

**AGENDA  
CASCADE CHARTER TOWNSHIP  
REGULAR BOARD MEETING**

Wednesday, September 13, 2017

7:00 P.M.

Cascade Branch of the Kent District Library, Wisner Center  
2870 Jacksmith, S.E.

**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 Minutes for 8/23/17.
2. Planning Commission Meeting Minutes for 8/7/17.
3. DDA Meeting Minutes for 7/18/17.

**b. Receive and File Reports**

1. Building Inspections Monthly Report for August, 2017.
2. Treasurers Department Monthly Report for June, 2017.
3. FY 2017 2<sup>nd</sup> Quarter Transportation Ridership Data.

**c. Receive and File Communications**

1. State of Michigan DEQ – Notice of Public Hearing – September 20, 2017.

**d. Education Requests**

1. Sandra Korhorn – Michigan Downtown Association State Conference – October 18-19, 2017 – Bay City, MI.
2. Ben Swayze – MERS Conference – September 21-22, 2017 – Detroit, MI
3. David Lintemuth – EMT/Basic – Great Lakes EMS
4. Oxana Sourine – MMTA Conference – October 8-11, 2017 – Thompsonville, MI.

**Article 7. Financial Actions**

**Article 8. Unfinished Business**

- Article 9. New Business**
- 058-2017 Consider Approval of MERS 2017 Officer and Employee Delegate to the Conference.**
- 059-2017 Consider Approval of the Purchase of Additional Voting Equipment.**
- 060-2017 Consider Approval of Resolution Approving a General Records Retention and Disposal Schedule for all Offices of the Township of Cascade. (roll call)**
- 061-2017 Consider Approval of the Extension of the Ada Township Water USD into Cascade Township in the area of Gladys.**
- 062-2017 Consider Approval of Contract with Aquatic Consulting Services for Gypsy Moth Population Survey.**
- 063-2017 Consider Approval of Resolution for “Prisoner of War/Missing in Action Recognition Day” on September 15, 2017. (roll call)**
- Article 10. Public Comments – Any comments...whether it is on the Agenda or not. (limit comments to 3 minutes)**
- Article 11. Manager Comments**
- Article 12. Board Member Comments**
- Article 13. Adjournment**

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

Wednesday, August 23, 2017  
7:00 P.M.

- Article 1.** Supervisor Beahan called the meeting to order.  
Present: Supervisor Beahan, Clerk Slater, Treasurer Peirce, Trustee Koessel, McDonald and Shipley.  
Absent: Trustee Lewis  
Also Present: Manager Swayze and those listed in Supplement #1.
- Article 2.** Supervisor Beahan led the Pledge of Allegiance to the Flag.
- Article 3.** Motion was made by Trustee Shipley and supported by Trustee Koessel to approve the Agenda as presented. Motion carried unanimously
- 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 Minutes for 8/9/17.
    - 2. Planning Commission Meeting Minutes for 7/17/17.
  - b. Receive and File Reports**
    - 1. Building Inspections Monthly Report for July, 2017.
    - 2. Treasurers Department Monthly Report for May, 2017.
  - c. Receive and File Communications**
    - 1. Letter from Comcast – re: Channel Lineup Changes.
    - 2. Note from FHPS Community Services – re: Senior Luncheon
  - d. Education Requests**
    - 1. Brian Wilson – COCM Fall Conference – September 26-29, 2017 – Thompsonville, MI
    - 2. Jeff Biegalle – MIAM Code Classes – October 12-13, 2017 – Clare, MI.
    - 3. *Mildred Pinder – MERS Annual Mtg. – September 20 – 22, 2017 – Detroit, MI.*
- Motion was made by Clerk Slater and supported by Trustee Shipley to approve the Consent Agenda as presented. Motion carried.
- Article 7.** **Financial Actions**
- a. Consider Approval of July 2017 General/Special Funds.**

Motion was made by Trustee Koessel and supported by Trustee McDonald to approve the July 2017 General/Special Funds. Motion carried.
- Article 8.** **Unfinished Business**

**Article 9. New Business**

- 053-2017 Consider Approval of Resolution to Approve the Levy for 2017 Millage Rates.**  
Motion was made by Trustee Koessel and supported by Trustee Shipley to approve the Resolution for the Levy for the 2017 Millage Rates. Motion carried by roll call vote.
- 054-2017 Consider Approval of Tassell Park Restroom Repairs.**  
Manager Swayze reviewed the issues with the interior and exterior of the restrooms at Tassell Park. Motion was made by Clerk Slater and supported by Trustee Shipley to approve the Proposal from Dan Vos Construction in the amount of \$19,915. Motion carried.
- 055-2017 Consider Approval of Contract between Cascade Charter Township and Hope Network West Michigan.**  
Manager Swayze reviewed the scope of the contract. Motion was made by Trustee McDonald and supported by Trustee Koessel to approve the Contract between Cascade Charter Township and Hope Network West Michigan. Motion carried.
- 056-2017 Consider Approval of Resolution to Approve a Request for a Road Closure for Caravelle Village.**  
Motion was made by Trustee Koessel and supported by Trustee Shipley to approve the Resolution for a Road Closure for Caravelle Village. Motion carried unanimously by roll call vote.
- 057-2017 Consider Approval of the Construction Phase of the Township Hall/Station #1/#2 Rehabilitation Project with Fishbeck Thompson, Carr and Huber.**  
Manager Swayze reviewed the rehabilitation project with the Board. Discussion followed. Kent Moeggenborg from Fishbeck was present to address any questions from the Board. Motion was made by Trustee Koessel and supported by Treasurer Peirce to approve the Construction Phase of the Township Hall/Station #1/#2 Rehabilitation project with Fishbeck, Thompson, Carr and Huber in the amount of \$357,394. Motion carried.

**Article 10. Public Comments – Any comments...whether it is on the Agenda or not. (limit comments to 3 minutes)**

Ben Rapin, 3780 Kenrob Ct. was present to mention the doors to the Wisner Center were locked.

**Article 11. Manager Comments**

Manager Swayze offered the following comments:

- Reminder: On Friday, August 25<sup>th</sup> at 10:00 a.m. at the Wisner Center they will be having a “kick-off” meeting for the Board and Commission members for the DDA Marketing Plan.
- The Metro Cruise Warm-Up is tomorrow. It will be 4:30 – 8:30p.m.
- There was a significant accident today...a car that went thru a private fence and thru private property and thru a pontoon boat and ended up in the river. Would like to commend the Fire Dept. and the Sheriff’s Dept. for their response.

**Article 12. Board Member Comments**

Trustee Shipley offered the following comments:

- Thank you for coming...apology for the doors being locked.

Trustee Koessel offered the following comments:

- The Bridgewater/Denison paving has been finished. There still needs to be work done on some residents' yards as they are "above" the road.

Supervisor Beahan offered the following comments:

- Manager Swayze will be in the "dunk tank" at the Metro Cruise.
- Manager Swayze and I will be meeting with the head of the Gerald R. Ford Airport tomorrow morning. This is our quarterly meeting.

**Article 13. Adjournment**

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

Meeting adjourned at 7:24 p.m.

Respectfully submitted,

Denise M. Biegalle  
Deputy Clerk

Approved by:

\_\_\_\_\_  
Susan B. Stater, Clerk

\_\_\_\_\_  
Robert S. Beahan, Supervisor

## MINUTES

Cascade Charter Township  
Planning Commission  
Monday, August 7, 2017  
7:00 P.M.

**ARTICLE 1.** Vice Chairman Sperla called the meeting to order at 7:00 P.M.  
Members Present: Sperla, Johnson, Katsma, Lewis, Mead, Pennington, Rissi, Robinson, Williams  
Members Absent: None  
Others Present: Community Development Director, Steve Peterson and those listed on the sign in sheet.

**ARTICLE 2. Pledge of Allegiance.**

**ARTICLE 3. Approve the current Agenda.**

**Motion was made by Member Robinson to approve the Agenda. Supported by Member Pennington. Motion carried 9 to 0.**

**ARTICLE 4. Approve the Minutes of the July 17, 2017 Meeting.**

**Motion was made by Member Mead to approve the Minutes as written. Supported by Member Robinson. Motion carried 9 to 0.**

**ARTICLE 5. Acknowledge visitors and those wishing to speak to non-agenda items.**

No visitors who were present wished to speak about non-agenda items.

**ARTICLE 6. Case #16-3309 Reibel PUD-Redwood**

**Property Address: 6370 28<sup>th</sup> Street SE**

**Requested Action:** To consider approval of preliminary P.U.D. amendment to include 61 new apartments.

Director Peterson stated that the Applicant is requesting approval of a Preliminary P.U.D. amendment in order to construct a 60-unit apartment complex and one manager unit. The original project allowed for the area behind Pizza Hut, Macatawa Bank and Culvers to be developed into a mix of office, restaurant and retail. That portion of the project has never been done. They are now asking to modify the PUD to allow the multifamily development.

This project came up for Public Hearing in August of 2016. At that time, the Board tabled their decision until the Township Engineer approved the plan.

The Township Engineer has approved the plan and staff is now looking for the Board's decision.

Director Peterson recommends the Board approve the amended plan to include the apartments. If approved, staff will prepare the P.U.D. Ordinance for the Board's review and recommendation to the Township Board.

Vice Chairman Sperla asked the Applicant to come forward with any comments.

Ms. Kellie McIver came forward to give a brief overview of the project to refresh the Board's memory of the project because it had been several months since it had come before them.

**Motion was made by Member Mead to approve the amended plan to include the new apartments and that Staff proceed with the preparation of the P.U.D. ordinance amendment. Supported by Member Lewis. Motion carried 9-0.**

**ARTICLE 7. Case #17-3391 Town Center Inn & Suites**

**Property Address: 4834 & 4888 Town Center Drive S.E.**

**Requested Action:** The Applicant is requesting site plan approval for two new hotels at 4850 and 4888 Town Center Drive.

Director Peterson stated that Applicant is requesting site plan approval in order to construct two hotels. Marriott Town Place Suites (102 rooms) and Holiday Inn Express and Suites (114 rooms).

This is the same developer who is building the new hotels next to Meijer. The same hotels will be for this project.

Meadowbrooke allows for the following:

1. hotels as a permitted use and two principal structures on the same property, provided that it is directly related to the principle use or enterprise on the lot. (Both are full service hotels.)
2. structures to be 45 feet tall with the allowance for one hotel to be 70 feet tall. (The Marriott is 41.6 feet tall and the Holiday Inn Express is 40 feet tall to the roof line.)
3. screening walls to be an additional 15 feet tall. (Marriott will have screening up to an additional 15 feet. Holiday Inn Express will have an additional 5 feet.)

This project has also taken advantage of a ZBA interpretation that permits side yard buffers to be as small as 10 feet. It will also have some reduced setbacks due to the wetlands on the property.

Currently, the property consists of two separate properties, which will be combined into one piece to avoid the need to make adjustments for interior setbacks. With the approval of the neighboring mixed use project, this developer has agreed to install 7' wide sidewalks along his frontage in order to connect to the sidewalk for the mixed use project.

The site has been designed to meet the storm water ordinance and has been reviewed and approved by the Township Engineer and the Township Fire Department. A maintenance agreement will be required. The Gerald R. Ford Airport staff has been made aware of the project and has indicated only the need for construction permits. The Meadowbrooke Review Board has also reviewed and approved the project.

Director Peterson recommends approval of the site plan with the following conditions:

1. Compliance with the Township Engineer's report;
2. Record the storm water maintenance agreement prior to a building permit being issued; and
3. Combine the property within the next 30 days.

Vice Chairman Sperla asked the Applicant to come forward with any comments.

Mr. Dave Ziomkowski came forward on behalf of Applicant to simply answer any questions posed by the Board.

Discussion followed mostly concerning the type of hotels, signage, and timeline to build them.

**Motion was made by Member Robinson to approve the site plan with Director Peterson's conditions listed above. Supported by Member Rissi. Motion carried 9-0.**

**ARTICLE 8.**

**Case # 17-3392 Freedom Reins Farm**

**Property Address: 8585 52<sup>nd</sup> Street S.E.**

**Requested Action:** The Applicant is requesting to develop 13 detached single family site condominium projects.

Director Peterson stated that Applicant is requesting a Sketch Plan Review in order to develop a new subdivision on approximately 43 acres for a Site Condominium project called Freedom Reins. This subdivision would consist of 13 single-family site condo units. The property is zoned ARC, and is Master Planned as Suburban Residential.

The Applicant has drawn a sketch plan showing how the property could be developed with 13 lots using 50% open space with a minimum of 50,000 sq. ft. per lot. The Applicant is attempting to do this subdivision "by-right" and therefore does not need to rezone the property. Applicant has stated they will demonstrate how they meet the subdivision ordinance as the project proceeds.

The development will be served by wells and septic. They will need approval from the KCHD. The project is inside the utility service boundary, but is miles away from any existing sewer/water lines. The Township Engineer would need to approve the storm water plan.

The open space that is being provided is mainly located along the rear of the property adjacent to I-96. The development will be utilizing private streets. Developer will need to comply with the private street ordinance, as well as the KCRC for the names of the streets. The location of the curb cut will also need to be approved by the KCRC. No sidewalks are planned for the project, and will not connect to any planned or future pathways.

Since the Applicant has yet to submit all of the required information for preliminary tentative approval, we are reviewing this as a sketch plan only. Once all of the required information is submitted, it will be scheduled for preliminary tentative approval.

Vice Chairman Sperla asked if the Applicant would like to come forward.

Mr. Jim Morgan came forward on behalf of Applicant and gave a brief overall summarization of the development and how important it was to them to preserve the open space, which includes woods and a creek.

A short discussion followed concerning mostly of size, price range, and whether it would be lot and/or specs.

**No action was required by the Board at this time.**

**ARTICLE 9. Case #17-3395 Remark Real Estate P.U.D. Rezoning**

**Property Address: 5039 28<sup>th</sup> Street S.E.**

**Requested Action:** The Applicant is requesting to rezone the property to a Planned Unit Development to allow two separate buildings.

