, Michigan 49546-7140

Date: April 22, 2020
To: Supervisor Beahan & Cascade Township Board
From: Benjamin Swayze, Township Manager
Subject: Approval of 2020 Local Road Improvements

FACTS:

Each year, Cascade Township budgets general fund dollars to go towards the improvement of local roads. The process for identifying local roads for improvement typically begins in early spring when a list for potential road improvements is developed by Cascade Township staff, and provided to the KCRC for further investigation. The initial list of roads compiled by the Township is developed utilizing resources such as road PASER ratings supplied by the KCRC, complaints and requests by Township resident and businesses, and visual inspections by the Township staff.

The KCRC then takes the possible project list and provides recommendations to the Township on maintenance/repair activities and cost estimates. This list is further reviewed by Township staff to select the highest priority projects, considered within the construct of the budgeted allocation for road repair, and is presented to the Infrastructure Committee and ultimately the Township Board for approval.

Township staff have addressed several areas that will need to be addressed in the next few years with a complete mill and fill (3.5" depth). This includes several residential areas north of 28th Street as well as the Centennial Park business/residential areas and the commercial/industrial area of the Foremost Industrial plat (in and around 33rd/36th Street).

Attached for your review are:

- PASER map of the Cascade Township Local Road System
- Multi-year local road maintenance recommendations and cost estimates from KCRC based on Township Staff recommendations
- Proposed work order for the 2020 Local Road Improvements Program

ANALYSIS & CONCLUSIONS:

Cascade Township has 73.92 miles of local paved roads. The local paved roads include both neighborhood roads and section-line roads. These are the roads that Cascade Township typically contributes funding towards (the KCRC does do 2-3 miles per year of section line roads that the Township does not contribute towards.) In addition to the local paved roads network, the Township has 40.92 miles of primary roads (federal aid eligible, typically fully funded by the KCRC) and 4.91 miles of local gravel roads.

Of the 73.92 miles of local paved roads, the roads can be divided into 3 categories based on the roads PASER ratings. Before the beginning of the 2018-19 two-year program, the Township had

10.9 miles of local roads rated “GOOD” (10-8 PASER rating), 28.9 miles of local roads rated “FAIR” (7-5 PASER rating), and 34 miles of local roads rated “POOR” (4-1 PASER rating). The KCRC has several repair options that are available for the local paved road system. The repairs range from a full-depth mill and fill (\$300,000 per centerline mile) to micro-surfacing (\$50,000 per centerline mile). Certain treatments are appropriate for certain road conditions. Roads that are in the “Good “ or “Fair” category may be eligible for less intensive treatments, while “Poor” roads often need full depth mill and fill or similar work. It should be noted that there is also diminishing return on investments for certain treatments when they have been applied multiple times. For example, a road that is micro-surfaced may have 7 years added to its useful life. The second time that same treatment is applied to the same road, it may only extend the useful life of the road 3-4 years.

The Township staff have identified 11.16 miles of roads that have rated poor on the PASER scale that will need to be addressed over the next several years. The cost of the work is approximately \$5,055,000 of which the Township would be responsible for \$2,527,500.

After initial review by the Infrastructure Committee and Personnel & Finance Committee, the original recommendations included:

- For 2020 complete the Caravelle Village residential work (including Irene Ave. and Linda Ave.) utilizing General Fund budgeted allocation
- For 2020 complete the Centennial Park and Foremost Industrial Park work utilizing Bond proceeds to be issued in 2020, payable over 10 years
- Consider remaining residential work for 2020 if bond borrowing rate is advantageous, otherwise consider completion in 2021.

Before these recommendations could be presented to the Township Board, the Covid-19 pandemic hit Michigan and the rest of the United States, causing issues that may negatively affect the previous recommendations made by the Infrastructure and Personnel and Finance Committees. These issues included:

- Chaos in the Municipal Bond marketplace that could result in poor interest rates on bonds
- Unknown Township revenue issues due to diminishing state sales tax receipts and housing market deterioration

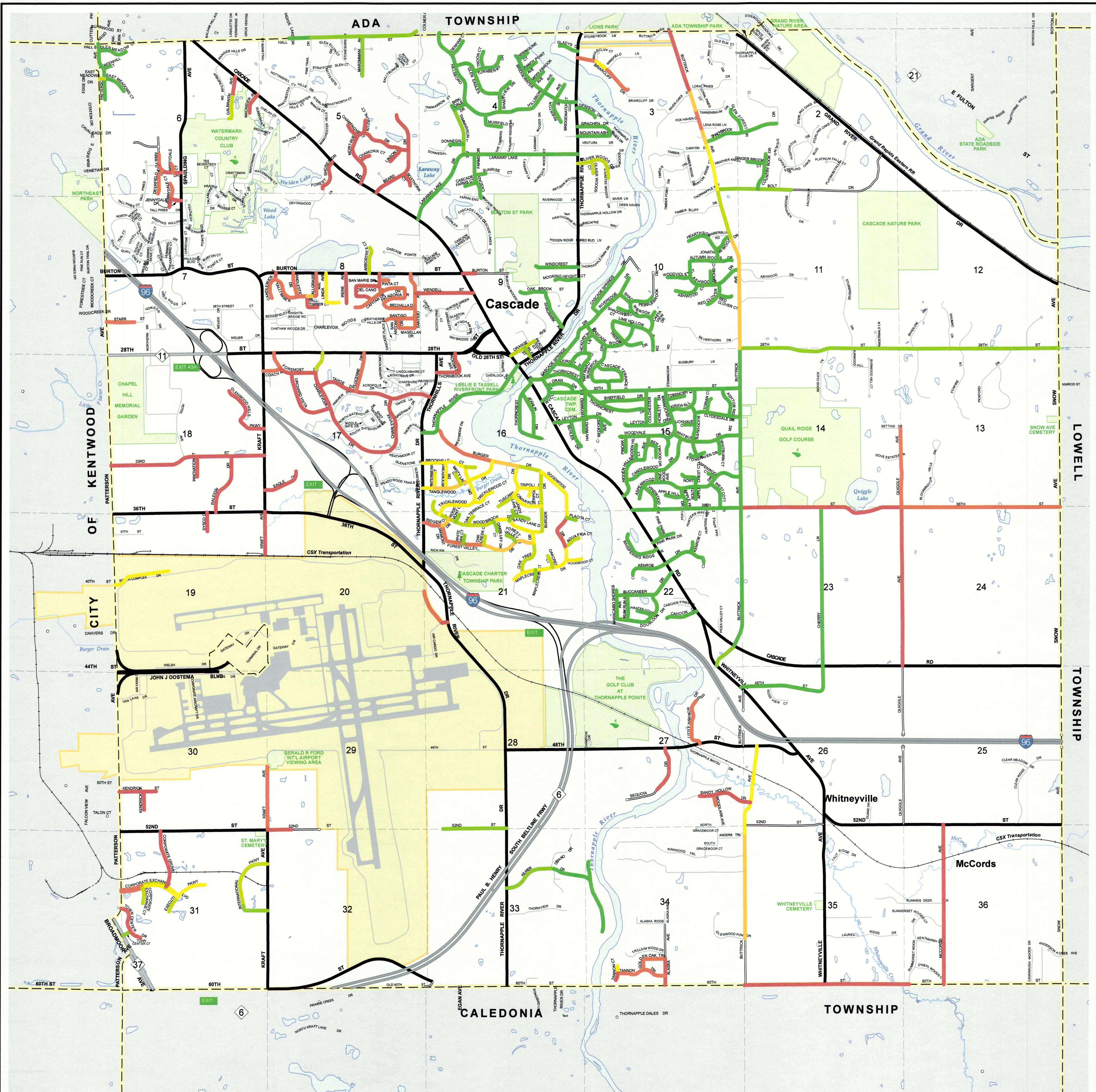
The Personnel and Finance Committee met again at their April meeting to revisit the recommendation based on the new climate. The committee has recommended that the Township not bond at this time due to the unknown financial effects of the Covid-19 pandemic and unstable municipal bond market. They did confirm their recommendation to complete the Caravelle Village work utilizing General Fund funds.

FINANCIAL CONSIDERATIONS:

The projected cost to the Township for the proposed local road program as recommended is \$482,500. In the FY2020 budget, the Township has budgeted \$400,000 for local road maintenance, therefore a budget amendment will be needed for this work. Additional funds will be taken from the General Fund unallocated revenues, which was estimated above \$233,000. The final budget amendment will be recommended once the true cost of the proposed program is known.

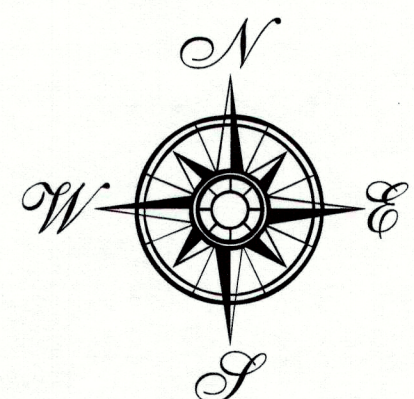
RECOMMENDED ACTION:

To approve the FY 2020 Cascade Township local road program as recommended by the Infrastructure Committee and Personnel and Finance Committee.