Director Peterson stated that the Applicant is requesting Basic Plan Review in order to develop the site into two separate restaurants. Currently, an occupied iHOP and an unoccupied Don Julio restaurant are on the site. The would like to maintain the iHOP portion of the building and remove the Don Julio portion of the building to accommodate a new Wendy's restaurant.

The site was originally developed in 2002 and allowed for one large building that could meet our requirements and allow for two restaurant sites. The proposal now would allow two small restaurants on their own parcel. This change would require several exemptions from the ordinance requirements, which seems to be driven by the need to have a drive-thru.

The site has adequate parking for the two proposed restaurants. A total of 162 parking spaces are planned and 81 would be required. The total sizes of the buildings are roughly the same as it was when it was one building. The purchase agreement includes a shared parking agreement, although it is a little unclear if it includes all of the parking on the property. This should be clarified.

The Township held a meeting with the property owners in the area to see what type of interest they had in making Northern Drive a public road. The DDA has it on their plan to asset with traffic flow in the area. The plan would include a connection and extension of

Starr Street to make this happen. If the plan were to move forward, Director Peterson would insist on an agreement that they participate in a SAD for the extension and conversion of the road to connect to Starr Street and become public. Also, shown on the plan is an additional curb cut to Northern Drive with a right in only movement. This would also require an exception. The plan also shows a new sidewalk along Northern Industrial Drive.

The new plan does not meet some of the underlying zoning regulations. These deviations from the ordinance are:

1. Parcel Size: iHOP is (1.24 acres), Wendys (1.63 acres) – a minimum of 3 acres is required under the ordinance.
2. Setbacks: proposed 55 foot front setback for Wendy's from Northern Industrial Drive – 100 foot front setback is required under the ordinance.
3. Signs – proposed 20 feet – 25 feet is required under the ordinance.
4. Curb Cut - proposed 50 feet – 150 feet is required under the ordinance.

Storm water will need to be reviewed the Township Engineer to be sure it is in compliance.

Director Peterson recommends the following before this proceeds to Preliminary Development Plan Review (Public Hearing):

1. Elimination of the new curb cut;
2. Have the Applicant provide the required site plan information;
3. Approval from the Township Engineer for storm water;
4. Provide a sign plan.
5. Clarify shared parking to include all of the parking on the property.
6. Agree to participate in a SAD for the extension and conversion of the road to connect to Starr Street and become public.

Vice Chairman Sperla asked if the Applicant would like to come forward.

Mr. Brian Sinnott came forward on behalf of Applicant to give a summary of the project and address and concerns the Board may have.

Extensive discussions followed concerning mostly the large difference in the curb cut. The difference between what is proposed and what is required is 100 feet, which is significant. The problem is that it cannot be any longer than 50 feet because of the layout and design, At 50 feet, there could be backups leading into the street because of the volume of cars to the restaurants.

Mr. Doug Poland came forward to explain how important it was to keep that curb cut and why it could not be eliminated. He did not feel any backups would occur because both restaurants had different busy times. A concern for them was the route cars would

need to go to get to and from the drive-thru and exiting of other diners. Without that curb cut, cars would need to circle the building nearly twice, which they feel is inconvenient for the patrons and the business.

No action was required at this time by the Board, however, it was suggested that Applicant try to come up with alternative for the curb cut or lengthen it before this is set for public hearing.

**ARTICLE 10. Any other business**

Next meeting will be August 21, 2017

**ARTICLE 11. Adjournment.**

**Motion was made by Member Mead to adjourn. Supported by Member Williams.  
Motion carried 9 to 0. The meeting was adjourned at 8:15 p.m.**

Respectfully submitted,  
Scott Rissi, Secretary

MINUTES  
Cascade Charter Township  
Downtown Development Authority Board of Directors  
Tuesday July 18, 2017  
5:30 P.M.  
Cascade Library – Wisner Center

**ARTICLE 1.** Chairman Huhn called the meeting to order at 5:30 P.M.  
Members Present: Huhn, Beahan, Kingsland, Puplava, Ridings, Siegle and Stephan  
Members Absent: Rowland and Smith  
Others Present: DDA Director Sandra Korhorn, and those listed on the sign in sheet.

**ARTICLE 2. Approve the current Agenda.**

**Motion was made by Member Puplava to approve the Agenda. Supported by Member Siegle. Motion carried 7 to 0.**

**ARTICLE 3. Approve the Minutes of the May 16, 2017 Meeting.**

**Motion was made by Member Beahan to approve the Minutes as presented. Supported by Member Ridings. Motion carried 7 to 0.**

**ARTICLE 4. Acknowledge visitors and those wishing to speak to non-agenda items.**

Mr. Mike Kasmauskis came forward on behalf of Centennial Business Park to let the members know that the banners approved by the Board have been placed at a cost of \$3,100. They look great and everyone is very pleased.

**ARTICLE 5. Discuss and Consider Branding/Marketing Proposals**

Director Korhorn stated that at the May meeting, she presented an RFP for a branding/marketing plan for the DDA district. The RFP's were mailed and two proposals had been received for the Board's review. One from New Moon Visions and one from Q+M. The goal of the plan is to highlight the features of our community with the result of attracting citizens, businesses and other entities to the different areas of our Township and to enhance Cascade's overall quality of life.

She asked a small group of staff and DDA board member to review the proposals and while one seemed to stand out ahead of the other, she wanted to present both proposals to the entire board for review and discussion.

Director Korhorn stated that it was her goal to have a decision by the Board today so the recommendation could be placed on the Township Board's July 26 agenda. However, if more time was needed, to maybe do interviews with both companies, then the timeline would be pushed back.

Discussion commenced. Members Ridings, Pupilava, and Stephan all gave their thoughts on both proposals. These three members were part of Director Korhorn's group which reviewed the proposals.

Comments from all members revolved significantly around cost, timeline and quality of work.

**Motion was made by Member Pupilava to approve the proposal submitted by Q+M and to send this recommendation to the Township Board. Supported by Member Ridings. Motion carried 7-0.**

#### **ARTICLE 6. Discuss Future Projects**

Director Korhorn stated that at the May meeting potential future projects were discussed. The project list from the joint meeting (between the DDA and the Township Board) in 2015 revealed that the gateway entry signs are high on the priority list, as was the purchase of riverfront property. Also discussed, were a couple of sidewalk/streetscape projects:

1. Centennial Park – Orchard Vista loop;
2. Patterson Avenue – 28<sup>th</sup> St. north to Patterson Ice Arena; and
3. Cascade Road – 28<sup>th</sup> Street to Cascade Villas (this project would be best completed with the Township Board to finish this walk from Cascade Villas to Burton Street).

Director Korhorn stated that the members decided at that meeting to obtain pricing for the Patterson and Orchard Vista loop and the Cascade Road sidewalk discussion was tabled for the time being.

Director Korhorn obtained pricing from the Township Engineer regarding the Centennial Park and Patterson Avenue sidewalks. The Orchard Vista loop came in at a cost of \$725,000 (this included street lights, trees, and sidewalks). The Patterson Avenue project came in at \$300,000.

Discussion commenced concerning cost and which project would have the most impact.

First, it was decided to wait on the gateway signs until branding for the DDA has been completed. Of the Orchard Vista loop and the Patterson Avenue project, it was decided that the Orchard Vista loop seemed the most logical. However, the members asked Director Korhorn to acquire additional pricing for completing the inside loop vs. the whole loop before they come to a decision.

**ARTICLE 7. Any other business.**

- a. Update on Planning Activities
- b. Tree Cutting in Village.

Director Korhorn stated that 5 trees were identified as bad and an estimate of \$1,800 was received. At this time, there is no timeline on when they will come down.

**ARTICLE 8. Adjournment.**

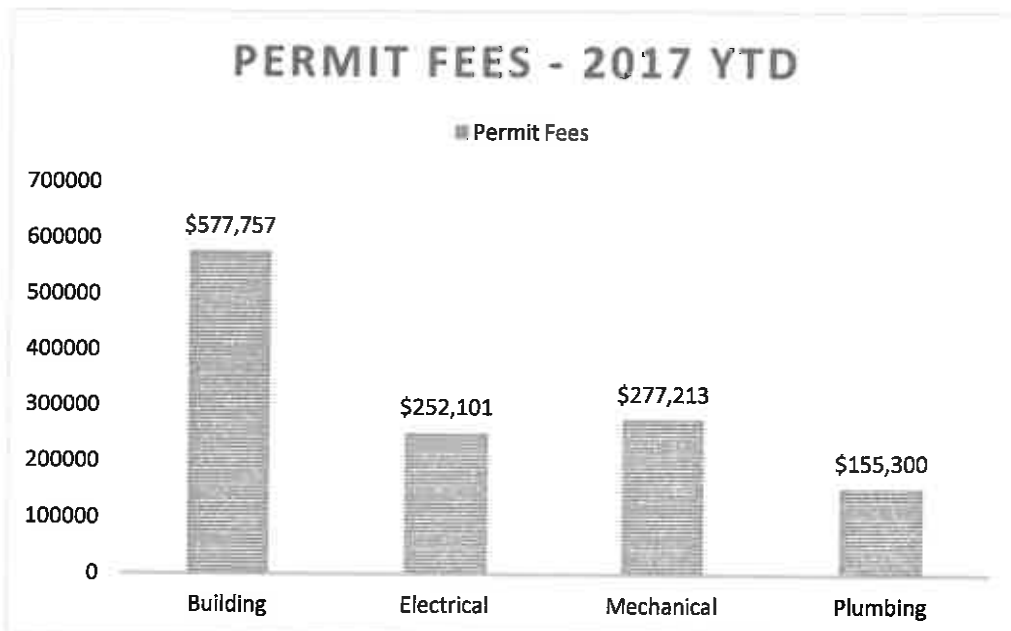
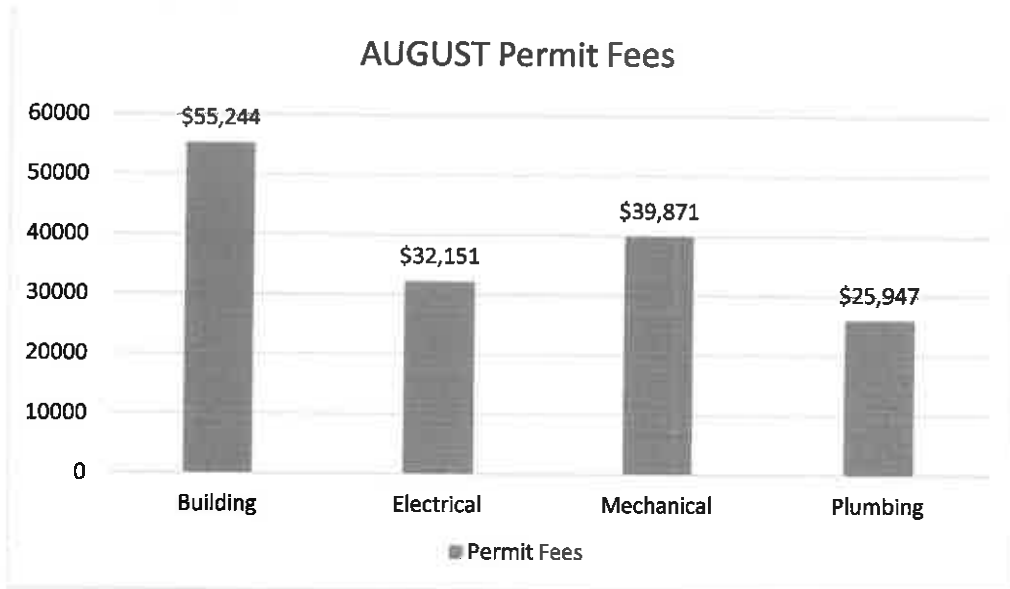
**Motion was made by Member Kingsland to adjourn. Supported by Member Ridings. Motion carried 7 to 0. The meeting was adjourned at 6:30 p.m.**

Respectfully submitted,  
Diana Kingsland, Secretary

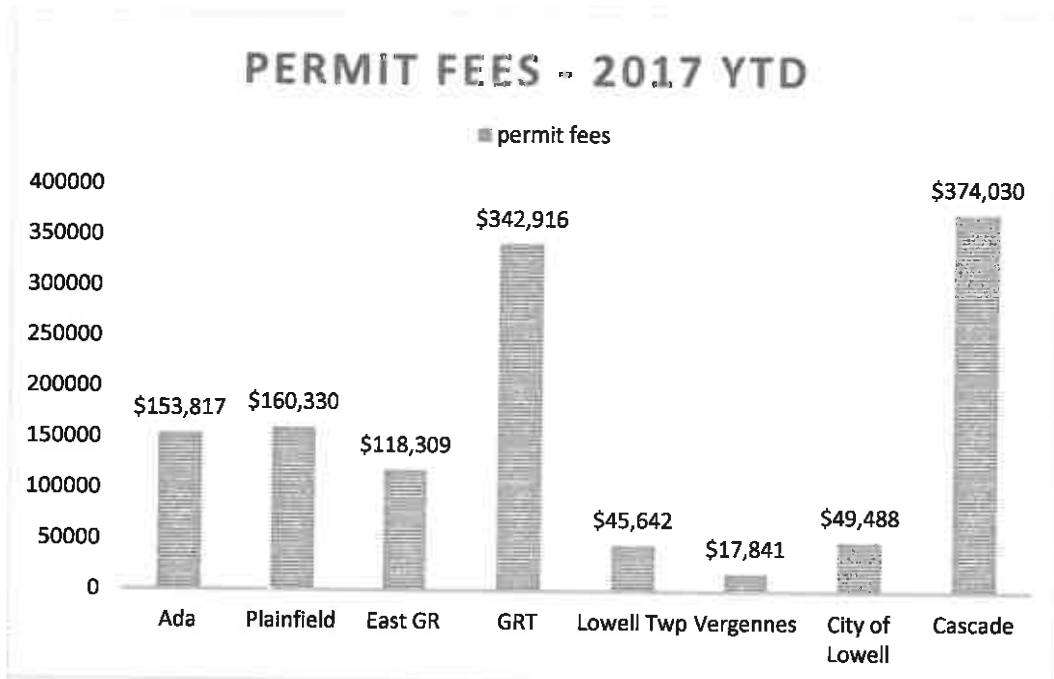
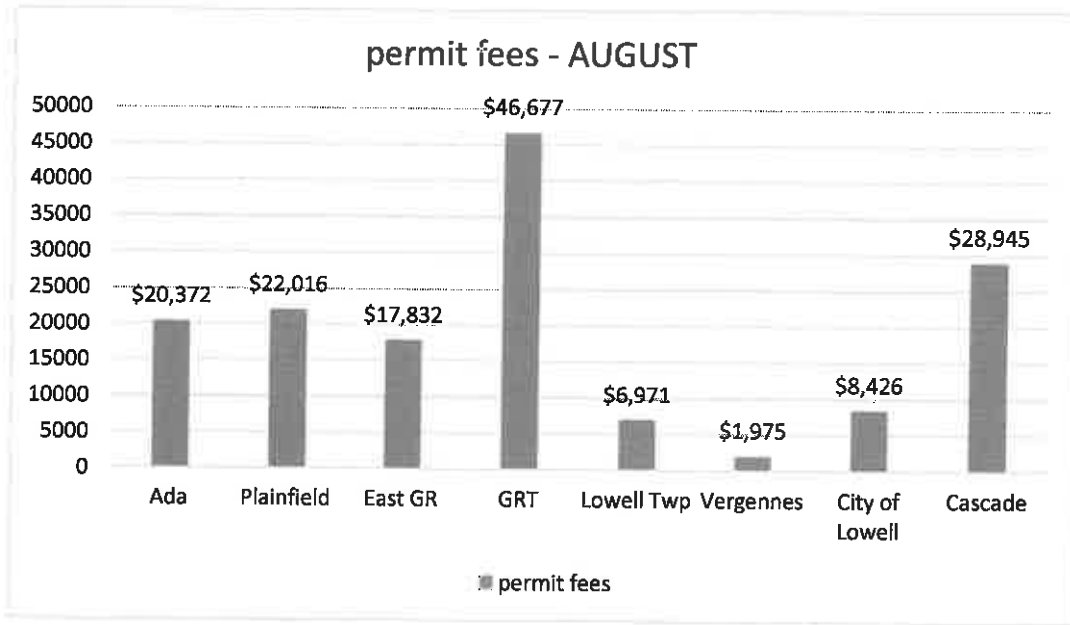
# Cascade Inspection Services

AUGUST 2017

## 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	1075	\$522,513.00	1183	\$219,950.00	1870	\$237,342.10	870	\$129,353.00	4998	\$1,109,158.10
AUGUST										
Cascade	40	\$11,769.00	36	\$6,359.00	62	\$6,870.75	28	\$3,946.00	166	\$28,944.75
Lowell Twp	15	\$4,227.00	3	\$479.00	9	\$1,330.00	6	\$935.00	33	\$6,971.00
Ada	30	\$8,270.00	26	\$4,089.00	43	\$4,440.00	24	\$3,573.00	123	\$20,372.00
Vergennes			3	\$671.00	10	\$1,050.00	1	\$254.00	14	\$1,975.00
GR Twp	25	\$21,886.00	28	\$4,885.00	51	\$12,125.00	33	\$7,781.00	137	\$46,677.00
EGR	28	\$5,591.00	29	\$4,893.00	41	\$4,536.50	23	\$2,811.00	121	\$17,831.50
Plainfield			53	\$8,413.00	77	\$8,403.75	34	\$5,199.00	164	\$22,015.75
City of Lowell	14	\$3,501.00	20	\$2,362.00	9	\$1,115.00	10	\$1,448.00	53	\$8,426.00
MONTH TOTAL	152	\$5,244.00	188	\$32,151.00	302	\$39,871.00	159	\$25,947.00	811	\$153,213.00

YTD 2017	1227	\$ 577,757.00	1381	\$252,101.00	2172	\$ 277,213.10	1029	\$ 155,300.00	5809	\$ 1,262,371.10
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

	JAN	FEB	MARCH	APR	MAY	JUNE	JULY	AUGUST	SEPT	OCT	NOV	DEC	TOTAL
<b>Township</b>							<b>2017</b>						
Ada Twp	\$16,209.75	\$7,702.00	\$19,772.25	\$14,173.00	\$26,198.00	\$30,165.75	\$19,224.00	\$20,372.00					153,816.75
Permit Fees													
Special Insp													
Ada Total	\$16,209.75	\$7,702.00	\$19,772.25	\$14,173.00	\$26,198.00	\$30,165.75	\$19,224.00	\$20,372.00					153,816.75
Plainfield	\$15,214.00	\$15,030.00	\$22,292.00	\$17,771.00	\$22,037.00	\$26,754.00	\$19,216.50	\$22,015.75					\$160,330.25
Permit Fees													
Special Insp													
Plainfield Total	\$15,214.00	\$15,030.00	\$22,292.00	\$17,771.00	\$22,037.00	\$26,754.00	\$19,216.50	\$22,015.75					160,330.25
East Gr	\$21,788.00	\$13,795.00	\$10,864.00	\$11,815.00	\$14,037.00	\$14,190.00	\$13,988.00	\$17,831.50					118,308.50
Permit Fees													
Special Insp													
East Gr Tot	\$21,788.00	\$13,795.00	\$10,864.00	\$11,815.00	\$14,037.00	\$14,190.00	\$13,988.00	\$17,831.50					118,308.50
GR Twp	\$19,762.25	\$20,206.00	\$18,335.50	\$105,893.50	\$38,102.10	\$63,517.50	\$30,421.75	\$46,677.00					342,915.60
Permit Fees													
Special Insp													
GR Twp tot	\$19,762.25	\$20,206.00	\$18,335.50	\$105,893.50	\$38,102.10	\$63,517.50	\$30,421.75	\$46,677.00					342,915.60
Lowell Twp	\$2,832.00	\$5,155.00	\$4,151.00	\$4,227.00	\$7,717.00	\$7,479.00	\$7,110.00	\$6,971.00					45,642.00
Permit Fees													
Special Insp													
Lowell Tot	\$2,832.00	\$5,155.00	\$4,151.00	\$4,227.00	\$7,717.00	\$7,479.00	\$7,110.00	\$6,971.00					45,642.00
Vergennes	\$3,641.00	\$881.00	\$1,666.00	\$3,174.00	\$1,803.00	\$2,169.00	\$2,532.00	\$1,975.00					17,841.00
Permit Fees													
Special Insp													
Verg Total	\$3,641.00	\$881.00	\$1,666.00	\$3,174.00	\$1,803.00	\$2,169.00	\$2,532.00	\$1,975.00					17,841.00
City of Low	\$3,314.00	\$7,600.00	\$6,095.00	\$4,738.50	\$5,577.00	\$5,848.00	\$7,889.00	\$9,426.00					\$49,487.50
Permit Fees													
Special Insp													
L. City Tot	\$3,314.00	\$7,600.00	\$6,095.00	\$4,738.50	\$5,577.00	\$5,848.00	\$7,889.00	\$9,426.00					\$49,487.50
Subtotal	\$82,761.00	\$70,369.00	\$83,175.75	\$161,792.00	\$115,471.10	\$150,123.25	\$100,381.25	\$124,268.25					888,341.60
Cascade	\$40,467.00	\$44,724.00	\$52,177.75	\$55,327.00	\$52,272.25	\$37,461.25	\$62,655.50	\$28,944.75					374,029.50
Total w/ Cas	\$123,228.00	\$115,093.00	\$135,353.50	\$217,119.00	\$167,743.35	\$187,584.50	\$163,036.75	\$153,213.00					1,262,371.10
		<b>2017 YTD</b>				<b>2016 YTD</b>							<b>DIFFERENCE</b>
							\$ 980,268.99						\$282,102.11

GRAND TOTAL PERMIT FEE CHART

**CASCADE CONSOLIDATED FEES**

**YEAR**

**2017**

MONTH	Building		Electrical	Mechanical	Plumbing	TOTAL
	Comm.	Residential				
JANUARY	\$20,215.00	\$7,445.00	\$5,437.00	\$5,210.00	\$2,160.00	\$40,467.00
FEBRUARY	\$27,256.00	\$5,206.00	\$4,738.00	\$4,965.00	\$2,559.00	\$44,724.00
MARCH	\$24,077.00	\$7,913.00	\$6,126.00	\$8,929.75	\$5,132.00	\$52,177.75
APRIL	\$23,693.00	\$12,560.00	\$6,416.00	\$8,040.00	\$4,618.00	\$55,327.00
MAY	\$21,860.00	\$5,709.00	\$11,151.00	\$9,673.25	\$3,879.00	\$52,272.25
JUNE	\$7,686.00	\$9,586.00	\$6,329.00	\$7,846.25	\$6,014.00	\$37,461.25
JULY	\$37,665.00	\$9,714.00	\$4,145.00	\$6,907.50	\$4,204.00	\$62,655.50
AUGUST	\$3,351.00	\$8,418.00	\$6,359.00	\$6,870.75	\$3,946.00	\$28,944.75
SEPTEMBER						
OCTOBER						
NOVEMBER						
DECEMBER						
<b>YEAR END TOTAL</b>	<b>\$185,823.00</b>	<b>\$66,551.00</b>	<b>\$50,701.00</b>	<b>\$58,442.50</b>	<b>\$32,512.00</b>	<b>\$374,029.50</b>
PERMIT # FOR MONTH	12	28	36	62	28	166
PREV PERMIT TOTAL	75	237	279	439	193	1223
PERMIT TOTAL FOR YR	87	265	315	501	221	1389
YEAR TO DATE	2017	\$374,029.50				
YEAR TO DATE	2016	\$313,317.74				
OVER	\$60,711.76					

# CASCADE SINGLE FAMILY HOMES

	AUGUST	YTD 2017	2016	2015	2014	2013
Number of Permits						
New Residential Homes	7	38	56	62	154	74
VALUE - RESIDENTIAL	\$ 2,524,171.00	\$ 22,743,040.00	\$ 24,019,640.00	\$ 26,706,215.00	\$ 39,466,458.00	\$ 30,714,184.00

# Cascade Twp -Permit Report by Category/ Fee

8/1/2017 12:00:0 to 8/31/2017 12:00:

Permit	Applicant	Address	Issue Date	Project Value	Permit Fee	Work Description
Res. Single Family						
PB17001014	HUFFMAN HOMES LL	1748 WATERMARK DR SE	08/04/2017	562,500	953.00	RESIDENCE W/DECK
PB17000659	BUDDY MARK	2403 HIGHRIDGE HILLS LN SE	08/17/2017	420,000	635.00	RESIDENCE W/DECK
PB17001244	MAKUSKI BUILDERS I	8650 36TH ST SE	08/22/2017	510,000	905.00	RESIDENCE W/FINISHED BASEMENT
PB17000988	EISEN THOMAS	7233 60TH ST SE	08/23/2017	295,150	787.00	RESIDENCE W/DECK
PB17001271	SHURLOW CUSTOM H	4827 N QUAIL CREST DR SE	08/31/2017	235,000	575.00	DUPLEX CONDO W/DECK
PB17001270	SHURLOW CUSTOM H	4825 N QUAIL CREST DR SE	08/31/2017	215,000	605.00	DUPLEX CONDO W/FINISHED BASEMENT
PB17001234	AHMETOVIC NEDIM	3555 GOODWOOD DR SE	08/31/2017	286,521	769.00	RESIDENCE W/COVERED DECK
				2,524,171	5,229.00	

7	Permits	Value Total	Fee Total
		2,524,171	5,229.00

**TREASURER'S DEPARTMENT**

CASCADE CHARTER TOWNSHIP

TAX ACCOUNTS

JUNE 2017

**BANK BALANCES**

BANK	AMOUNT
<b><u>CHEMICAL BANK</u></b>	
TAX CHECKING	\$1,165.23
<b><u>CHEMICAL BANK</u></b>	
DELINQUENT TAX	\$3,838.76
<b><u>CHEMICAL BANK</u></b>	
TAX WIRE ACCT	\$11.46
<b>GRAND TOTAL</b>	<b><u><u>\$5,015.45</u></u></b>

Oxanne

8/30/2017

Submitted by  
OXANA SOURINE  
DEPUTY TREASURER

Date

**TOWNSHIP BALANCES**

REGISTER	AMOUNT
<b><u>CHEMICAL BANK</u></b>	
TAX CHECKING	\$1,165.23
<b><u>CHEMICAL BANK</u></b>	
DELINQUENT TAX	\$3,838.76
<b><u>CHEMICAL BANK</u></b>	
TAX WIRE ACCT	\$11.46
<b>GRAND TOTAL</b>	<b><u><u>\$5,015.45</u></u></b>