ROAD CONDITION

- POOR (1 OR 2)
- POOR (3)
- POOR (4)
- FAIR (5)
- FAIR (6)
- FAIR (7)
- GOOD (8-10)



Updated: 11/14/2019



CASCADE CHARTER TOWNSHIP KENT COUNTY, MICHIGAN 2019 LOCAL PASER MAP



2020 Cascade Township Local Road Estimates

<u>Length</u>	<u>Road</u>	<u>Eng Est</u>	<u>Totals</u>
3665'	Mont-Rue Dr: Cascade Rd to Beard Dr	\$255,000	
500'	Linson Ct: Mont-Rue to end	\$ 44,000	
430'	Kitzbuhl Ct: Mont-Rue to end	\$ 40,000	
510'	Champagne Ct: Mont-Rue to end	\$ 46,000	
360'	Chamonix Ct: Mont-Rue to end	\$ 35,000	
3315'	Beard Dr: Cascade Rd to end	\$245,000	
430'	Boxthorn Ct: Beard Dr to end	\$ 42,000	
9210'	SUB-TOTAL	\$707,000	
			\$707,000
1200'	Abbeydale Dr: Spaulding Ave to end	\$ 99,000	
850'	Deerfield Ct: Abbeydale Dr to end	\$ 73,000	
270'	Abbeydale Ct: Abbeydale Dr to end	\$ 31,000	
310'	Jennydale Dr: Spaulding Ave to Jennydale Ct	\$ 23,000	
820'	Jennydale Ct: end to end	\$ 85,000	
3450'	SUB-TOTAL	\$311,000	
			\$1,018,000

1050' Forest Shores Dr: Cascade Rd to end	\$ 82,000
655' MacNider Ave: Cascade Rd to end	\$ 44,000
1430' Galbraith Ave: Cascade Rd to end	\$112,000

3135'	SUB-TOTAL	\$238,000
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\$1,256,000

915' Candlewick Court: Burton St to end	\$ 77,000
810' Candlestick Dr: Burton to Talltimber St	\$ 59,000
680' Talltimber Ct: Talltimber St to end	\$ 58,000
765' Tallgrass Ave: Burton St to Talltimber St	\$ 54,000
1695' Talltimber St: Tallgrass Ave to Candlewick Ct	\$120,000

4865'	SUB-TOTAL	\$368,000
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\$1,624,000

1015' Irene Ave: Burton St to end	\$ 55,000
1385' Linda Ave: Burton St to end	\$ 62,000

2400'	SUB-TOTAL	\$117,000
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\$1,741,000

615'	San Marie Drive: Burton St to Capitan Dr	\$ 43,000	
305'	Pinta Court: San Marie Dr to end	\$ 31,000	
1670'	Del Cano Drive: San Marie to Capitan	\$113,000	
1790'	Capitan Drive: Patagonia Dr to end	\$132,000	
1105'	Patagonia Drive: Capitan Dr to Bechalla Dr	\$ 75,000	
1130'	Bechalla Drive: Patagonia To Santiago Dr	\$ 77,000	
1890'	Santiago Ave: Burton St to Magellan Dr	\$132,000	
550'	Magellan Drive: San Antonio to Santiago Ave	\$ 38,000	
310'	San Antonio Drive: Magellan to Santiago Ct	\$ 22,000	
965'	Santiago Court: Santiago Ave to end	\$ 79,000	
1735'	Wendell Street: Cascade Rd to end	\$106,000	
12,065'	SUB-TOTAL	\$848,000	\$2,589,000
35,125'	TOTAL	\$2,589,000	

2020 Cascade Township Centennial Park Estimates

<u>Length</u>	<u>Road</u>	<u>Eng Est</u>	<u>Totals</u>
535'	Coach Road: Kraft Ave to Foremost Dr	\$ 42,000	
1795'	Foremost Drive: 28 th St to Charlevoix Dr	\$137,000	
2225'	Orchard Vista Drive: Foremost Dr to Charlevoix	\$177,000	
6670'	Charlevoix Drive: 28 th St to Tahoe Dr	\$557,000	
1320'	Lucerne Drive: Tahoe Dr to 28 th St	\$106,000	
3920'	Tahoe Drive: Charlevoix Dr to Thornhills Dr	\$321,000	
16,465'	SUB-TOTAL	\$1,340,000	\$1,340,000
16,465'	TOTAL	\$1,340,000	

**2020 Cascade Township Local Road Estimates
(Industrial Park Area)**

2200'	Glenwood Hills Parkway: Kraft to end	\$199,000
1350'	Eagle Drive: Kraft Ave. to end	\$106,000
5280'	33 rd Street: Patterson Ave. to Kraft Ave.	\$397,000
2070'	Raleigh Drive: 36 th St to 33 rd St	\$157,000
650'	Innovation Court: 33 rd St to end	\$ 67,000
600'	Sysco Court: 36 th St to end	\$ 64,000
1210'	Kraft Avenue: 36 th St to end	\$136,000
13,360'	TOTAL	\$1,126,000



**Kent County
Road Commission**

**KENT COUNTY ROAD COMMISSION
LOCAL ROAD CONSTRUCTION AUTHORIZATION**

Date: 04/07/2020

Project: 2020 Cascade Twp. Local Roads Program

Work Order Number: _____

Township: Cascade

Length: 2.74 Miles

Type of Work: Full Depth Mill and Fill

Location: Various Streets in Cascade Twp. (Caraville Village streets, Irene and Linda Streets)

Do Sanitary Sewers exist on project? Yes X No System Date: _____

FINANCING
TOTAL BUDGET ESTIMATE: \$ 965,000

	K.C.R.C Share	Township Share		
	\$482,500	\$482,500		
Expended	\$			
Expended	\$			
Expended	\$			

Note: Estimate Cost Valid Until December 31, 2020

At a meeting of the _____ Township Board held on _____, the above estimate was approved. The Road Commission is authorized to proceed to accomplish the work and to bill the Township for all direct costs charged to the project plus an administrative overhead charge of seven and one half percent (7.5%) of the total direct costs so charged, and the Township hereby agrees to pay same in full. Direct costs include any payments for engineers and other consultants, materials, force account labor and fringes, equipment rental, advertising, and printing. The overhead cost is included in the above estimate.

Remarks: Paving done by contractor and prep-work and inspection done by Kent County Road Commission Local Construction and Maintenance Division

Approved by: Ben Swayze Date: _____

Note: For correct processing, please return (e-mail) this work order to the attention of the Maintenance Department of the K.C.R.C.

Working to keep Kent County moving

2020 Cascade Township Local Road Street List

Irene Ave: Burton St to end

Linda Ave: Burton St to end

San Marie Drive: Burton St to Capitan Dr

Pinta Court: San Marie Dr to end

Del Cano Drive: San Marie to Capitan

Capitan Drive: Patagonia Dr to end

Patagonia Drive: Capitan Dr to Bechalla Dr

Bechalla Drive: Patagonia To Santiago Dr

Santiago Ave: Burton St to Magellan Dr

Magellan Drive: San Antonio to Santiago Ave

San Antonio Drive: Magellan to Santiago Ct

Santiago Court: Santiago Ave to end

Wendell Street: Cascade Rd to end



CASCADE CHARTER TOWNSHIP

2865 Thornhills SE Grand Rapids, Michigan 49546-7140

Date: April 22, 2020
To: Supervisor Beahan and Township Board Members
From: Ben Swayze, Township Manager
Subject: Contract with Hamilton Helicopter Inc. for Gypsy Moth Suppression Services

FACTS:

In the fall of 2019 Cascade Township contracted with Aquatic Consulting Services LLC to conduct gypsy moth egg mass surveys to determine areas that require aerial spraying for 2020. As a result of that survey, it has been recommended that approximately 736 acres of the Township be sprayed for gypsy moth suppression. It should be noted that the recommended acreage is significantly higher than the acreage we have sprayed in recent years. In 2018 the Township sprayed 1,115 acres and 1,889 acres in 2019. Our biologist, Aquatic Consulting Services, attributes the reduced spraying acreage to "...our suppression efforts combined with the natural environmental controls we were anticipating." Additionally, he notes, our suppression efforts appear to have fulfilled the objective of limiting long term tree damage from gypsy moth defoliation, and reducing nuisance to tolerable levels across the survey area."

The Township had utilized Mid-Michigan Helicopter Inc. for Gypsy Moth Suppression services since the onset of our program until 2015. In 2015 Mid-Michigan Helicopter was bought by Hamilton Helicopter, and they have overseen our spraying program for the last five years. Our spray program last year was successful with no known issues reported from the contractor or residents in the affected areas. The Township last sprayed for gypsy moths in spring of 2019, when we sprayed 1,889 acres. The follow up report from Aquatic Consulting Services in summer of 2019 indicated the spray program was successful in suppressing the gypsy moth population in a majority of the indicated spray areas.

In 2018 the Township agreed to a 3-year spray contract with Hamilton Helicopter. Under the terms of the contract, in each year the Township must agree to spray a minimum of 500 acres. In return, the Township received a \$3.00 per acre discount on the spray cost. The terms of the contract only allow the price of the spray to increase by the increase in the cost of the *Bacillus Thuringiensis* each year. The 2019 contract rate was \$61.55. The 2020 spray contract proposal from Hamilton Helicopter calls for spraying 736 acres at a cost of \$61.75 per acre. The anticipated cost of the 2020 spray program is \$45,448.

The program will take place in the time period between May 1st and June 15th, with a more specific date to be available when the weather breaks. The Township is required to notify all residences in the spray block areas of the program. Any objectors to the spray program are eligible to be removed from the spray block at the discretion of the Township.

Attached for your review are:

- Proposed agreement with Hamilton Helicopter Inc. for Gypsy Moth Suppression Services.

- Communication from Aquatic Consulting Services regarding spray program
- Map of the proposed spray blocks for 2020
- Gypsy Moth information brochure published by the MSU Extension
- Information regarding Bacillus Thuringiensis pesticide.

ANALYSIS & CONCLUSIONS:

The Township has participated in the gypsy moth spray program in conjunction with Mid-Michigan Helicopter Inc/Hamilton Helicopter and Aquatic Consulting Services going on 22 years. The Township has participated in the program because of the acknowledgement of the devastating effect the gypsy moth population could have on the tree canopy cover of the Township.

During the onset of the program it was not uncommon for the Township to spray 1000 – 2000 acres per year. The continued treatment has allowed the program to be successful and our gypsy moth populations to be controlled. The partnership with both Aquatic Consulting Resources and Hamilton Helicopters Inc. has allowed us to efficiently allocate our financial resources to this program. The survey ensures that the aerial spray program effectively targets areas of infestation above the set thresholds, and on several occasions has saved us from unnecessarily spraying, as was the case in 2013 and 2010-11

The Infrastructure Committee reviewed the gypsy moth program at their March meeting. Based on the report from Aquatic Consulting Services the committee has recommended the Board approve the contract with Hamilton Helicopters to spray the full 736 acres recommended by Aquatic Consulting Services.

FINANCIAL CONSIDERATIONS:

The proposed agreement with Hamilton Helicopter Inc. is for a rate of \$61.75 per acre, which is \$0.20 per acre more than the 2019 contract and represents the increased cost of Bacillus Thuringiensis. The total cost of the program will come to \$45,448. The Township has budgeted \$100,000 for this program in 2020

RECOMMENDED ACTION:

Approve the agreement with Hamilton Helicopter Inc. for Gypsy Moth Suppression Services.



Aquatic Consulting Services

P.O. Box 530, Sanford, MI 48657
www.aquaticremedies.com

989-689-0223

December 20, 2019

**Mr. Ben Swayze, Manager
Cascade Charter Township
2865 Thornhills, S.E.
Grand Rapids, MI 49546**

Dear Mr. Swayze:

We have completed the gypsy moth egg mass surveys, maps, and report for the 2020 season in Cascade Charter Township. I have included JPG and PDF map files of the results for you to review and to post on the city website as needed. Both JPG and PDF files are printable for your purposes although the PDF file will be more user friendly on your website. I have also included a short report on the conditions in each recommended spray block. An 18 x 24 inch map is being sent in a separate package for display purposes.

Overall, I have good news for Cascade Township. Gypsy moth egg mass numbers are down significantly across the township. This is likely due to our suppression efforts combined with the natural environmental controls we were anticipating. Gypsy moth suppression programs in Michigan usually follow an Integrated Pest Management (IPM) strategy which is focused on low environmental impact (using biological pesticides in targeted areas) and economic awareness (forgoing treatment in favor of low-cost options). Our suppression efforts appear to have fulfilled the objectives of limiting long term tree damage from gypsy moth defoliation, and reducing nuisance to tolerable levels across the survey area. While this is great news, we must not let our guard down, as population rebound is still an ever-present threat, please see below.

During my survey, I found several areas with persistent gypsy moth populations. I also found a few new areas with low egg mass counts in marginal habitat, which should be monitored. We have the nuisance and tree damage thresholds well described so rest assured, our survey and suppression methods will prevail, as long as we stay on top of things. I must emphasize though; gypsy moth populations can be quite resilient, and population rebound is possible. I know you are aware of the frustrating gypsy moth situation the West Michigan area has endured recently. Cascade Township is in relatively good shape, but I have observed high population persistence in adjacent communities. So, please be advised that we are still in a very tenuous situation. You will see a substantial decrease of 61% (1,153 acres) in the total number of acres recommended for spray in spring 2020 (**736 acres**). This reduction may be more or less than you expected, but I can assure you, I have only recommended areas with egg mass numbers that have the potential to cause nuisance and/or tree damage. The reduction we have seen is likely due to good control in the majority of the areas treated last season, combined with active environmental controls across much of the area. That said, I anticipate continued favorable results for next season, but encourage the Cascade Township to continue with a monitoring program.

I will hold off on digitizing the spray blocks for the pilot's use until you have had a chance to review the maps. Once we get closer to spray time and you have selected an aerial applicator, I will provide the pilot with spray maps and digitized files.

Thank you for the opportunity to work for Cascade Township again this season. Please let me know if I can help with anything further at this time: 989-689-0223 or gypsymoth@aquaticremedies.com.

Sincerely,

A handwritten signature in cursive script that reads "Neal Swanson".

Neal Swanson
Owner/Biologist

Cascade Charter Township
Recommended Gypsy Moth Spray Areas 2020

By
Aquatic Consulting Services LLC
December 2019

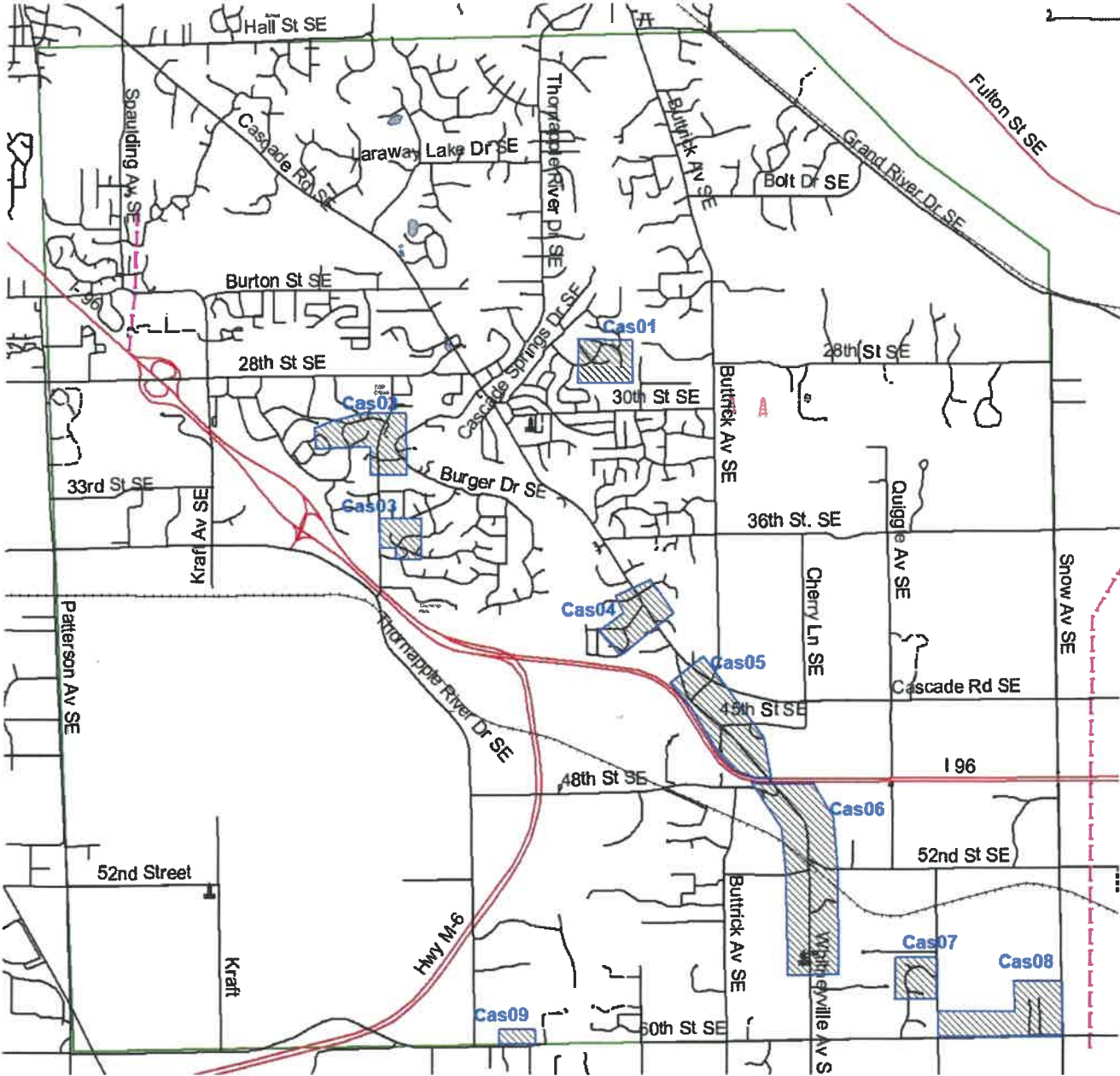
Block #	Acres	Reason for Spray
Cas01	54	A persistent remnant population in very good habitat. Nuisance threshold has already been reached. Block is a portion of a heavily infested block from prior years, so population rebound should be monitored. Spray to limit nuisance and further suppress population growth.
Cas02	85	An established population in good habitat. Nuisance threshold has already been reached. Tree damage is evident in a few areas. Spray to reduce nuisance and limit further tree damage.
Cas03	34	A persistent remnant population in prime habitat. Nuisance threshold has already been reached. Area is a portion of a former heavily infested block. Spray to limit nuisance and reduce potential for population rebound.
Cas04	63	A sustained population in very good habitat. Tree damage is evident throughout the block particularly along Cascade Rd. Spray to limit further tree damage and reduce potential for population rebound.
Cas05	118	A persistent remnant population in prime habitat. Nuisance threshold has been surpassed. Historical tree damage is a concern. Spray to limit further tree damage and further suppress growth.
Cas06	229	Habitat conditions and population trends are similar to Block Cas05. There is a history of nuisance and tree damage throughout the block. Population is a continuous with a known population in adjacent Caledonia Township, so re-infestation is a concern. Spray to limit further tree damage and reduce re-infestation potential.
Cas07	39	An established population in very good habitat. Nuisance threshold is already surpassed. Spray to limit nuisance and suppress further population growth.
Cas08	102	A persistent remnant population in prime habitat. Nuisance and tree damage thresholds are surpassed. Population is continuous with populations in adjacent Lowell and Caledonia Townships. Spray to contain spreading and limit further nuisance and tree damage.
Cas09	12	A persistent sustained population in very good habitat. Nuisance threshold has been surpassed, and tree damage is evident in the area. Population is continuous with adjacent Caledonia Township, so re-infestation is a concern. Spray to reduce nuisance, limit further tree damage, and contain spreading.

Total Acreage = **736 acres**

Gypsy moth suppression programs in Michigan generally follow an Integrated Pest Management (IPM) strategy which is focused on low environmental impact and economic awareness. Further, an IPM strategy intends to mitigate exponential population growth with treatment only until latent environmental controls begin to limit populations sufficiently. Several of the spray areas recommended last year show high levels of egg mortality and low persistence of adult moths. This implies that natural controls have started to act and that *Bacillus thuringiensis var. kurstaki* (B.t.k.) spray may not be advisable, economically or environmentally. Eradication of gypsy moths is not possible, so the intent of the spray program is to reduce the populations to tolerable numbers. It is possible that some residents may still see caterpillars outside of recommended spray areas during this observational phase of suppression. Rest assured, we are aware of the situation and will be monitoring the area for population rebound. You will see that portions of several old spray blocks are still recommended for spray in 2020. These areas still show high enough new egg mass counts that nuisance is possible and population rebound should be monitored. Accordingly, it is advisable that all recommended areas are treated with at least one application of B.t.k. in Spring 2020.

The term “nuisance” is subjective and relates to the likelihood that the number and feeding behavior of caterpillars in the area will impact a property owner’s quality of life. Some property owners may experience heavy infestation, yet are unbothered. Other property owners may see 5-10 caterpillars visible on a barn door as a nuisance. Field experience during gypsy moth infestation suggests that the number of egg masses found in an area may yield a widespread nuisance situation. The term “tree damage” is more literal, but also relative to environmental and historical factors as well. Any level of defoliation should be considered damaging, but otherwise healthy trees are generally much more resilient, even after consecutive years of defoliation. Other environmental stressors such as drought or disease are additive factors that will contribute to greater risk of tree degradation and/or mortality. Defoliation levels of >60% are also very stressful to trees, although most tree can survive 3+ years of >60% defoliation if few other stressors are present. Habitat quality relates to the species composition, density, distribution, understory, and topography of an area. Mixed forest type consisting primarily of oaks, neatly groomed understory, mixed age-class, and low topographic variability are the ideal conditions for persistent infestation, and so this habitat is designated as “prime” with very good, good, and marginal habitat in decreasing suitability. Trends in populations are designated by the egg mass residues in the area. Rising populations show a high new/old egg mass ratio, with established, sustained, and remnant populations trending toward a high old/new egg mass ratio.

Cascade Township Gypsy Moth Survey Report Map for 2020 Season



Shaded areas are recommended for
aerial B.t. spray in Spring 2020



— Township Border

2019 Aquatic Consulting Services

HHI

Hamilton Helicopters Inc.

P.O. Box 264
Hamilton, MI 49419
616-291-5808
khomkes@gmail.com

Hi

I have enclosed the 2020 Gypsy Moth suppression Service agreement. I need signature and have it returned ASAP so we can get started with the FAA Congested Area Permit Application(I can use hard copy or PDF) I feel it will take longer than normal considering the circumstances we face today in our world. If you have any questions please contact me.