Kenneth B. Peirce 8/31/17

Reviewed by  
KENNETH B. PEIRCE  
TREASURER

Date

CASCADE CHARTER TOWNSHIP  
TREASURER'S OFFICE REPORT  
June 2017

FUND	INSTITUTION	DEMAND DEPOSIT		CDs			SECURITIES			TOTALS		
		\$	%	\$	%	DATE	\$	%	DATE	\$	%	
101 GENERAL FUND	CHEMICAL	1,040,491.17	0.05									
	KENT CTY POOL	3,989,194.39	0.94									
	INDEPENDENT			312,032.12	1.20	9/27/2019						
	MERCANTILE			510,599.72	0.90	7/20/2018						
	FLAGSTAR			261,087.90	1.00	5/22/2018						
	HUNTINGTON			514,670.13	0.91	9/13/2017						
	CHEMICAL BANK				1.00	6/16/2017						
	HORIZON BANK			500,000.00	1.25	3/9/2019						
	GRAND RIVER			500,000.00	1.55	6/19/2019						
	CONSUMERS CU			255,959.76	0.80	7/8/2019						
	MACATAWA			256,761.60	1.20	11/21/2018						
	FLAGSTAR			505,780.89	1.00	9/12/2018						
	PRIVATE BANK			500,000.00	1.50	3/15/2020						
	COMERICA SECUR./JPM						500,000.00	1.10	8/16/2018			
	COMERICA SECUR./WF						500,000.00	1.00	9/25/2017			
<b>TOTAL GENERAL FUND</b>		<b>5,029,685.56</b>	<b>0.76</b>	<b>4,116,892.12</b>	<b>1.15</b>				<b>1,000,000.00</b>	<b>1.05</b>	<b>10,146,577.68</b>	<b>0.94</b>
151 CEMETERY	LMCU	101,732.53	0.50	-							101,732.53	0.50
206 FIRE FUND	CHEMICAL	137,092.67	0.05									
	LMCU	1,215,169.48	0.50									
	LMCU			536,265.51	1.40	10/25/2017						
	COM CHOICE CU			252,902.29	1.40	2/16/2019						
	FNBA			531,427.61	1.50	7/24/2018						
	HUNTINGTON			259,925.13	0.55	11/17/2017						
	ADVENTURE CU			255,693.63	1.50	3/23/2020						
COMERICA SECUR./FHLMC						500,000.00	1.50	3/13/2019				
<b>TOTAL FIRE FUND</b>		<b>1,352,262.15</b>	<b>0.45</b>	<b>1,836,214.17</b>	<b>1.32</b>				<b>500,000.00</b>		<b>3,688,476.32</b>	<b>0.82</b>
207 POLICE FUND	FLAGSTAR	435,762.07	0.60									
	NORTHPOINTE BANK			257,566.39	1.30	10/8/2018						
	PRIVATE BANK			750,000.00	1.15	9/25/2017						
	FIRST COMMUNITY BANK			250,000.00	1.00	3/13/2020						
<b>TOTAL POLICE FUND</b>		<b>435,762.07</b>	<b>0.60</b>	<b>1,257,566.39</b>	<b>1.15</b>				-		<b>1,693,328.46</b>	<b>1.01</b>
208 HAZMAT FUND	LMCU	35,416.82	0.35								35,416.82	0.35
209 OPEN SPACE	CHEMICAL	205,807.45	0.05									
	LMCU (HOMEYER)	355,516.88	0.50									
	CWCU			200,000.00	0.90	10/15/2018						
<b>TOTAL OPEN SPACE</b>		<b>561,324.33</b>	<b>0.34</b>	<b>200,000.00</b>	<b>0.90</b>						<b>761,324.33</b>	<b>0.48</b>
211 DAM REPAIR	LMCU	274,173.92	0.50									
	LMCU			322,164.57	1.40	9/10/2018						
<b>TOTAL DAM REPAIR</b>		<b>274,173.92</b>	<b>0.50</b>	<b>322,164.57</b>	<b>1.40</b>				-	-	<b>596,338.49</b>	<b>0.99</b>
216 PATHWAY FUND	MACATAWA	462,489.43	0.25									
	PRIVATE BANK			500,000.00	0.80	10/17/2017						
	ADVENTURE CU			524,327.53	1.10	10/8/2018						
<b>TOTAL PATHWAY FUND</b>		<b>462,489.43</b>	<b>0.25</b>	<b>1,024,327.53</b>	<b>0.95</b>				-		<b>1,486,816.96</b>	<b>0.73</b>
246 PUBLIC UTILITY	CHEMICAL BANK	219,678.71	0.05									
	IRF	415,120.51	0.50									
	CHEMICAL BANK			500,000.00	0.95	6/29/2018						
<b>TOTAL PUBLIC UTILITY</b>		<b>634,799.22</b>	<b>0.34</b>	<b>500,000.00</b>	<b>0.95</b>				-	-	<b>1,134,799.22</b>	<b>0.61</b>
248 DDA FUND	LMCU	365,494.19	0.50									
	CHEMICAL BANK	106,077.20	0.10									
	ADVENTURE CU			204,555.90	1.50	2/24/2020						
<b>TOTAL DDA FUND</b>		<b>471,571.39</b>	<b>0.41</b>	<b>204,555.90</b>	<b>1.50</b>				-	-	<b>676,127.29</b>	<b>0.74</b>
249 BLDG. INSPECTION	CHEMICAL BANK	321,848.39	0.05									
	CHEMICAL BANK R.	49,104.00										
	CONSUMERS CU			305,310.87	1.00	3/10/2020						
	CHEMICAL BANK			500,000.00	1.55	10/28/2019						
	FNB OF AMERICA			300,000.00	1.10	10/19/2017						
	FNB OF AMERICA			100,879.52	1.40	12/18/2017						
	FNB OF AMERICA			208,934.50	1.60	9/18/2019						
	FNB OF MI			511,395.83	1.15	10/11/2018						
	FIRST COMMUNITY B.			250,000.00	1.00	5/27/2018						
	INDEPENDENT BANK			310,211.97	1.40	6/16/2019						
	CHEMICAL BANK											
<b>TOTAL BLDG. INSPECT.</b>		<b>370,952.39</b>	<b>0.04</b>	<b>2,486,732.69</b>	<b>1.14</b>						<b>2,857,685.08</b>	<b>1.00</b>
270 LIBRARY FUND	UNITED BANK	446,932.21	0.40									
	LMCU			860,306.43	1.40	9/21/2018						
	WMCB			254,471.21	0.85	6/1/2018						
	NORTHPOINTE BANK			533,905.65	1.30	4/7/2018						
<b>TOTAL LIBRARY FUND</b>		<b>446,932.21</b>	<b>0.40</b>	<b>1,648,683.29</b>	<b>1.28</b>				-		<b>2,095,615.50</b>	<b>1.09</b>
701 T & A	CHEMICAL BANK	109,197.52	0.05								109,197.52	0.05
701 JAMES TIMMONS	CHEMICAL BANK			12,400.00	2.00	3/21/2022					12,400.00	2.00
701 JACK SMITH INV.	CHEMICAL BANK	22,826.92	0.05								22,826.92	0.05
701 HENRY KRAMER	CHEMICAL BANK	15,182.72	0.05								15,182.72	0.05
<b>TOTAL</b>		<b>10,324,309.18</b>	<b>0.56</b>	<b>13,609,536.66</b>	<b>1.17</b>				<b>1,500,000.00</b>	<b>1.05</b>	<b>25,433,845.84</b>	<b>0.90</b>

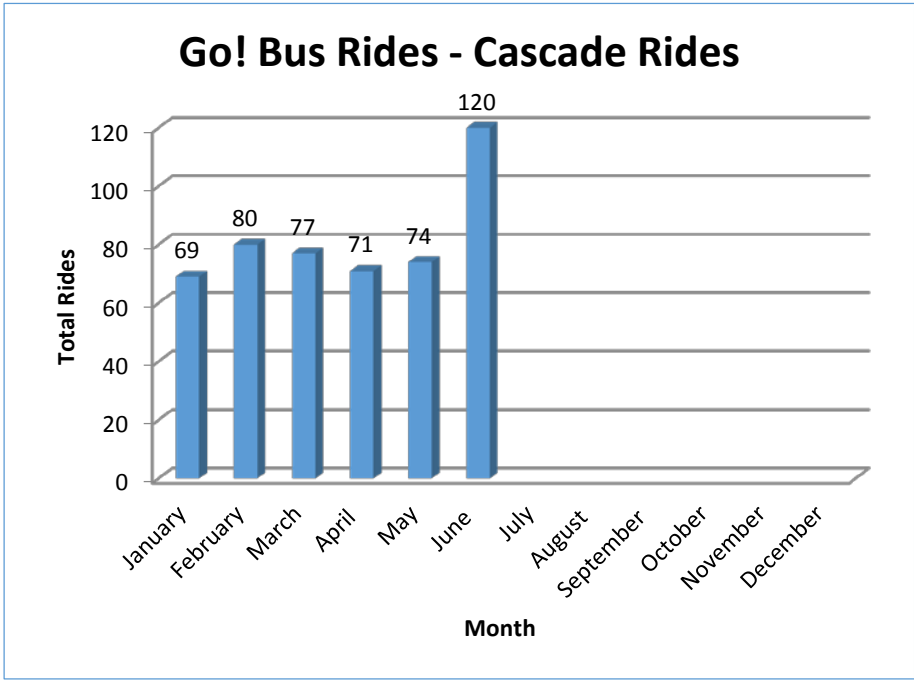
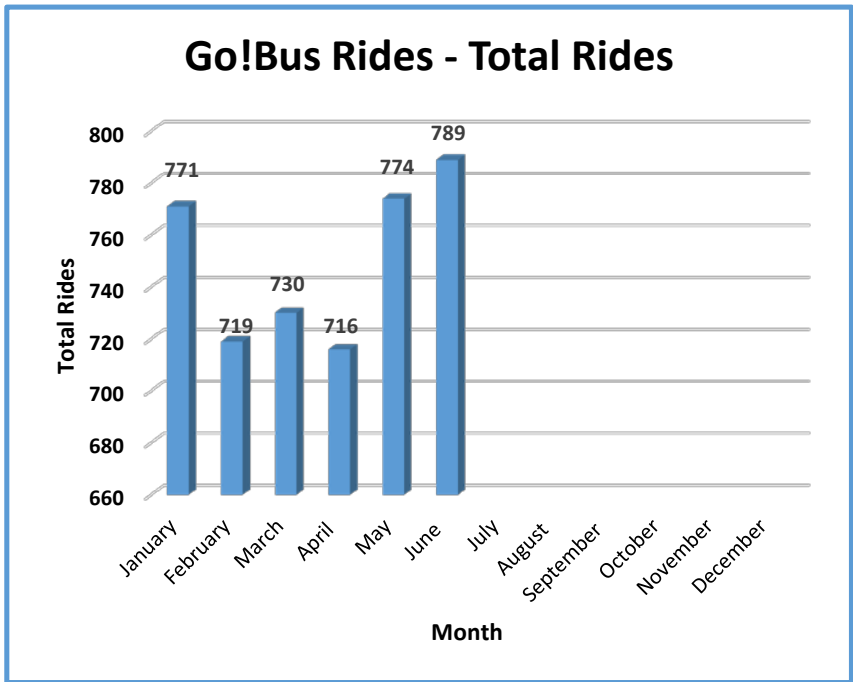
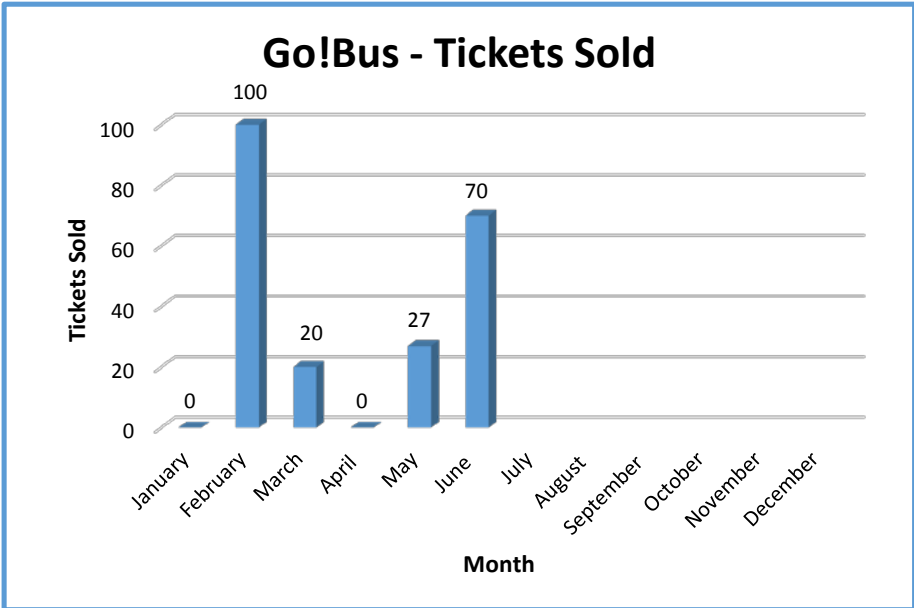
Oxana Sourine 8/30/17  
Submitted by Oxana Sourine Deputy Treasurer Date

Ken Peirce 8/31/17  
Reviewed by Ken Peirce Treasurer Date

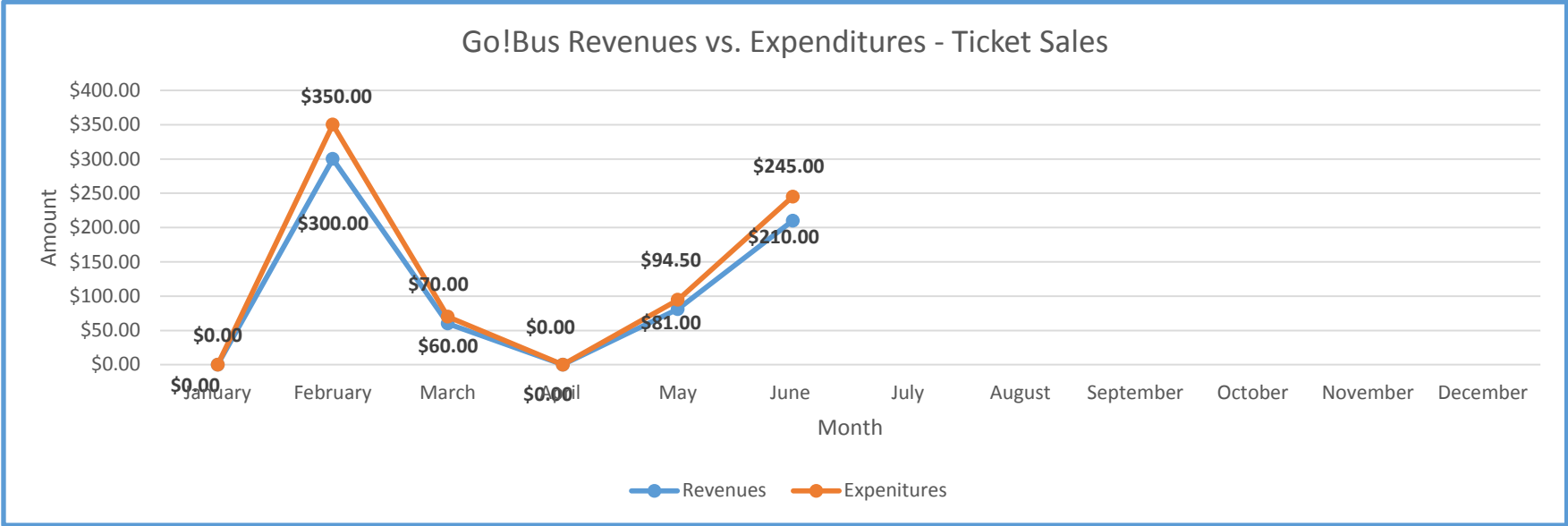
# Go!Bus - FY2017 2nd Quarter Ridership Data

Through FY 2017 2nd Quarter, there have been 4,499 Go!Bus trips that have either originated in Cascade Township or had a destination in Cascade Township. We have also been able to single out rides that were given to Cascade residents, which we weren't previously able to do. Through FY 2017 2nd Quarter there have been 491 rides given to Cascade residents through the Go!Bus system, rides that otherwise would have been given through the significantly more expensive Hope Network service.