Thanks



Kurt Homkes

616 291 5808

GYPSY MOTH SUPPRESSION 3 YEAR SERVICE AGREEMENT 3rd Year of 3

This agreement is made as of _____, 2020, between Cascade Charter Township, a Michigan municipal corporation at 2865 Thornhills Ave. SE, Grand Rapids Michigan. 49546. (Hereafter referred to as the Township), and Hamilton Helicopter Inc. (hereafter referred to as Hamilton Helicopters).

Whereas the Township desires to control the gypsy moth population within its boundaries, and Hamilton Helicopters is interested in and capable of participating in a Gypsy moth suppression program with the Township.

NOW, therefore, the parties agree as follows.

A With regard to the gypsy moth suppression program, the Township shall provide or arrange for the following to be performed.

- (1) Determination of spray blocks.
- (2) Provide homeowner notification of the spraying program, and make all public notices required, and make sure there are no objectors in the spray blocks.
- (3) Provide location of all objectors in and outside the spray blocks, and exclude and defend Hamilton Helicopters from any action, legal or otherwise, that should arise from the "no exclusion policy".
- (4) Provide digitized maps of the spray blocks.
- (5) Provide traffic and crowd control at the time of spraying, in the spray blocks and at the load site if deemed necessary by the parties.
- (6) Provide a central loading site.

B With regard to the gypsy moth suppression program, Hamilton Helicopters shall.

- (1) Have and maintain insurance coverage during the term of this agreement in the amount of \$2,000,000.00 single limit bodily injury and property damage. The Township and its employees shall be named as "additional insured". All liability for Hamilton Helicopters and its employees will be limited to the insurance policy provided.
- (2) Will apply to the F.A.A. for a (workable) congested area spray plan for the time period from May 1, 2020 to June 15, 2020.
- (3) Provide Bacillus Thuringiensis 'BT' at the rate of 19 B.I.U. per acre to cover 736 acres for the Township in 2020.
- (4) Coordinate the spray timing with Aquatic Consulting Services.

C This Service agreement listed in paragraphs A and B will be a 3 year contract starting with 2018 spray season. There is a 500 acre application minimum per year. The price for 2020 is \$61.75 per acre. The price for the next year can only be increased by the increase cost of the BT (Bacillus Thuringiensis) which has been relatively small .50-.80 cents per acre per year. Payment is to be made within 30 days of billing

D In the event Hamilton Helicopters is prevented from spraying as a result of legal action, court injunction, terrorist related problems or any problems beyond the control of

Hamilton Helicopters, the Township will pay \$15.00 per acre to cover some of the costs incurred.

E For the purposes of this contract, the contractor and its employees shall be considered Independent contractors.

F This agreement may be amended by mutual consent of the parties.

IN WITNESS THERE OF, the parties here have executed this agreement by and through their authorized representatives as of the date written above.

Cascade Charter Township Hamilton Helicopters Inc.

its _____ DATE _____ *Kurt Warner* DATE 3/23/20
Its Per

Gypsy Moth in Michigan

Michigan State University Extension & Michigan State University Department of Entomology
& the Michigan Department of Agriculture

The following information was taken from the
Gypsy Moth in Michigan Homeowner's Guide

**MICHIGAN STATE
UNIVERSITY
EXTENSION**



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Gypsy Moth Management Starts At Home

You are the first line of defense for protecting your trees and shrubs from damage by gypsy moth, other insects, nematodes and diseases. Being knowledgeable about the life cycle of the gypsy moth will pay off in money saved, labor expended and peace of mind.

Depending upon where you live in Michigan, gypsy moth outbreaks may last from two to several years or may never occur. Why gypsy moth populations explodes from time to time is not entirely clear. Outbreaks will eventually collapse, usually from natural causes.

Until a local gypsy moth population crashes, however, there are several techniques that homeowners can employ to keep damage and nuisance to an affordable minimum.

Monitoring

Hopefully, the mind set of dragging the sprayer out of the garage and spraying insecticide on trees and shrubs just because something might be out there lurking is no longer a part of the Michigander mentality. Years ago this was called "insurance spraying" when everybody was spraying chlorinated hydrocarbon insecticides (e.g., DDT) on everything that moved. We all know where that got us!

Take time to inspect your trees and shrubs periodically for the various life forms of gypsy moth. Especially look for the caterpillars when they begin to hatch, usually in early May.

Contrary to popular belief, population explosions in a locality do not happen suddenly! An area will undergo a gradual population buildup for a time before the population goes into a phase of rapid release. This gives vigilant homeowners, neighborhoods and communities time to assess local conditions and take appropriate action.

The gypsy moth is in the egg mass form for nearly nine months, plenty of time to find and destroy them before they hatch in the spring. While it may not be possible to find and destroy all of the egg masses in and around your backyard, this activity will complement management activity taken in the spring.

Management Non-Pesticide Techniques:

Water and Fertilize

We often take trees and shrubs for granted, figuring that they are indestructible and meant to last forever. Trees and shrubs have specific nutrient and water requirements. Take the time to determine what they need, and water and fertilize properly. There are bulletins available at all county extension offices and garden centers. Most insects and diseases select trees and shrubs that are being stressed. Keeping your trees and shrubs healthy will reduce the pests and diseases attracted to your foliage and lessen the damage done if they are attacked.

Sanitation

Keep your yard as clean as possible. Remove discarded items, dead branches (from the ground and out of the trees), stumps, etc., where the adult female moth is likely to lay egg masses. It is very important that homeowners be watchful when obtaining firewood from areas infested by the gypsy moth. A good rule of thumb is to never get more firewood in the summer or fall than you can burn by spring.

Each fall, check recreation vehicles (boats, trailers, campers, etc.) for gypsy moth egg masses. Vehicular movement is how gypsy moth came to Michigan.

Destroy Egg Masses

As mentioned, gypsy moth egg masses are around for nearly nine months before they hatch. Homeowners can help reduce gypsy moth population on their property and in their neighborhood by seeking out and destroying egg masses each year.

When a gypsy moth caterpillar is about to pupate, it will look for a protected area such as a loose flap of bark, something flat nailed to a tree, woodpile of the underside of branches, etc. Once a suitable location is found, it weaves a loose net of silk around itself and

transforms into a pupa. This is the resting state where the caterpillar undergoes the miracle transformation from caterpillar to moth. This takes about two weeks.

Upon emergence, the female gypsy moth is creamy white and has a wingspan of about two inches. The male moth is smaller in size and camouflage brown with black mottling. Both have a distinguishing mark on their forewings: an inverted black V often referred to as a chevron marking.

The female generally deposits egg masses from early July to mid-August depending upon local weather conditions. The female cannot fly, so she will lay egg masses near where she was in the pupal (cocoon) stage.

The adult female lives about a week. Her only purpose in life is to breed as quickly as possible and lay her eggs. She cannot fly, so she emits a chemical odor to attract the nearest male for mating, the male flies off to mate several more times before dying. After mating, the female spends about a day depositing her egg mass, falls to the ground and dies. Neither the male or female moth feed.

Each egg mass can contain from 50-1,000 eggs. The eggs are intertwined in a matting of hair from the body of the female. The hair is a tan-buff color and helps insulate eggs.

The egg masses begin hatching the following May. Hatching coincides with the bud break of aspen and the flowering of serviceberry.

Homeowners are encouraged to search out and destroy egg masses. This is accomplished by scraping them from the surface to which they are attached into a coffee can or similar receptacle. They can be buried or burned. Remember that each egg mass destroyed probably eliminated 400-500 caterpillars. Destroying egg masses is not a cure all. Many times egg masses are overlooked or inaccessible. However, it is a very good and certainly very cheap way to significantly impact the gypsy moth population in your yard and neighborhood.

Continued on page 3

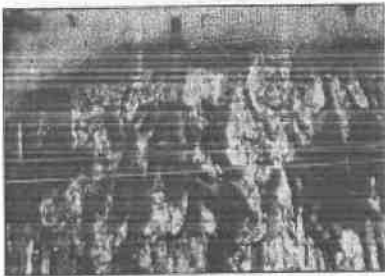
Barrier Bands

Sticky, or slippery bands can be placed around tree trunks to help curtail, though not necessarily prevent, the caterpillars movement into and out of the tree canopy.

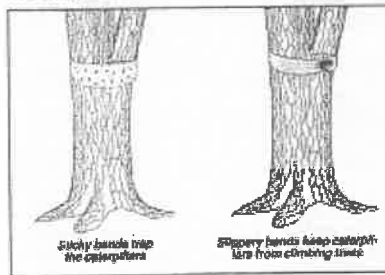
Sticky bands can be purchased or made using a nonporous material that can be wrapped around a tree trunk, then coated with a commercially made, vegetable-based sticky material. **Never put sticky material directly on the tree trunk.** This will permanently stain the bark and may harm the tree.

Sticky bands should not be put on the tree until the caterpillars are about an inch long. Smaller caterpillars usually stay in the tree canopy. Sticky bands eventually lose their effectiveness due to rain and other weather factors, the sticky material has to be reapplied periodically. Bands covered completely with caterpillars need to be cleaned or replaced.

Slippery bands are also intended to interrupt the daily migration of the caterpillar. They prevent the caterpillar from climbing up into the canopy.



Gypsy moth caterpillars use cloth bands to hide during daylight hours. Scrape the caterpillars into a bucket of soapy water



Hiding Bands

Cloth, or hiding bands, can be homemade from medium weight dark cloth about 12 to 18 inches wide and long enough to completely wrap

around the tree. Fasten each band at chest height around the tree with twine, cord or wire about midway from the bottom of the cloth. Then fold the top part of the cloth down over the bottom half.

Caterpillars descending the tree in the morning in search of a secluded daytime resting spot will hide under the flap of the band. Remove and destroy caterpillars each day by scraping them into a bucket of soapy water.

Pesticide Techniques

Biological Pesticide

Many pesticides are registered for use against gypsy moth in Michigan. A biological pesticide commonly used on gypsy moth is *Bacillus thuringiensis* var. *kurstaki*. B.t. is a common soil bacteria. It is commercially formulated and sold under various labels (e.g., Dipel, Foray, Thuricide and Bactur to name a few). B.t. can be applied from the ground or by aerial spraying.

B.t. formulations are quite safe to humans. There is no apparent human toxicity, although there have been rare cases of allergic reaction by humans to certain formulations of B.t. In fact, B.t. is only known to be toxic to the caterpillars of moths and butterflies. While there are many species of caterpillars affected by B.t., this pesticide is the most "selective" product available.