We are able to track the sale of Go!Bus tickets to Cascade Township residents. Because we offer a discount over the regular price (\$3.00 instead of \$3.50) we believe a majority of Cascade Township Go!Bus riders will purchase their tickets through our office. Through FY17 2nd Quarter, we have sold 217 Go!Bus tickets. We are unable to determine whether or not those tickets have been used, only that they have been sold

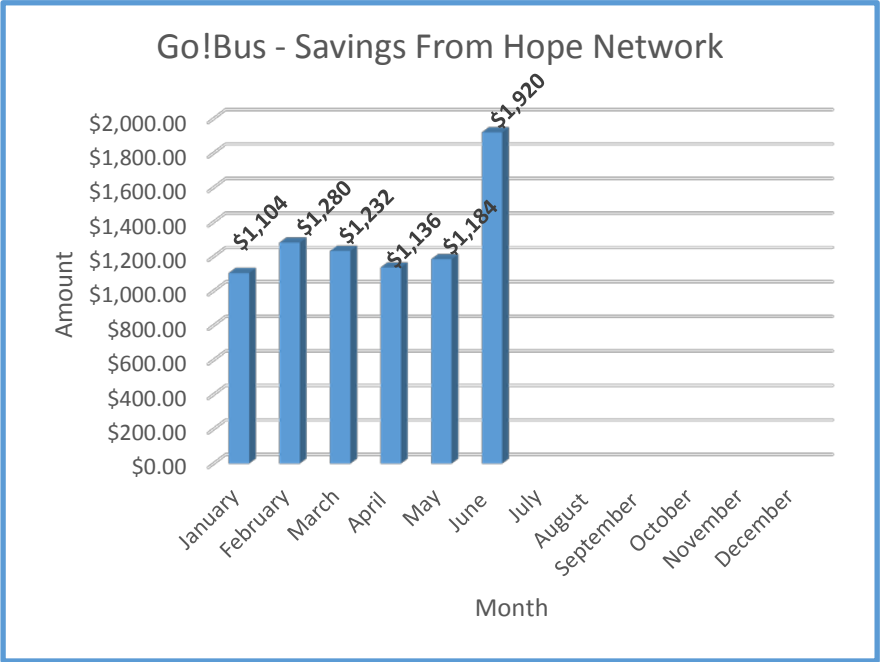


# Go!Bus - FY2017 2nd Quarter Financial Data

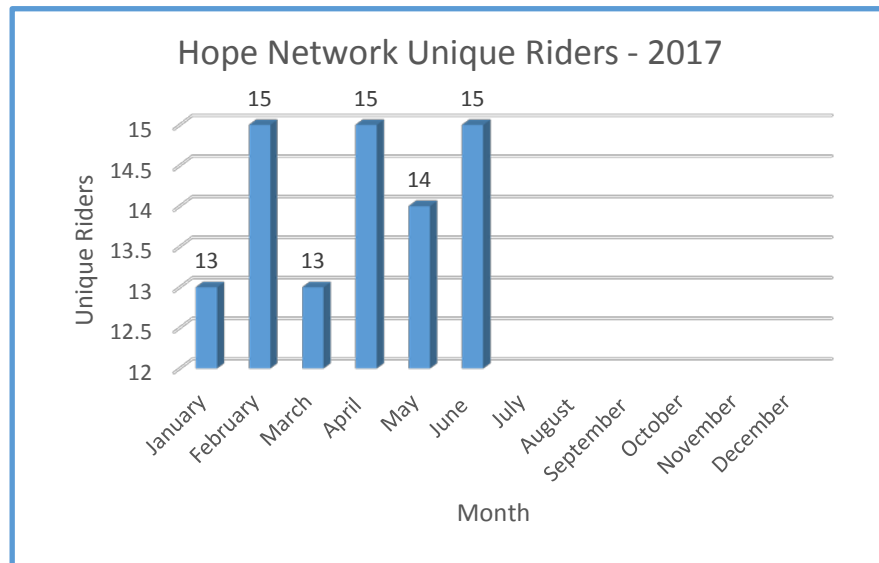
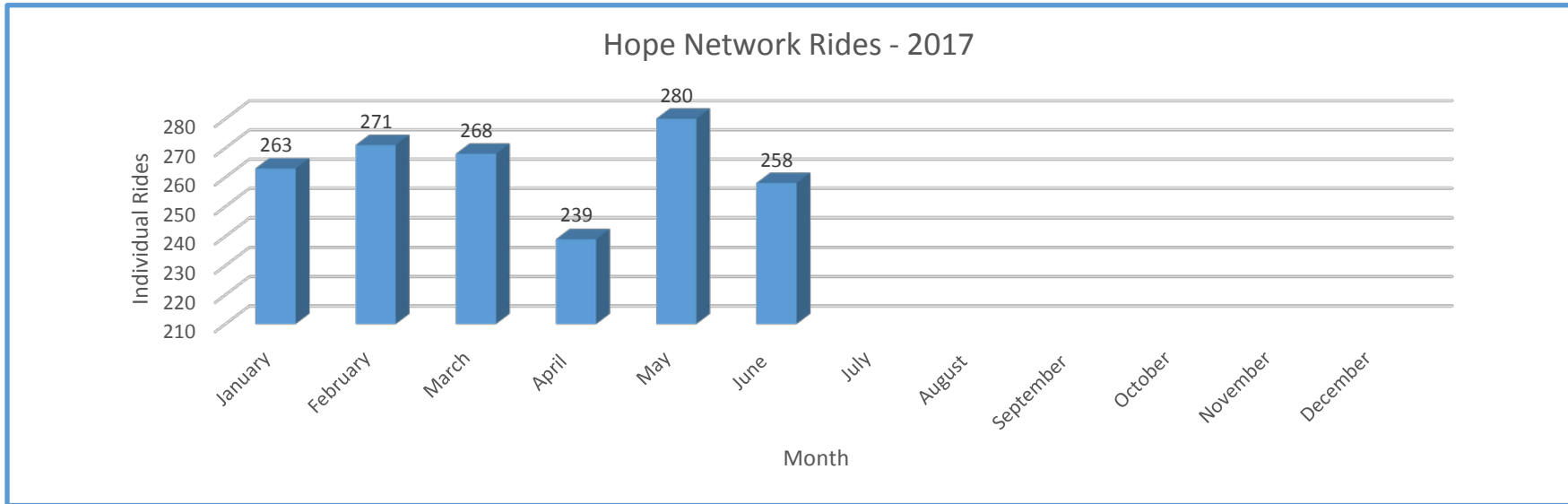


The Go!Bus is the division of The Rapid service that provides specialized transportation services to individuals that live within 3/4 miles of a Rapid bus line. Typically this service would be offered without Township contribution, however, the Township has chosen to cover \$0.50 of each ride (Cascade residents only) to keep the cost to Cascade residents equal to those that ride the Hope Network (\$3.00 per ride).

Through FY 17 2nd Quarter, the Township has net expenditures of \$108.50 when accounting for the \$0.50 per ride subsidy. Had the Cascade resident riders currently utilizing the Go!Bus used the Hope Network instead, the Township would have incurred \$7,856 in expenditures to cover the additional \$16.00 per ride subsidy. The Go! Bus service represents a \$7,856 savings over potential Hope Network costs on Go!Bus rides to Cascade Township residents through 2ndQuarter.



# Hope Network - FY2017 2nd Quarter Ridership Data



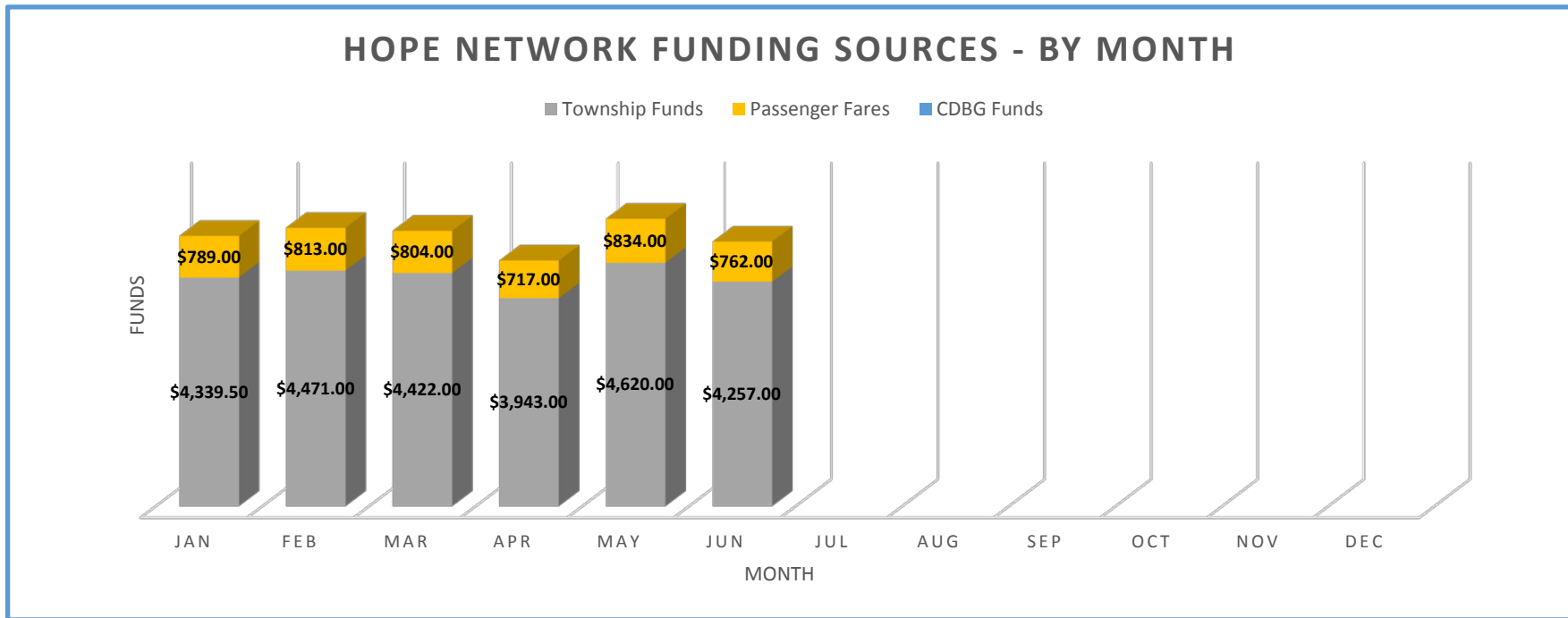
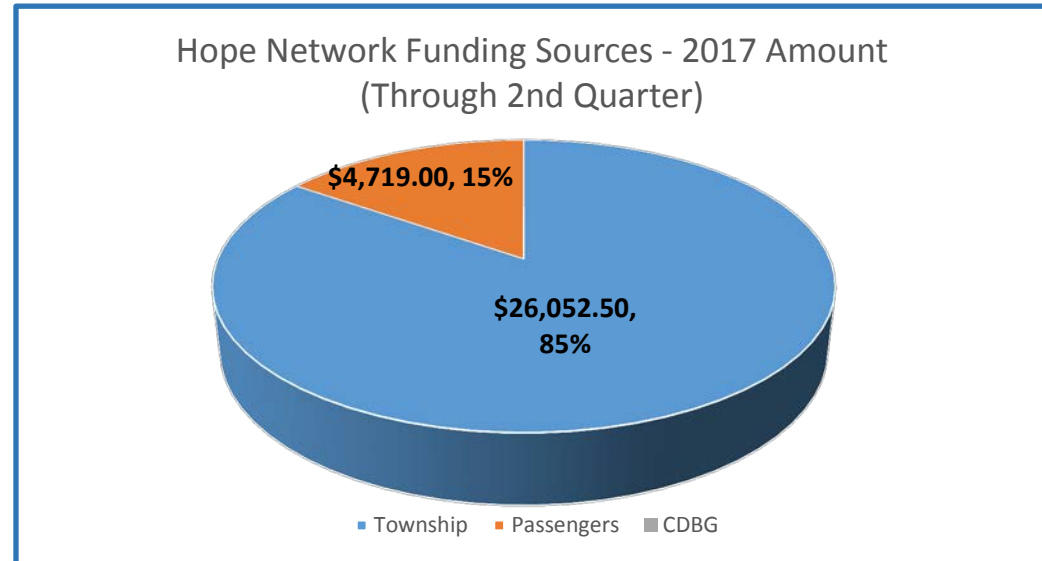
Through FY2017 2nd Quarter, there have been 1579 rides to Township residents provided by the Hope Network. After implementing the GO!Bus service in Feb. of 2016 the Township initially saw a decrease in the amount of Hope Network users, which has now leveled out as the transition is complete. The township does offer Hope Network service to Go!Bus riders if their destination is outside the Go!Bus service area.

Each month the Township is given a report that details the residents that utilize the system, as well as the rides that are taken. The Hope Network typically sees 11 unique riders that have utilized the system consistently over the past several years. Each month the system sees an addition 2-4 users that temporarily need the service.

# Hope Network - FY2017 2nd Quarter Financial Data

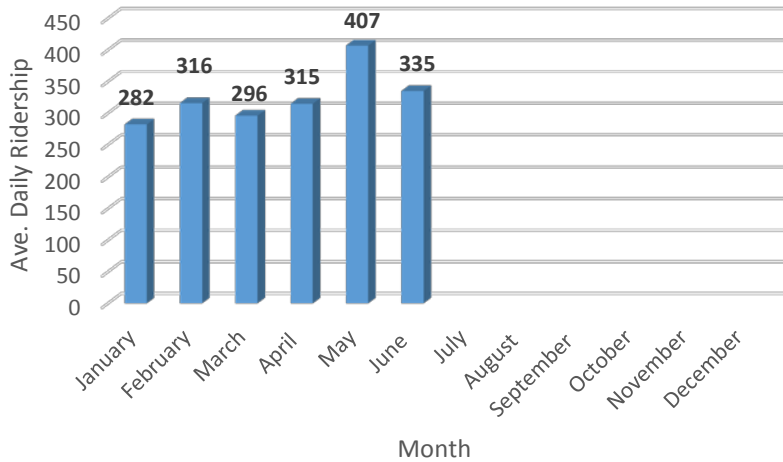
The Hope Network Transportation Services provides specialized transportation for Cascade residents who live outside of The Rapid 3/4 mile service area. Through an agreement with the Hope Network, rides are provided at a cost of \$19.50 per ride, each way. The Township covers \$16.50 and the passenger is responsible for \$3.00.

Through 2nd Quarter of FY 2017, the Township has spent \$26,052.50 with Hope Network, while passengers have contributed \$4,719 and CDBG provided \$0. CDBG funding is available typically in July and August. Overall, the Township has provided 85% of the funding for this service through the 2nd quarter.



# Rapid 28th Street - FY2017 2nd Quarter Ridership Data

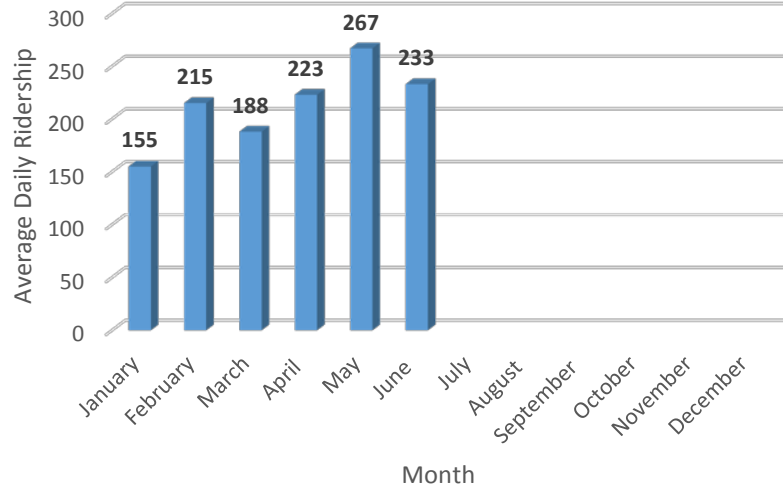
## Rapid - 28th Street Weekday Ridership



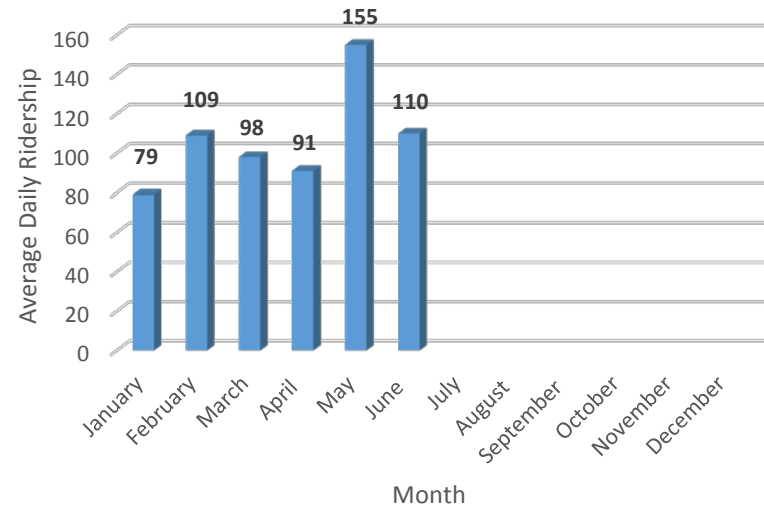
Beginning in December 2016, the Rapid began collecting realtime boarding data and no longer relies on sampling estimates. Alightings are still estimated, with one alighting estimated per boarding. The riders summary is charted on this sheet, while actual rider data is included in the back of this report. Ridership logs are available upon request.

Through 2nd Quarter 2017, average weekday ridership peaked in May with an average of 407 riders (one-way trips) per day. Saturday and Sunday ridership also peaked in May with 267 and 155 respective riders per day. An unseasonably mild February may help explain the uptick in riders for that month. It is expected that summer ridership will remain at the levels seen in May and June, with lower levels seen in the winter months.

## Rapid - 28th Street Saturday Ridership



## Rapid - 28th Street Sunday Ridership



# Rapid 28th Street - FY2017 2nd Quarter Financial Data

Cascade Township funds the 28th Street Linehaul service on a "per service hour" formula, which is \$68.05 per service hour for the current contract. Based on the hours of service, the Township pays the following "per day" costs:

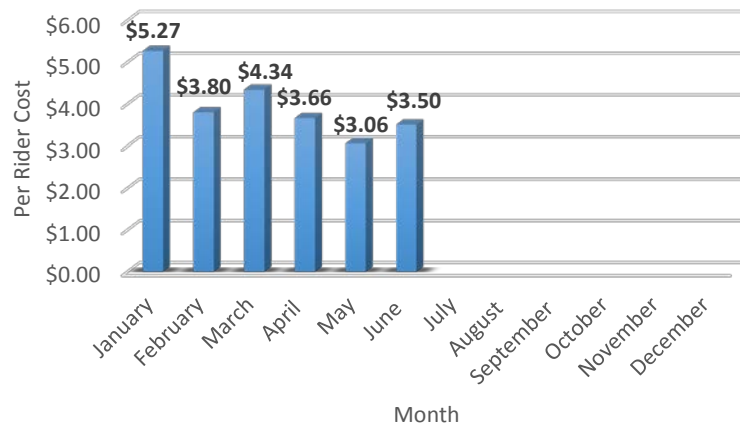
**Weekday - \$1,224.90    Saturday - \$816.60    Sunday - \$408.30**

Because the costs per day are fixed, the subsidy that is spent per rider is variable based on the volume of riders, the more riders that utilize the service the lower the subsidy per rider paid by the Township. Through the 2nd Quarter 2017 the subsidy per rider was lowest in May when the highest ridership was realized. With ridership expected to increase as the weather gets warmer it is expected that the subsidy per rider will decrease. In 2016 the per rider subsidy reached a weekday low of \$3.41 in September.

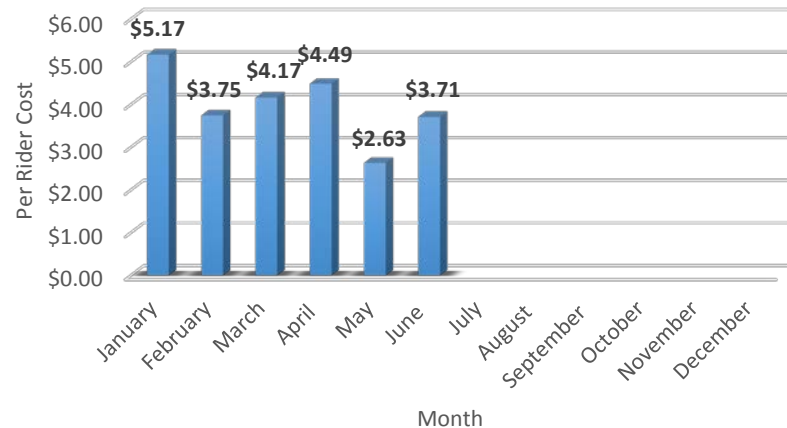
### Rapid - 28th Street Weekday Per Rider Cost



### Rapid - 28th Street Saturday Per Rider Cost

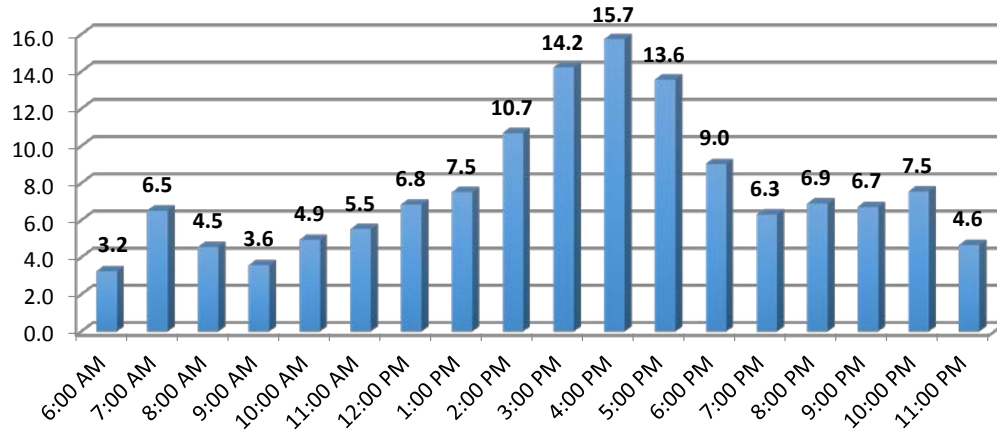


### Rapid - 28th Street Sunday Per Rider Costs



# Rapid 28th Street - FY 2017 2nd Quarter Hourly Boarding Data

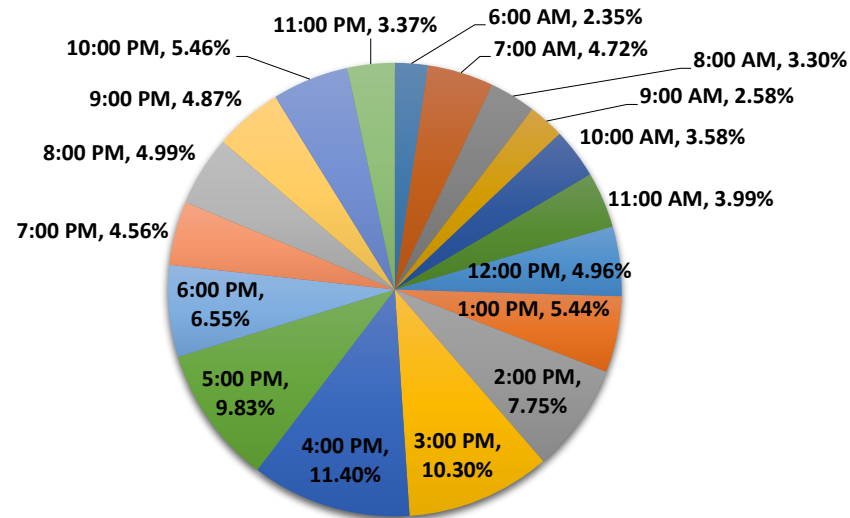
## Average Boardings By Hour (All Days)



The Rapid busses are outfitted with data collection devices that count every boarding in the system. The top chart represents the amount of boardings, per hour of service, for all of the Cascade Township stops. The data collection system does not collect alighting information. It should be noted that the data is for all days (week day and weekend days) so the periods that aren't offered for weekend service will be naturally lower.