To be effective in minimizing defoliation, B.t. must be applied when caterpillars are less than one inch long. As caterpillars get larger, the efficacy of B.t. diminishes. B.t. has a reported residual activity (i.e. how long it remains potent) of about a week. It is broken down by sunlight. In instances where there are very high gypsy moth populations, two applications five days apart might be needed.

Most chemical pesticides are 95% - 99% effective. B.t.k. is probably is 80% - 85% efficient in field applications. This is a desirable attribute of B.t.k.. That may sound like a contradiction, but it isn't. Pesticides that are highly efficient will eventually work against the pest manager. Insects, through natural selection, will develop resistance to the pesticide. By

leaving 15% of the population intact, selection for resistance is slowed. B.t.k. has been used against gypsy moth for over twenty-five years and no resistance has been discovered. There is, quite naturally, a trade off. When B.t.k. is applied there are still some caterpillars crawling around. However, nuisance is reduced to a minimum, defoliation lowered below damaging levels.

Soap and Water

In addition to destroying egg masses, homeowners can use other non-pesticide methods to reduce defoliation of their yard trees.

Watch for the appearance of the small caterpillars in the spring. A garden hose has sufficient water pressure to knock them off the foliage. Spraying them with water under pressure kills many of them.

Garden centers carry various brands of "insecticidal soap." An insecticidal soap is not a soap with a synthetic insecticide but instead refers to the ability of the soap to kill certain insects. Spraying gypsy moth caterpillars with a hose with an attachment to dispense soap can be effective. Always follow label directions on the insecticidal soap container. Small and large caterpillars can be drowned when submerged into a bucket of soapy water.

Chemical Insecticides

A number of chemical pesticides are registered against gypsy moth in Michigan. Many are available at your local garden center or nursery. Some of the most common are formulations of acephate, carbaryl, and malathion.

If you choose to use chemical insecticides, apply them judiciously and wisely. Besides gypsy moth they can have a potential impact on a variety of beneficial insects, including valuable predators, parasites and honeybees.

Regardless of what insecticide you choose, read the label instructions and follow them exactly. If you have any potential personal health concerns regarding pesticides, discuss them with a physician or contact your local health department.

Trees and shrubs defoliated by gypsy moth

Although gypsy moth caterpillars feed primarily on deciduous tree species such as oak or aspen, this insect is known for its wide-ranging appetite. When populations of gypsy moth are very high, the caterpillars quickly devour the leaves of their preferred host tree species. Once their favored food source disappears, the hungry caterpillars do not hesitate to seek out new sources of food. When this occurs, almost any deciduous or conifer tree, shrub or other landscape plant may be at risk of suffering some amount of defoliation.

Consequently, it is difficult to state exactly how susceptible a tree or shrub species is to defoliation by gypsy moth caterpillars. Therefore, the following list is offered only as a guide to homeowners. This list does not guarantee that any species listed as minimally at risk will never be defoliated by the gypsy moth.

More importantly, homeowners need to recognize that gypsy moth caterpillars do have preferences for certain types of trees and thrive best on those species. Typically these favored food sources are usually the first ones attacked in a homeowner's yard, especially tall, large crowned trees. These are the trees most likely at risk to defoliation.

Generally speaking, when gypsy moth caterpillars move into less preferable food sources, the caterpillars do not thrive as well and often only cause minor damage.

However, regardless of this insect's food preferences, close inspection of yard trees and outdoor fixtures and prompt action by the homeowner to destroy egg masses and small caterpillars is crucial. This is the real key to minimizing the discomfort and, to some degree, the defoliation caused by large numbers of gypsy moth caterpillars.

If a homeowner is able to minimize the amount of defoliation from the gypsy moth, it will lessen the overall impact on tree health. When a hardwood tree is heavily defoliated, the needed energy to regrow a new set of leaves causes stress. This stress often weakens a tree which may lead

to additional tree health problems. Moreover, conifer species, such as spruce or pine, are at greater risk than hardwoods because conifers are not able to regrow needles lost to defoliation. Thus complete defoliation of conifers by gypsy moth is usually fatal.

Trees and Shrubs Most at Risk to Defoliation

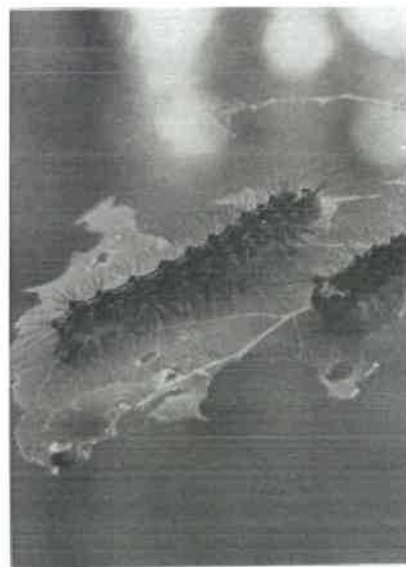
All Oak (*Quercus*).
All aspen and poplar (*Populus*).
Gray, paper (white), and river birch (*Betula*).
All willow (*Salix*).
All apple and crabapple (*Malus*).
All thornapple and hawthorne (*Craetagus*).
White pine (*Pinus*).
Blue spruce (*Picea*).
American beech (*Fagus*).
Basswood (*Tilia*).
Sweetgum (*Liquidambar*).
Juneberry or serviceberry (*Amelanchier*).
Witch hazel (*Hamamelis*).
Hazelnut (*Corlus*).
Mountain ash (*Sorbus*).

Trees and Shrubs Somewhat at Risk to Defoliation

Black walnut and butternut (*Juglans*).
All cherry and plum (*Prunus*).
Norway, red and sugar maple (*Acer*).
Hophornbeam or ironwood (*Ostrya*).
Alder (*Alnus*).
Elm (*Ulmus*).
Hickory (*Carya*).
Eastern redbud (*Cercis*).
Sassafras (*Sassafras*).
Paw paw (*Asimina*).
White and Norway spruce (*Picea*).
Balsam fir (*Abies*).
Eastern hemlock (*Tsuga*).
Red, jack, scotch and Austrian Pine (*Pinus*).

Trees and Shrubs at Minimal Risk to Defoliation

Ash (*Fraxinus*).
Tulip tree or yellow poplar (*Liriodendron*).
Sycamore and London plane tree (*Plantanus*).
Northern catalpa (*Catalpa*).
Honey locust (*Gleditsia*).
Black locust (*Robinia*).
Horsechestnut (*Aesculus*).
Dogwood (*Cornus*).



Gypsy moth caterpillars prefer to eat leaves of certain tree species, including poplar.

Eastern redcedar (*Juniperus*).
Juniper (*Juniperus*).
Yew (*Taxus*).
Lilac (*Syringa*).
Azalea (*Azalea*).
Rhododendron (*Rhododendron*).
Arborvitae (*Thuja*).
Viburnum (*Viburnum*).

Homeowners considering planting trees or shrubs in areas prone to high gypsy moth population build-ups should choose species that are at minimal risk to defoliation. Contact your local MSU Extension office for bulletins and information on tree selection, planting and care.



Be careful about quick fixes for your gypsy moth problem

Struggling with the effects of the gypsy moth can be frustrating enough without unscrupulous people trying to take advantage of the homeowner by offering quick fixes.

There are no quick fixes, declares Russell Kidd, MSU Extension district forestry agent in Roscommon County.

He advises homeowners to be wary of products or services that promise or imply they can end gypsy moth problems in the backyard or woodlot.

Be careful of salespeople who want to spray your trees with chemicals that are "guaranteed" to control the gypsy moth. In some cases, these may be worthless or even dangerous.

Homeowners should ask what chemical is to be used, its hazard, what its effect will be and what precautions will be taken to minimize spray drift to nearby objects.

Homeowners should also ask to see proof that the company and the individual are certified and licensed to

apply such a material. Michigan law requires that commercial pesticide spraying companies be certified and licensed by the Michigan Department of Agriculture.

Remember that chemical sprays are effective only during the caterpillar stage of the gypsy moth. Spraying trees before the eggs hatch or after the caterpillars have pupated or emerged as adults moths is worthless. (See the gypsy moth life cycle chart).

Be wary of unrealistic claims about products or techniques to rid your property of the gypsy moth by themselves.

Some products, such as sticky bands, are indeed useful, but they will not control the gypsy moth completely, especially when used alone. Only a combination of control treatments, used diligently by the homeowner, will achieve satisfactory control of the gypsy moth.

Other products may not do what their names imply. Take, for instance, the gypsy moth trap. The

purpose of the trap is to attract and capture the adult gypsy moth.

Traps are used to monitor gypsy moth populations. They will not control or eliminate next year's gypsy moth problem in your yard because one adult male moth can mate with many female moths and one or two traps will not capture enough males to interfere with mating or cause the population to decline significantly next year.

Be very careful about timber buyers who offer to buy standing trees that have been defoliated. Unscrupulous timber buyers may use gypsy moth infestations in an area as a scare tactic to persuade people to sell valuable timber at low prices before the tree die.

Timber owners should always consult with professional foresters before they decide to sell any standing timber.

Your county MSU Extension office can provide the names of professional foresters in your area.



Be careful with pesticides!



Use proper recycling procedures for disposing of pesticide containers.

This publication contains pesticide recommendations based on research and pesticide regulations. However, changes in pesticide regulations occur constantly. Some pesticides mentioned may no longer be available, and some may no longer be legal. If you have questions about the legality and/or registration status for using pesticides, contact your MSU Extension county office.

To protect yourself and others and the environment, always read the label before applying any pesticide. For information about pesticide labels see Extension Bulletin E-2182 *Reading a Pesticide Product Label*.

For more information about pesticide safety, see Extension Bulletin E-2215, *Using Pesticides Safely: A Guide for the Applicator*; Extension Bulletin E-1546 *Take Cover! Protect Yourself from Exposure (Pesticides)*.

For more information about safe disposal of pesticide containers see Extension Bulletin AM-95 *Rinsing and Recycling Pesticide Containers*.

Dozens of other Extension bulletins on safe application of pesticides are also available.

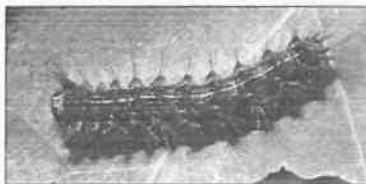
Gypsy Moth Life Cycle

1) Small Larvae. This stage lasts for 7-10 days after eggs hatch in early May (or sooner in warmer weather). Larvae are less than 1.2 inch long and usually black. They linger around the egg cluster for several days if the weather is cool or rainy, then climb trees or other objects, trailing silken threads as they move. When the larvae reach the top of the tree, they do not feed but drop on silken threads and are dispersed by the wind.

2) Large Larvae. Feeding at night for 4 to 6 weeks, large larvae generally rest during the day unless populations are very large, then they wander constantly. They grow until they are about 2 inches long.



1. Small Larvae—May



2. Large Larva—June



3. Pupae—July



4. Adults—August

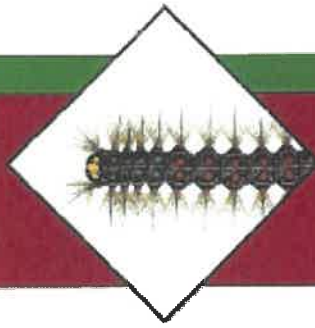


5. Egg masses—August

3) Pupae. During this stationary stage the larvae are changing into moths. This generally occurs from the end of July until early August. After about 10 days in the dark colored pupal cases, the adult moths emerge, leaving the pupal cases behind.

4) Adults. The female moth is creamy white and does not fly but emits a chemical called a pheromone to attract a male moth. The male is brownish and flies in a zigzag pattern looking for the female. A single male can mate with many females. Both sexes have chevron markings (V or notch-shaped marking) on each forewing.

5) Egg masses. The buff-colored egg masses contain between 50 and 1,500 eggs. The female deposits the eggs on any convenient surface. The masses are usually covered with hairs from the female's abdomen. The egg masses are quite cold resistant and can survive temperatures as low as -20 degrees F. Egg masses hatch during May.



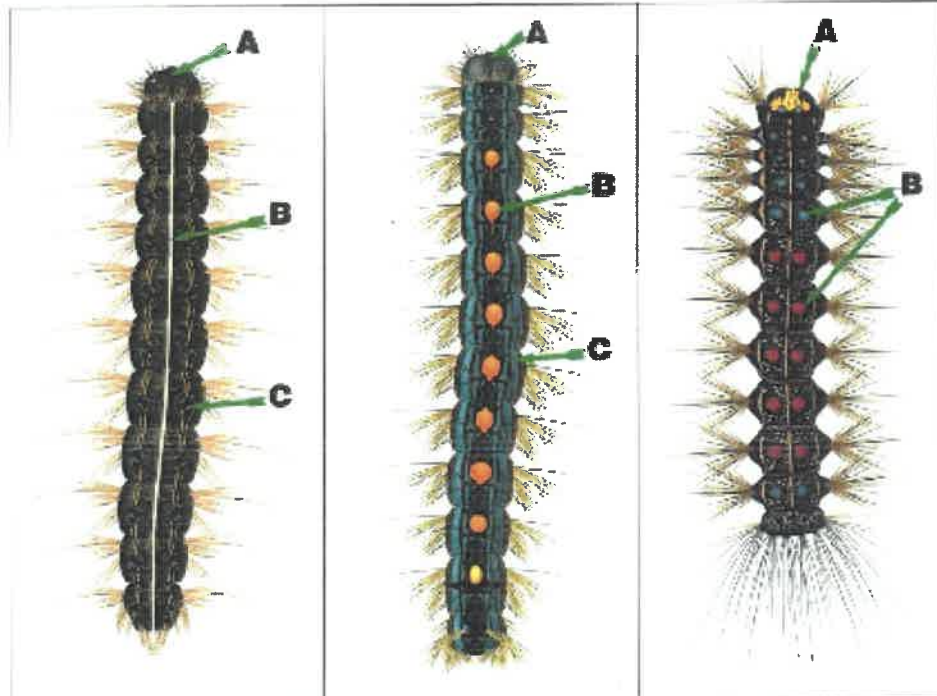
Comparison of the Eastern Tent Caterpillar, Forest Tent Caterpillar and Gypsy Moth

Michigan State University Extension

These three insects are often found feeding on the leaves of hardwood trees early in the summer. They can be easily confused with one another. The illustrations and information here will help you to identify which caterpillar is feed-

ing on your trees. Contact your local MSU Extension office or regional Dept. of Natural Resources office for more information on the biology and management of these insects.

Illustrated by Peter Gernglax

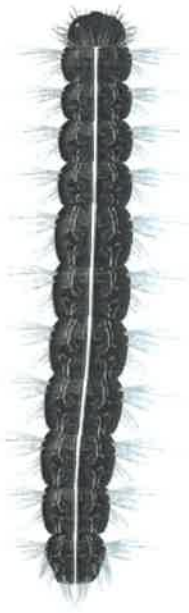
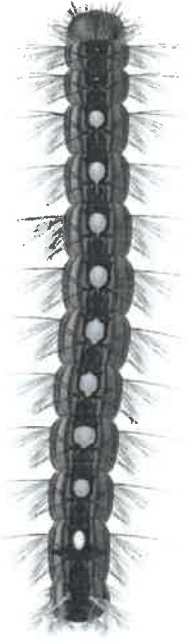
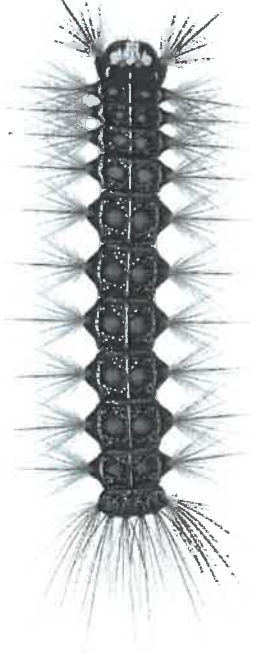





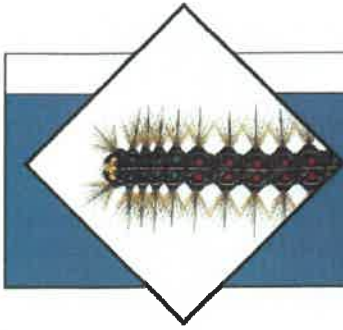
	Eastern Tent Caterpillar <i>(Malacosoma americanum)</i>	Forest Tent Caterpillar <i>(Malacosoma disstria)</i>	Gypsy Moth Caterpillar <i>(Lymantria dispar)</i>
Markings	A) Dark head; B) prominent white or yellow stripe down the center of the body; C) small blue spots to the side.	A) Blue head; B) prominent central row of white or yellow markings in keyhole or footprint shape; C) bluish on sides of body.	A) Yellow head with black markings; B) prominent blue and red spots.
Tents	Prominent silk tent: in branch junction.	They do not spin silk tents; resting sites on leaves may have small silk layer.	No silk tents.

(2007)



Comparison of the Eastern Tent Caterpillar, Forest Tent Caterpillar and Gypsy Moth

	 Eastern Tent Caterpillar <i>(Malacosoma americanum)</i>	 Forest Tent Caterpillar <i>(Malacosoma disstria)</i>	 Gypsy Moth Caterpillar <i>(Lymantria dispar)</i>
Egg Mass	Dark, spindle-shaped mass wrapped around twigs; rough varnished texture. 	Similar to eastern tent caterpillar. 	Tan color; covered with fine hairs; 1 to 3 inches long; usually on tree bark. 
Preferred Host Trees	Black cherry, apple, crabapple.	Aspen, sugar maple, oaks, birch, black gum.	Oaks, aspen, birch, willow and more than 250 other species.
Populations	Native insect; silk tent is unattractive, but feeding rarely harms trees; common pest of ornamental trees in urban settings.	Native insect; outbreaks occur at roughly 10-year intervals and usually last 2 to 4 years; most common in forests, especially where aspen is abundant.	Exotic pest; severe defoliation during outbreaks can occur for 2 to 3 years in urban and forested areas, especially where oaks are abundant.



Entomophaga maimaiga - A Natural Enemy of Gypsy Moth

Michigan State University Extension

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The gypsy moth (*Lymantria dispar* L.) is an exotic pest of urban and forest trees. Gypsy moth caterpillars feed on the leaves of oaks, aspens, and many other hardwood and conifer trees. During gypsy moth outbreaks, trees may be completely stripped of leaves. Although gypsy moth caterpillars rarely kill trees by themselves, trees weakened by heavy defoliation may become more susceptible to drought, disease or other insect pests. In addition, the large hairy caterpillars annoy people living or recreating in outbreak areas.

Managing gypsy moth requires the integration of a variety of control tactics. Biological control, the use of natural enemies to control a pest, can be an important part of an integrated pest management program for gypsy moth. One biocontrol agent that has recently shown much promise is a fungal pathogen, *Entomophaga maimaiga*.

Origin of *Entomophaga maimaiga*

Entomophaga maimaiga is a common disease in gypsy moth populations in its native country of Japan. The fungus was first released into the United States near Boston in 1910 as part of a program to introduce natural enemies of gypsy moth. Scientists could find no evidence that the fungus had become established and the project was abandoned a few years later. However, the fungus appeared unexpectedly in several northeastern states in 1989 and caused high mortality in many gypsy moth populations. Although scientists have several theories, the strange reappearance of the fungus is still a mystery.

Entomophaga maimaiga was first brought into Michigan in 1991 by scientists at Michigan State University and the USDA Forest Service. It was released in three sites in northern lower Michigan and monitored closely.

Additional introductions have since occurred and the fungus also is spreading naturally. *Entomophaga maimaiga* has now been found throughout most of Lower Michigan.

Life history of *Entomophaga maimaiga*

Entomophaga maimaiga passes the winter as a tough, thick-walled "resting spore" in the soil and on tree bark. In May and June, resting spores germinate and produce sticky spores at the end of a stalk that grows just above the soil surface. Gypsy moth caterpillars come into contact with these spores in the spring as they search for suitable leaves to feed on. The fungus digests its way through the exoskeleton of the caterpillar and grows inside the body of the caterpillar. Infected caterpillars may die within one week.

When young caterpillars are affected early in the summer, the fungus will produce a second type of spore called conidia. These microscopic spores are spread by the wind and can infect other caterpillars. The cycle of conidia production and infection may occur four to nine times during the summer. When the fungus develops in large caterpillars, it produces the overwintering resting spores.

Weather plays an important role in determining how effective *Entomophaga maimaiga* will be. Like most fungi, its spores need moisture and high humidity to germinate. Frequent rainfall during May and June contributes to the start and spread of *Entomophaga maimaiga* through a gypsy moth population. Temperatures of 50 to 80 degrees F enhance fungal growth.



Figure 1. Gypsy moth larva killed by NPV hanging in an inverted "V" position.



Figure 2. Dead larva covered with conidia of *Entomophaga maimaiga*.



Figure 3. Larvae killed by *Entomophaga maimaiga* often remain attached to trees.

Distinguishing *Entomophaga maimaiga* from NPV

Another disease is common in outbreak populations of gypsy moth. NPV (nuclearpolyhedrosis virus) is a virus disease that often causes gypsy moth outbreak populations to collapse. One important difference between the two diseases is that NPV is seldom prevalent until gypsy moth populations reach very high levels. In contrast, *Entomophaga maimaiga* may be found even when gypsy moth populations are low.