The bottom chart represents the same data set as the top chart, but expressed as a percentage of total boardings rather than a number. The smallest percentage of boardings happens in the 6 am hour (2.35%) and the largest occurs in the 4 pm hour (11.4%)

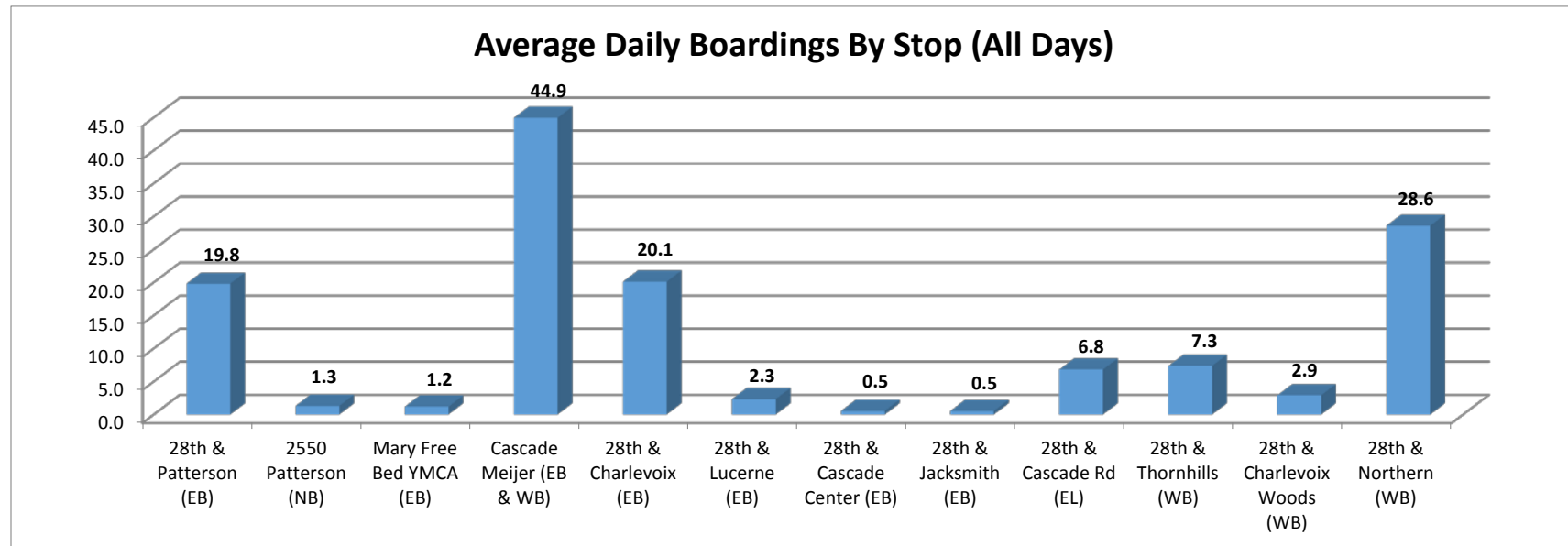
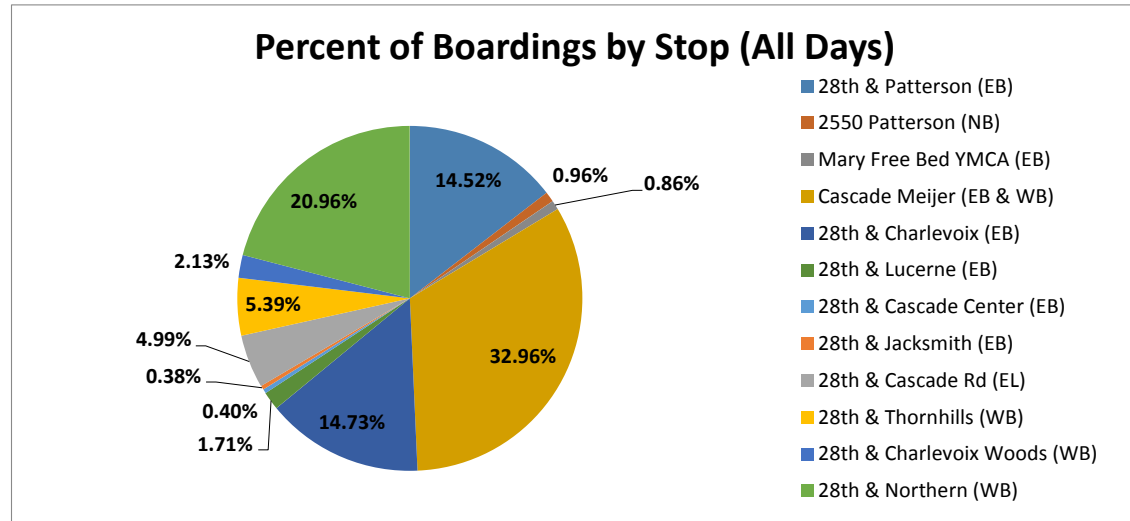
## Percent of Total Boardings (All Days)



# Rapid 28th Street - FY 2017 2nd Quarter Stop Boarding Data

The Rapid bus data collection system also collects stop location data for boardings. The top chart shows the percentage of boardings for each stop through 2nd quarter 2017. By far the largest amount of stops occur at the Meijer stop, though it should be noted that this stop is utilized both EB and WB on the route. Several stops constitute less than 1% of the total stops, including Patterson Ice Arena, Mary Free Bed YMCA, the Cascade Center and Cascade Library.

The bottom chart represents the same data set as the top chart, but expressed as the average boardings per day for each stop. The Meijer stop has the highest number (44.9) while 6 stops average less than 3 boardings per day. It should be noted the data represents all weekdays and weekend days.



**Trips Per Day**

Date	Boardings	Estimated Alightings	Estimated Total Trips
1/2/2017	88	88	176
1/3/2017	157	157	314
1/4/2017	135	135	270
1/5/2017	145	145	290
1/6/2017	102	102	204
1/7/2017	66	66	132
1/8/2017	39	39	78
1/9/2017	129	129	258
1/10/2017	107	107	214
1/11/2017	177	177	354
1/12/2017	119	119	238
1/13/2017	133	133	266
1/14/2017	72	72	144
1/15/2017	34	34	68
1/16/2017	119	119	238
1/17/2017	191	191	382
1/18/2017	169	169	338
1/19/2017	186	186	372
1/20/2017	121	121	242
1/21/2017	95	95	190
1/22/2017	46	46	92
1/23/2017	140	140	280
1/24/2017	165	163	326
1/25/2017	157	157	314
1/26/2017	152	152	304
1/27/2017	125	125	250
1/28/2017	77	77	154
1/29/2017	38	38	76
1/30/2017	152	152	304
1/31/2017	131	131	262
<b>Total</b>	<b>3,565</b>	<b>3,565</b>	<b>7,130</b>

**Boardings by Time of Day**

Time	Number of Boardings	Average Boardings/Day	Percent of Total
6:00 AM	125	4.2	3.5
7:00 AM	203	6.8	5.7
8:00 AM	159	5.3	4.5
9:00 AM	111	3.7	3.1
10:00 AM	166	5.5	4.7
11:00 AM	154	5.1	4.3
12:00 PM	154	5.1	4.3
1:00 PM	181	6.0	5.1
2:00 PM	253	8.4	7.1
3:00 PM	384	12.8	10.8
4:00 PM	400	13.3	11.2
5:00 PM	320	10.7	9.0
6:00 PM	184	6.1	5.2
7:00 PM	118	3.9	3.3
8:00 PM	169	5.6	4.7
9:00 PM	168	5.6	4.7
10:00 PM	222	7.4	6.2
11:00 PM	94	3.1	2.6
<b>Total</b>	<b>3565</b>	<b>119</b>	<b>100</b>

**Daily Average**

Average Trips per weekday	282
Average Trips per Saturday	155
Average Trips per Sunday	79

**Trips Per Stop**

Stop	Total Boardings	Boardings/Day	Estimated Alightings/Day	Total Activity/Day	% of Total Activity
28th and Patterson	375	19.7	19.7	39.5	11.5
28th and Northern	698	36.7	36.7	73.5	21.4
2550 Patterson	35	1.8	1.8	3.7	1.1
Mary Free Bed YMC	17	0.9	0.9	1.8	0.5
Cascade Meijer	1128	59.4	59.4	118.7	34.5
28th and Charlevoix	587	30.9	30.9	61.8	18.0
28th and Charlevoix	115	6.1	6.1	12.1	3.5
28th and Lucerne	7	0.4	0.4	0.7	0.2
28th and Cascade Ct	5	0.3	0.3	0.5	0.2
28th and Thornhills	153	8.1	8.1	16.1	4.7
28th and Jacksmith	9	0.5	0.5	0.9	0.3
28th and Cascade Rt	138	7.3	7.3	14.5	4.2
<b>Total</b>		<b>172</b>	<b>172</b>	<b>344</b>	

**Trips Per Day**

Date	Boardings	Estimated Alightings	Estimated Total Trips
2/1/2017	170	170	340
2/2/2017	122	122	244
2/3/2017	141	141	282
2/4/2017	96	96	192
2/5/2017	53	53	106
2/6/2017	144	144	288
2/7/2017	141	141	282
2/8/2017	259	259	518
2/9/2017	134	134	268
2/10/2017	156	156	312
2/11/2017	96	96	192
2/12/2017	57	57	114
2/13/2017	150	150	300
2/14/2017	163	163	326
2/15/2017	150	150	300
2/16/2017	177	177	354
2/17/2017	166	166	332
2/18/2017	134	134	268
2/19/2017	64	64	128
2/20/2017	164	164	328
2/21/2017	153	153	306
2/22/2017	204	204	408
2/23/2017	161	161	322
2/24/2017	115	115	230
2/25/2017	104	104	208
2/26/2017	44	44	88
2/27/2017	148	148	296
2/28/2017	143	143	286
<b>Total</b>	<b>3,809</b>	<b>3,809</b>	<b>7,618</b>

**Boardings by Time of Day**

Time	Number of Boardings	Average Boardings/Day	Percent of Total
6:00 AM	124	4.4	3.3
7:00 AM	192	6.4	5.0
8:00 AM	121	4.0	3.2
9:00 AM	79	2.6	2.1
10:00 AM	134	4.5	3.5
11:00 AM	186	6.2	4.9
12:00 PM	168	5.6	4.4
1:00 PM	255	8.5	6.7
2:00 PM	384	12.8	10.1
3:00 PM	402	13.4	10.6
4:00 PM	404	13.5	10.6
5:00 PM	332	11.1	8.7
6:00 PM	205	6.8	5.4
7:00 PM	168	5.6	4.4
8:00 PM	164	5.5	4.3
9:00 PM	188	6.3	4.9
10:00 PM	193	6.4	5.1
11:00 PM	110	3.7	2.9
<b>Total</b>	<b>3,809</b>	<b>127</b>	<b>100</b>

**Daily Average**

Average Trips per weekday	316
Average Trips per Saturday	215
Average Trips per Sunday	109

**Trips Per Stop**

Stop	Total Boardings	Boardings/Day	Estimated Alightings/Day	Total Activity/Day	% of Total Activity
28th and Patterson	631	33.2	33.2	66.4	16.6
28th and Northern	790	41.6	41.6	83.2	20.7
2550 Patterson	41	2.2	2.2	4.3	1.1
Mary Free Bed YMCA	11	0.6	0.6	1.2	0.3
Cascade Meijer	1212	63.8	63.8	127.6	31.8
28th and Charlevoix	563	29.6	29.6	59.3	14.8
28th and Charlevoix Woods	57	3.0	3.0	6.0	1.5
28th and Lucerne	61	3.2	3.2	6.4	1.6
28th and Cascade Center	14	0.7	0.7	1.5	0.4
28th and Thornhills	226	11.9	11.9	23.8	5.9
28th and Jacksmith	17	0.9	0.9	1.8	0.4
28th and Cascade Rd	186	9.8	9.8	19.6	4.9
<b>Total</b>		<b>200</b>	<b>200</b>	<b>401</b>	<b>100</b>

### Trips Per Day

Date	Boardings	Estimated Alightings	Estimated Total Trips
3/1/2017	144	144	288
3/2/2017	125	125	250
3/3/2017	142	142	284
3/4/2017	112	112	224
3/5/2017	59	59	118
3/6/2017	140	140	280
3/7/2017	164	164	328
3/8/2017	149	149	298
3/9/2017	146	146	292
3/10/2017	126	126	252
3/11/2017	65	65	130
3/12/2017	47	47	94
3/13/2017	138	138	276
3/14/2017	140	140	280
3/15/2017	145	145	290
3/16/2017	174	174	348
3/17/2017	155	155	310
3/18/2017	114	114	228
3/19/2017	50	50	100
3/20/2017	157	157	314
3/21/2017	150	150	300
3/22/2017	184	184	368
3/23/2017	144	144	288
3/24/2017	127	127	254
3/25/2017	84	84	168
3/26/2017	39	39	78
3/27/2017	136	136	272
3/28/2017	145	145	290
3/29/2017	173	173	346
3/30/2017	137	137	274
3/31/2017	158	158	316
<b>Total</b>	<b>3,969</b>	<b>3,969</b>	<b>7,938</b>

### Boardings by Time of Day

Time	Number of Boardings	Average Boardings/Day	Percent of Total
6:00 AM	79	2.5	2.0
7:00 AM	154	5.0	3.9
8:00 AM	136	4.4	3.4
9:00 AM	104	3.4	2.6
10:00 AM	116	3.7	2.9
11:00 AM	180	5.8	4.5
12:00 PM	171	5.5	4.3
1:00 PM	243	7.8	6.1
2:00 PM	295	9.5	7.4
3:00 PM	454	14.6	11.4
4:00 PM	451	14.5	11.4
5:00 PM	352	11.4	8.9
6:00 PM	250	8.1	6.3
7:00 PM	166	5.4	4.2
8:00 PM	206	6.6	5.2
9:00 PM	215	6.9	5.4
10:00 PM	258	8.3	6.5
11:00 PM	139	4.5	3.5
<b>Total</b>	<b>3,969</b>	<b>128</b>	<b>100</b>

### Daily Average

Average Trips per weekday	296
Average Trips per Saturday	188
Average Trips per Sunday	98

### Trips Per Stop

Stop	Total Boardings	Boardings/Day	Estimated Alightings/Day	Total Activity/Day	% of Total Activity
2550 Patterson	35	1.8	1.8	3.7	0.9
28th and Cascade Center	34	1.8	1.8	3.6	0.9
28th and Cascade Rd	280	14.7	14.7	29.5	7.1
28th and Charlevoix	567	29.8	29.8	59.7	14.3
28th and Charlevoix Woods	90	4.7	4.7	9.5	2.3
28th and Jacksmith	19	1.0	1.0	2.0	0.5
28th and Lucerne	59	3.1	3.1	6.2	1.5
28th and Northern	818	43.1	43.1	86.1	20.6
28th and Patterson	553	29.1	29.1	58.2	13.9
28th and Thornhills	232	12.2	12.2	24.4	5.8
Cascade Meijer	1256	66.1	66.1	132.2	31.6
Mary Free Bed YMCA	26	1.4	1.4	2.7	0.7
<b>Total</b>		<b>209</b>	<b>209</b>	<b>418</b>	<b>100</b>

### Trips Per Day

Date	Boardings	Estimated Alightings	Estimated Total Trips
4/1/2017	132	132	264
4/2/2017	47	47	94
4/3/2017	163	163	326
4/4/2017	116	116	232
4/5/2017	140	140	280
4/6/2017	129	129	258
4/7/2017	168	168	336
4/8/2017	99	99	198
4/9/2017	66	66	132
4/10/2017	122	122	244
4/11/2017	140	140	280
4/12/2017	167	167	334
4/13/2017	160	160	320
4/14/2017	146	146	292
4/15/2017	114	114	228
4/16/2017	27	27	54
4/17/2017	154	154	308
4/18/2017	205	205	410
4/19/2017	193	193	386
4/20/2017	147	147	294
4/21/2017	145	145	290
4/22/2017	117	117	234
4/23/2017	50	50	100
4/24/2017	165	165	330
4/25/2017	181	181	362
4/26/2017	164	164	328
4/27/2017	190	190	380
4/28/2017	159	159	318
4/29/2017	96	96	192
4/30/2017	38	38	76
<b>Total</b>	<b>3,940</b>	<b>3,940</b>	<b>7,880</b>