Caterpillars killed by NPV often remain attached to the stem or branches of trees. The bodies of the dead caterpillars are soft, filled with a brown liquid and disintegrate rapidly. Usually they hang limply in an upside-down "V" position (Fig. 1).

Caterpillars killed by *Entomophaga maimaiga* will also remain attached to tree stems or branches. However, the bodies tend to be stiff and straight, and the legs extend stiffly from the body. Some of the dead caterpillars may have tiny white conidia attached to the hairs on the body (Fig. 2). The cadavers may remain on the stem well into autumn (Fig. 3).

The future of *Entomophaga maimaiga*

Entomophaga maimaiga may become an important biological control of gypsy moth in both low and high populations. Infections may be more common in years with rainy spring weather than in years with dry spring weather. Scientists have found that the fungus is established in a number of areas in Michigan. Laboratory and field studies have shown that *Entomophaga maimaiga* is host specific and poses little risk to other insect populations. It will not affect other animals or humans. Introductions and evaluation will continue. Although there is not likely to be any "silver bullet" for gypsy moth, *Entomophaga maimaiga* should improve our ability to manage this pest in Michigan.

MICHIGAN STATE UNIVERSITY EXTENSION

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File 27.35 (Pests and Management)

Gypsy Moth Populations Growing

Robert Bricault, MSU Horticulture Educator

One of the hardest lessons I learned over the years is that information taught in the past may not be remembered tomorrow. Gypsy Moth management was the central focus of my career from 1985 through 1999. I worked in landscaping in Midland and Isabella Counties when Gypsy Moths caused the first defoliation in Michigan in 1985. During the 1990's the insect moved into Southeast Michigan where it continued it's destructive pattern of ravenous eating, stripping thousands of trees of their leaves.



By 1994, Extension worked with the Michigan Department of Agriculture mapping out areas with large Gypsy Moth egg mass counts for aerial spraying with the bacteria, Bt (*Bacillus thuringiensis*). Bt did not kill the caterpillars quickly, but made them sick by changing the pH in their stomachs. Eventually they stopped eating and starved to death.

Bt helped to reduce the population not eliminate it, giving parasites, predators and pathogens a chance to develop. A pathogen called NPV, nucleopolyhedrosis virus, began killing large number of caterpillars leaving them hanging in an upside down V on tree trunks. Unfortunately, NPV only worked well when populations of the insect were very high. A real break came when a soil borne fungus, *Entomophaga maimaiga* started to kill off large numbers of caterpillars in midsummer leaving them hanging straight down on tree trunks. The fungus was effective even in sites with low numbers of Gypsy Moths present. The fungus spreads during periods of consistent rainfall in late spring and early summer. Gypsy Moth populations have been at very low numbers for the past eight years in Washtenaw County mostly due to the *Entomophaga* fungus.

The drought of 2007 reduced the development of the fungus allowing more caterpillars to survive, change into moths and lay eggs. The increasing population of caterpillars led to localized defoliation of trees. The worst damage was on Blue Spruces. Fortunately, we did experience good rainfall in June 2008, allowing the *Entomophaga* fungus to spread and kill many caterpillars. Enough Gypsy Moth did survive in 2008 to produce larger numbers of egg masses than we have seen in over six years. This may cause some localized defoliation of trees again this coming summer, increasing the need to educate residents on managing this pest.

Gypsy moth eggs hatch in mid spring usually about the time serviceberry is in bloom. People often confuse Gypsy Moth with other caterpillars that make tents or webs in trees. Gypsy Moth can hang from silk like strands from a branch but do not make webbed tents. They can spread by wind while hanging from this thread. At this early stage they are susceptible to Bt. Bt works well on young caterpillars, but is ineffective once they get beyond an inch long. Trees can be banded with burlap to trap caterpillars that seek shelter under the burlap during the day. Unfortunately, in blue spruces it is

hard to manage them through banding. Once in the moth stage Gypsy Moth does not feed. The brown male moths can be seen flying around searching for the white female moths that do not fly. The female leaves behind buff colored egg masses that are easy to see.



Fall and winter are great times to go hunting for the buff colored egg masses in trees. If you have spruces check under the branches for the egg masses. If you find egg masses on structures, outdoor furniture or trees, knock them off into soapy water. This sanitation practice greatly reduces the number of caterpillars the following year. Some of their favorite trees include oak, birch, apple, willow, hawthorn, white pine, blue spruce, serviceberry and poplars, but they will eat leaves from maples and other trees that are not their most preferred species. If large populations are found damaging trees it may become necessary to treat the trees with an insecticide. The greatest risk is to evergreens like blue spruces and white pines that do not come back from defoliation as well as deciduous trees will. If using a pesticide make sure it is labeled for control of Gypsy Moth.



We are often asked why the county is not still part of the state's suppression program. The need for the program in Washtenaw and across Michigan declined as Gypsy Moth levels dropped very low across the state. The State's Suppression program actually ended in 2006 and also the availability of federal dollars to assist communities in aerial spray programs. The suppression program did what it was supposed to do, reducing the insects population long enough for other forces that help control Gypsy Moth to develop in our ecosystem.

Through careful monitoring, sanitation practices, banding as well as localized pesticide treatment, you can help to keep Gypsy Moth in check while allowing natural pathogens, predators and parasites to gain back a balance of control. Our hope is that nature will continue to keep Gypsy Moth populations at low levels in most years and eliminate the need for large scale spray programs. If you find large local Gypsy Moth infestations please share this information with the Horticulture staff at the MSU Extension office: 734 997-1678 or contact the Master Gardener Hotline from mid April through October at 734 997-1819.

**Gypsy moth and gardening questions phone:
Washtenaw County, MSU Extension
Master Gardening Hotline at: 734 997-1819**
**Master Gardener Volunteers are available:
mid April through October
Monday through Thursday
9:00 a.m. – 12:00 noon
1:00 p.m. – 4:00 p.m.**

At other times phone the MSU Extension office at 734 997-1678

Bacillus thuringiensis

Fact Sheet No. 5.556

Insect Series | Home and Garden



by W.S. Cranshaw*

Bacillus thuringiensis (Bt) is an insecticide with unusual properties that make it useful for pest control in certain situations. Bt is a naturally occurring bacterium common in soils throughout the world. Several strains can infect and kill insects. Because of this property, Bt has been developed for insect control. At present, Bt is the only “microbial insecticide” in widespread use.

The insecticidal activity of Bt was first discovered in 1911. However, it was not commercially available until the 1950s. In recent years, there has been tremendous renewed interest in Bt. Several new products have been developed, largely because of the safety associated with Bt-based insecticides.

Properties

Unlike typical nerve-poison insecticides, Bt acts by producing proteins (delta-endotoxin, the “toxic crystal”) that reacts with the cells of the gut lining of susceptible insects. These Bt proteins paralyze the digestive system, and the infected insect stops feeding within hours. Bt-affected insects generally die from starvation, which can take several days.

Occasionally, the bacteria enter the insect’s blood and reproduce within the insect. However, in most insects it is the reaction of the protein crystal that is lethal to the insect. Even dead bacteria containing the proteins are effective insecticides.

The most commonly used strain of Bt (*kurstaki* strain) will kill only leaf- and needle-feeding caterpillars. In the past decade, Bt strains have been developed that control certain types of fly larvae (*israelensis* strain, or Bti). These are widely used against larvae of mosquitoes, black flies and fungus gnats.

More recently, strains have been developed with activity against some

leaf beetles, such as the Colorado potato beetle and elm leaf beetle (*san diego* strain, *tenebrionis* strain). Among the various Bt strains, insecticidal activity is specific. That is, Bt strains developed for mosquito larvae do not affect caterpillars. Development of Bt products is currently an active area and many manufacturers produce a variety of products. Effectiveness of the various formulations may differ.

Disadvantages

Bt is susceptible to degradation by sunlight. Most formulations persist on foliage less than a week following application. Some of the newer strains developed for leaf beetle control become ineffective in about 24 hours.

Manufacturers are experimenting with several techniques to increase its persistence. One involves inserting Bt toxic crystal genes into other species of bacteria that can better survive on leaf surfaces (e.g., the M-Trak formulation of *san diego* strain).

The highly specific activity of Bt insecticides might limit their use on crops where problems with several pests occur, including nonsusceptible insects (aphids, grasshoppers, etc.). As strictly a stomach poison insecticide, Bt must be eaten to be effective, and application coverage must be thorough. This further limits its usefulness against pests that are susceptible to Bt but rarely have an opportunity to eat it in field use, such as codling moth or corn earworm that tunnel into plants. Additives (sticking or wetting agents) often are useful in a Bt application to improve performance, allowing it to cover and resist washing.

Since Bt does not kill rapidly, users may incorrectly assume that it is ineffective a day or two after treatment. This, however, is merely a perceptual problem, because Bt-affected insects eat little or nothing before they die.

Bt-based products tend to have a shorter shelf life than other insecticides.

Quick Facts

- *Bacillus thuringiensis* (Bt) is a naturally occurring bacterial disease of insects. These bacteria are the active ingredient in some insecticides.
- Bt insecticides are most commonly used against some leaf- and needle-feeding caterpillars. Recently, strains have been produced that affect certain fly larvae, such as mosquitoes, and larvae of leaf beetles.
- Bt is considered safe to people and nontarget species, such as wildlife. Some formulations can be used on essentially all food crops.
- Bt is used in agriculture as a liquid applied through overhead irrigation systems or in a granular form for control of European corn borer.

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Figure 1: Alfalfa webworms killed by *Bacillus thuringiensis*.

Manufacturers generally indicate reduced effectiveness after two to three years of storage. Liquid formulations are more perishable than dry formulations. Shelf life is greatest when storage conditions are cool, dry and out of direct sunlight.

Advantages

The specific activity of Bt generally is considered highly beneficial. Unlike most insecticides, Bt insecticides do not have a broad spectrum of activity, so they do not kill beneficial insects. This includes the natural enemies of insects (predators and parasites), as well as beneficial pollinators, such as honeybees. Therefore, Bt integrates well with other natural controls. For example, in Colorado, Bt to control corn borers in field corn has been stimulated by its ability to often avoid later spider mite problems. Mite outbreaks commonly result following destruction of their natural enemies by less selective treatments.

Perhaps the major advantage is that Bt is essentially nontoxic to people, pets and wildlife. This high margin of safety recommends its use on food crops or in other sensitive sites where pesticide use can cause adverse effects.

Bt-based products tend to have a shorter shelf life than other insecticides.

Unlike most insecticides, Bt insecticides do not have a broad spectrum of activity, so they do not kill beneficial insects.

Perhaps the major advantage is that Bt is essentially nontoxic to people, pets and wildlife.

Table 1. Primary strains of *Bacillus thuringiensis* used in managing insects.

<i>Bacillus thuringiensis</i> strain (Common name)	Susceptible insects
<i>aizawi</i>	Many Lepidoptera larvae
<i>kurstaki</i>	Many Lepidoptera larvae
<i>israelensis</i>	Larvae of mosquitoes, black flies, fungus gnats
<i>japonensis</i>	Larvae of scarab beetles (Coleoptera: Scarabaeidae)
<i>tenebrionis</i> (sandiego)	Larvae of leaf beetles (Coleoptera: Chrysomelidae)
<i>CryIAb delta-endotoxin</i> ¹	Many Lepidoptera larvae
<i>Cry3Bb1 variant</i> ¹	Corn rootworm larvae (Coleoptera: Chrysomelidae)

¹Only used in production of genetically modified crops

Insects Controlled by Bt

Kurstaki strain (Biobit, Dipel, MVP, Steward, Thuricide, etc.):

Vegetable insects

- Cabbage worm (cabbage looper, imported cabbageworm, diamondback moth, etc.).
- Tomato and tobacco hornworm.

Field and forage crop insects

- European corn borer (granular formulations have given good control of first generation corn borers).
 - Alfalfa caterpillar, alfalfa webworm.
- Fruit crop insects
- Leafroller.
 - Acheon sphinx.

Tree and shrub insects

- Tent caterpillar.
- Fall webworm.
- Leafroller.
- Redhumped caterpillar.
- Spiny elm caterpillar.
- Western spruce budworm.
- Pine budworm.
- Pine butterfly.

Israelensis strains (Vectobac, Mosquito Dunks, Gnatrol, Bactimos, etc.)

- Mosquito.
- Black fly.
- Fungus gnat.

San diego/tenebrionis strains (Trident, M-One, M-Trak, Foil, Novodor, etc.)

- Colorado potato beetle.
- Elm leaf beetle.
- Cottonwood leaf beetle.

Application

The greatest use of Bt involves the *kurstaki* strain used as a spray to control caterpillars on vegetable crops. In addition, Bt is used in agriculture as a liquid applied through overhead irrigation systems or in a granular form for control of European corn

borer. The treatments funnel down the corn whorl to where the feeding larvae occur.

Many formulations (but not all) are exempt from pesticide tolerance restrictions and may be used up to harvest on a wide variety of crops. This also makes Bt useful in applications where pesticide drift onto gardens is likely to occur, such as treating trees and shrubs. The exceptional safety of Bt products also makes them useful where exposure to pesticides is likely during mixing and application.

To control mosquito larvae, formulations containing the *israelensis* strain are placed into the standing water of mosquito breeding sites. For these applications, Bt usually is formulated as granules or solid, slow-release rings or brickettes to increase persistence. Rates of use are determined by the size of the water body. Make applications shortly after insect eggs are expected to hatch, such as after flooding due to rain or irrigation. Bt persistence in water is longer than on sun-exposed leaf surfaces, but reapply if favorable mosquito breeding conditions last for several weeks. Although the *israelensis* strain is quite specific in its activity, some types of nonbiting midges, which serve as food for fish and wildlife, also are susceptible and may be affected. For information on mosquito control, see fact sheet 5.526, *Mosquito Management*.

Use of Bt (*israelensis*) for control of fungus gnat larvae involves drenching the soil. Bt applied for control of elm leaf beetle or Colorado potato beetle (*san diego/tenebrionis* strain) is sprayed onto leaves in a manner similar to the formulations used for caterpillars. Bt does **not** control shore flies, another common fly found in greenhouses.

Colorado State University, U.S. Department of Agriculture and Colorado counties cooperating. CSU Extension programs are available to all without discrimination. No endorsement of products mentioned is intended nor is criticism implied of products not mentioned.



CASCADE CHARTER TOWNSHIP

2865 Thornhills SE Grand Rapids, Michigan 49546-7140

Date: April 22, 2020
To: Supervisor Beahan and Cascade Township Board
From: Benjamin Swayze, Township Manager
Subject: Public Hearing for Moratorium for Certain Required Water and/or Sewer Connections in Cascade Township

FACTS:

In 2019 Cascade Township adopted an update to the Water and Sewer connection ordinances. At that time the ordinances were modified to require connection to the water or sewer public system within 90 days of the sale/purchase of a home if that home was located within 300 feet of a public utility. In conjunction with this requirement, the Township negotiated significantly reduced connection fees with the City of Grand Rapids and eliminated approximately \$3.2 million dollars in future connection charges that would have been payable to Cascade Township. This was done to accelerate connections to the public utility system in order “complete” the system and ensure economic and operational viability of the system.

Cascade Charter Township, like the rest of the state, country and world, is currently experiencing the effects of the Covid-19 pandemic. While the pandemic has changed many aspects of our daily lives, the long-term effect is largely unknown. However, it is expected that the economy will be severely impacted long after the pandemic is over.

With many Cascade residents likely impacted by the economic effects of the pandemic, the Township board may want to consider a moratorium on the water and sewer connection requirement upon the sale of a house. By enacting a moratorium, residents and prospective residents will be able to consider a housing transaction without the additional economic burden of a required water and/or sewer connection during an economic recession.

Attached for your review are:

- Proposed Ordinance to Impose a Moratorium on Water System Connections at Time of Sale
- Proposed Ordinance to Impose a Moratorium on Sewer System Connections at Time of Sale

ANALYSIS & CONCLUSIONS:

The proposed connection moratoriums would be effective upon adoption of the ordinance and would expire on June 30, 2021 unless further action was taken by the Board. The moratoriums would only apply to the “connection at sale” clause. If a resident had a failure of their water well or septic system they would still be required to connect.

The action sought is to establish a public hearing for the proposed ordinance, to be held May 13, 2020 during the regularly scheduled Township Board meeting. This meeting may be held in person or remotely depending on the Covid-19 pandemic situation and Executive Order 2020-48 or any subsequent Executive Orders. Once the public hearing has been held, the Township may take action on the proposed ordinance, at that meeting or any subsequent meeting.

FINANCIAL CONSIDERATIONS:

Other than staff time and publication costs there are no financial considerations in setting the public hearing. The Township may experience “lost” revenue if a connection that would otherwise be made is not required.

RECOMMENDED ACTION:

To set the public hearing for the proposed Moratorium for Certain Required Water and/or Sewer Connections in Cascade Township for May 13, 2020 during the Regularly Scheduled Township Board Meeting.

**CASCADE CHARTER TOWNSHIP
KENT COUNTY, MICHIGAN**

**AN ORDINANCE TO ADD A NEW SUBSECTION E TO SECTION 313-83 TO
IMPOSE A MORATORIUM ON SUBSECTION 313-83 C(2)**

ORDINANCE NO. _____

THE CHARTER TOWNSHIP OF CASCADE ORDAINS:

Section 1. Amendment. Section 313-83 of the Cascade Charter Township

Ordinances is amended by adding a new subsection E. to read as follows:

E. Temporary moratorium on application of Section 313-83 C(2) to sales of single family or multifamily residential structures.

(1) **Purpose.** Cascade Charter Township has determined that adoption of this ordinance on a temporary basis is reasonable and necessary in light of the impact of the pandemic caused by the COVID-19 virus. In order to spur home sales, the Township Board finds it reasonable to suspend the application of Section 313-83 C(2) for a limited period of time.

(2) **Effective Moratorium.** A moratorium is hereby adopted on the application of Section 313-83 C(2) to the sale of single family or multifamily residential structures from the effective date of this ordinance until June 30, 2021. Any sales of single family or multifamily residential structures which occur during this timeframe do not need to comply with the provisions of Section 313-83 C(2).

(3) **Duration of Moratorium.** The moratorium adopted by this ordinance shall remain in effect until July 1, 2021, unless sooner terminated by the Township Board. The provisions of Section 313-83 C(2) shall once again be applicable to the sales of single family or multifamily residential structures that are sold on or after July 1, 2021.

Section 2. Effective Date. This Ordinance shall become effective seven (7) days after publication in a newspaper of general circulation in the Township.

The vote to adopt this Ordinance was as follows:

YEAS: _____

NAYS: _____

ABSENT: _____

ORDINANCE DECLARED ADOPTED.

Susan Slater, Cascade Charter Township Clerk

CERTIFICATION

I hereby certify the foregoing to be a true copy of an Ordinance adopted at a regular meeting of the Cascade Charter Township Board on _____, 2020.

Susan Slater, Cascade Charter Township Clerk

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**CASCADE CHARTER TOWNSHIP
KENT COUNTY, MICHIGAN**

ORDINANCE NO. _____

**AN ORDINANCE TO ADD A NEW SUBSECTION E TO SECTION 313-78 TO
IMPOSE A MORATORIUM ON SUBSECTION 313-78 C(2)**

THE CHARTER TOWNSHIP OF CASCADE ORDAINS:

Section 1. Amendment. Section 313-78 of the Cascade Charter Township

Ordinances is amended by adding a new subsection E. to read as follows:

E. Temporary moratorium on application of Section 313-78 C(2) to sales of single family or multifamily residential structures.

(1) **Purpose.** Cascade Charter Township has determined that adoption of this ordinance on a temporary basis is reasonable and necessary in light of the impact of the pandemic caused by the COVID-19 virus. In order to spur home sales, the Township Board finds it reasonable to suspend the application of Section 313-78 C(2) for a limited period of time.

(2) **Effective Moratorium.** A moratorium is hereby adopted on the application of Section 313-78 C(2) to the sale of single family or multifamily residential structures from the effective date of this ordinance until June 30, 2021. Any sales of single family or multifamily residential structures which occur during this timeframe do not need to comply with the provisions of Section 313-78 C(2).

(3) **Duration of Moratorium.** The moratorium adopted by this ordinance shall remain in effect until July 1, 2021, unless sooner terminated by the Township Board. The provisions of Section 313-78 C(2) shall once again be applicable to the sales of single family or multifamily residential structures that are sold on or after July 1, 2021.

Section 2. Effective Date. This Ordinance shall become effective seven (7) days after publication in a newspaper of general circulation in the Township.

The vote to adopt this Ordinance was as follows:

YEAS: _____

NAYS: _____

ABSENT: _____

ORDINANCE DECLARED ADOPTED.

Susan Slater, Cascade Charter Township Clerk

CERTIFICATION

I hereby certify the foregoing to be a true copy of an Ordinance adopted at a regular meeting of the Cascade Charter Township Board on _____, 2020.

Susan Slater, Cascade Charter Township Clerk

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