### Boardings by Time of Day

Time	Number of Boardings	Average Boardings/Day	Percent of Total
6:00 AM	85	2.8	2.2
7:00 AM	188	6.3	4.8
8:00 AM	125	4.2	3.2
9:00 AM	113	3.8	2.9
10:00 AM	134	4.5	3.4
11:00 AM	165	5.5	4.2
12:00 PM	207	6.9	5.3
1:00 PM	215	7.2	5.5
2:00 PM	266	8.9	6.8
3:00 PM	341	11.4	8.7
4:00 PM	488	16.3	12.4
5:00 PM	400	13.3	10.2
6:00 PM	267	8.9	6.8
7:00 PM	186	6.2	4.7
8:00 PM	219	7.3	5.6
9:00 PM	183	6.1	4.6
10:00 PM	225	7.5	5.7
11:00 PM	133	4.4	3.4
<b>Total</b>	<b>3,940</b>	<b>131</b>	<b>100</b>

### Daily Average

Average Trips per weekday	315
Average Trips per Saturday	223
Average Trips per Sunday	91

### Trips Per Stop

Stop	Total Boardings	Boardings/Day	Estimated Alightings/Day	Total Activity/Day	% of Total Activity
2550 Patterson	18	0.6	0.6	1.2	0.5
28th and Cascade Center	4	0.1	0.1	0.3	0.1
28th and Cascade Rd	218	7.3	7.3	14.5	5.5
28th and Charlevoix	546	18.2	18.2	36.4	13.9
28th and Charlevoix Woods	69	2.3	2.3	4.6	1.8
28th and Jacksmith	16	0.5	0.5	1.1	0.4
28th and Lucerne	70	2.3	2.3	4.7	1.8
28th and Northern	867	28.9	28.9	57.8	22.0
28th and Patterson	612	20.4	20.4	40.8	15.5
28th and Thornhills	216	7.2	7.2	14.4	5.5
Cascade Meijer	1262	42.1	42.1	84.1	32.0
Mary Free Bed YMCA	42	1.4	1.4	2.8	1.1
<b>Total</b>		<b>131</b>	<b>131</b>	<b>263</b>	<b>100</b>

### Trips Per Day

Date	Boardings	Estimated Alightings	Estimated Total Trips
5/1/2017	161	161	322
5/2/2017	148	148	296
5/3/2017	201	201	402
5/4/2017	172	172	344
5/5/2017	186	186	372
5/6/2017	108	108	216
5/7/2017	38	38	76
5/8/2017	161	161	322
5/9/2017	153	153	306
5/10/2017	158	158	316
5/11/2017	185	185	370
5/12/2017	148	148	296
5/13/2017	126	126	252
5/14/2017	53	53	106
5/15/2017	148	148	296
5/16/2017	137	137	274
5/17/2017	171	171	342
5/18/2017	164	164	328
5/19/2017	131	131	262
5/20/2017	116	116	232
5/21/2017	100	100	200
5/22/2017	286	286	572
5/23/2017	268	268	536
5/24/2017	324	324	648
5/25/2017	254	254	508
5/26/2017	336	336	672
5/27/2017	184	184	368
5/28/2017	118	118	236
5/30/2017	312	312	624
5/31/2017	278	278	556
<b>Total</b>	<b>5,325</b>	<b>5,325</b>	<b>10,650</b>

### Boardings by Time of Day

Time	Number of Boardings	Average Boardings/Day	Percent of Total
6:00 AM	104	3.5	2.0
7:00 AM	259	8.6	4.9
8:00 AM	141	4.7	2.6
9:00 AM	128	4.3	2.4
10:00 AM	201	6.7	3.8
11:00 AM	182	6.1	3.4
12:00 PM	298	9.9	5.6
1:00 PM	239	8.0	4.5
2:00 PM	403	13.4	7.6
3:00 PM	577	19.2	10.8
4:00 PM	515	17.2	9.7
5:00 PM	595	19.8	11.2
6:00 PM	399	13.3	7.5
7:00 PM	252	8.4	4.7
8:00 PM	285	9.5	5.4
9:00 PM	271	9.0	5.1
10:00 PM	261	8.7	4.9
11:00 PM	215	7.2	4.0
<b>Total</b>	<b>5,325</b>	<b>178</b>	<b>100</b>

### Daily Average

Average Trips per weekday	407
Average Trips per Saturday	267
Average Trips per Sunday	155

### Trips Per Stop

Stop	Total Boardings	Boardings/Day	Estimated Alightings/Day	Total Activity/Day	% of Total Activity
2550 Patterson	71	2.4	2.4	4.7	1.3
28th and Cascade Center	33	1.1	1.1	2.2	0.6
28th and Cascade Rd	207	6.9	6.9	13.8	3.9
28th and Charlevoix	744	24.8	24.8	49.6	14.0
28th and Charlevoix Woods	107	3.6	3.6	7.1	2.0
28th and Jacksmith	17	0.6	0.6	1.1	0.3
28th and Lucerne	126	4.2	4.2	8.4	2.4
28th and Northern	1062	35.4	35.4	70.8	19.9
28th and Patterson	774	25.8	25.8	51.6	14.5
28th and Thornhills	294	9.8	9.8	19.6	5.5
Cascade Meijer	1857	61.9	61.9	123.8	34.9
Mary Free Bed YMCA	33	1.1	1.1	2.2	0.6
<b>Total</b>		<b>178</b>	<b>178</b>	<b>355</b>	<b>100</b>

**Trips Per Day**

Date	Boardings	Estimated Alightings	Estimated Total Trips
6/1/2017	190	190	380
6/2/2017	158	158	316
6/3/2017	101	101	202
6/4/2017	52	52	104
6/5/2017	160	160	320
6/6/2017	135	135	270
6/7/2017	164	164	328
6/8/2017	147	147	294
6/9/2017	182	182	364
6/10/2017	112	112	224
6/11/2017	56	56	112
6/12/2017	164	164	328
6/13/2017	153	153	306
6/14/2017	168	168	336
6/15/2017	196	196	392
6/16/2017	148	148	296
6/17/2017	153	153	306
6/18/2017	57	57	114
6/19/2017	173	173	346
6/20/2017	179	179	358
6/21/2017	196	196	392
6/22/2017	130	130	260
6/23/2017	163	163	326
6/24/2017	100	100	200
6/25/2017	54	54	108
6/26/2017	177	177	354
6/27/2017	174	174	348
6/28/2017	177	177	354
6/29/2017	177	177	354
6/30/2017	170	170	340
<b>Total</b>	<b>4,366</b>	<b>4,366</b>	<b>8,732</b>

**Boardings by Time of Day**

Time	Number of Boardings	Average Boardings/Day	Percent of Total
6:00 AM	69	2.3	1.6
7:00 AM	183	6.1	4.2
8:00 AM	141	4.7	3.2
9:00 AM	110	3.7	2.5
10:00 AM	142	4.7	3.3
11:00 AM	130	4.3	3.0
12:00 PM	241	8.0	5.5
1:00 PM	225	7.5	5.2
2:00 PM	334	11.1	7.7
3:00 PM	415	13.8	9.5
4:00 PM	590	19.7	13.5
5:00 PM	456	15.2	10.4
6:00 PM	330	11.0	7.6
7:00 PM	250	8.3	5.7
8:00 PM	204	6.8	4.7
9:00 PM	191	6.4	4.4
10:00 PM	205	6.8	4.7
11:00 PM	150	5.0	3.4
<b>Total</b>	<b>4,366</b>	<b>146</b>	<b>100</b>

Daily Average	
Average Trips per weekday	335
Average Trips per Saturday	233
Average Trips per Sunday	110

**Trips Per Stop**

Stop	Total Boardings	Boardings/Day	Estimated Alightings/Day	Total Activity/Day	% of Total Activity
2550 Patterson	37	1.2	1.2	2.5	0.8
28th and Cascade Center	9	0.3	0.3	0.6	0.2
28th and Cascade Rd	202	6.7	6.7	13.5	4.6
28th and Charlevoix	628	20.9	20.9	41.9	14.4
28th and Charlevoix Woods	87	2.9	2.9	5.8	2.0
28th and Jacksmith	17	0.6	0.6	1.1	0.4
28th and Lucerne	99	3.3	3.3	6.6	2.3
28th and Northern	938	31.3	31.3	62.5	21.5
28th and Patterson	639	21.3	21.3	42.6	14.6
28th and Thornhills	209	7.0	7.0	13.9	4.8
Cascade Meijer	1418	47.3	47.3	94.5	32.5
Mary Free Bed YMCA	83	2.8	2.8	5.5	1.9
<b>Total</b>		<b>146</b>	<b>146</b>	<b>291</b>	<b>100</b>



RICK SNYDER  
GOVERNOR

STATE OF MICHIGAN  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
LANSING



C. HEIDI GREYER  
DIRECTOR

August 16, 2017

**State Revolving Fund/Strategic Water Quality Initiatives Fund**  
**NOTICE OF PUBLIC HEARING**

The Michigan Department of Environmental Quality (DEQ) will conduct a public hearing for the following:

*The draft Fiscal Year 2018 Project Priority Lists for the State Revolving Fund (SRF) and the Strategic Water Quality Initiatives Fund (SWQIF) that list projects for which Project Plans were submitted to the DEQ by July 1, 2017; and*

*The draft Fiscal Year 2018 Intended Use Plan that explains how SRF/SWQIF funds available in fiscal year 2018 will be distributed.*

Printed copies of these documents are available by calling the Revolving Loan Section at 517-284-5433, or they are posted on our Web site at [www.michigan.gov/deq](http://www.michigan.gov/deq).

**The public hearing will be held on September 20, 2017, at 1:30 p.m. The location will be the ConConA and ConConB Conference Rooms, Atrium Level, Constitution Hall, 525 W. Allegan, Lansing, Michigan. Please use the East Entrance.**

The hearing record will remain open to receive written comments until September 27, 2017, at 5 p.m. Written comments may be directed to:

Ms. Sonya T. Butler, Section Manager  
Revolving Loan Section  
Drinking Water and Municipal Assistance Division  
Department of Environmental Quality  
P.O. Box 30241  
Lansing, MI 48909-7741

*Persons with disabilities needing accommodation for effective participation in the meeting should call 517-284-5433 one week in advance to request mobility, visual, hearing or other assistance.*





**Cascade Charter Township  
Seminar/Conference Attendance Request**

Conditions for Reimbursement:

- Cascade Charter Township will send employees at Township expense for required and/or approved work related seminars/conferences. Individual seminars/conferences must be directly related to the employee's current job duties in the organization.
- Some seminars/conferences that an employee may attend may be unrelated to their particular job or government in general, and are therefore are not covered by this policy.
- Any seminar/conference request that requires an overnight stay or expenditure over \$200 shall receive Township Board approval prior to attending the seminar/conference.
- Under extenuating circumstances, the Township Manager may approve an overnight stay or expenditure over \$200 for a seminar/conference prior to Township Board approval. The request must be made before attendance to a seminar/conference. The Township Board will be informed of the request at their next scheduled meeting.

*This form must be completed by the employee and approved by the Township Manager and/or Township Board before the Seminar/Conference is attended.*

Name: Sandra Korhorn

Application Date: September 6, 2017

Location of Seminar/Conference: Bay City, MI

Name of Proposed Seminar/Conference: Michigan Downtown Association State Conference

Date of Proposed Seminar/Conference: October 18-19, 2017

Description of Seminar: (may also be attached): See Attached

How will the Seminar/Conference benefit the employee and the Township? Education of DDA/Economic Development on a variety of issues by attending sessions, training workshops and other conference activities.

Cost of Seminar/Conference: \$160.00                      Lodging: \$109.00                      Travel: \$ 160.00

Your Signature: *Sandra K Korhorn*

**Approvals:**

Department Head: \_\_\_\_\_ Date: \_\_\_\_\_

Township Manager: \_\_\_\_\_ Date: \_\_\_\_\_

Clerk's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

*(Showing Township Board approval)*

11:00 am – 12:15 pm

**Session One: Driving the Roadmap for Your Downtown**

Learn how to develop a template for your next plan by defining the participants, reviewing your landscape, and creating milestones for success.

Location: Main Hall

Jackie Lovejoy  
Dearborn Area Chamber of Commerce  
Bob Thomas  
Michigan Association of Chamber Professionals

**Session Two: Trends in the Craft Alcohol Industry**

With Michigan placed at fifth in the nation in the craft alcohol industry, discover ways your community can benefit from this fast-growing industry.

Location: Annex Hall

Kelly Allen  
Adkison, Need & Allen  
Jon Good  
Green Door Distillery, Kalamazoo, MI  
Tony Grant  
Northern United Brewing Company, Dexter, MI  
Dan Riley  
Axle Brewing, Ferndale, MI

12:15 – 1:30 pm

**Lunch Break & MDA Annual Meeting**  
(Lunch is not provided with conference registration)

Location: Main Hall

1:30 – 2:30 pm

**Plenary Session: Justification for Downtown Management and Historic Preservation**

Downtowns are unique, ever-changing places. There is a continual need for ongoing, comprehensive downtown management in order to maximize and maintain economic potential. The job is never done!

Location: Main Hall

Donovan Rypkema  
Place Economics

2:30 – 2:45 pm

**MDA Annual Awards**

Location: Main Hall

2:45 – 3:15 pm

**Legislative Update**  
MDA Legislative Committee

Location: Main Hall

3:15 pm

**Closing Comments**

Location: Main Hall

Jerry Dettloff  
Michigan Downtown Association

**Thank you Annual Conference Sponsors 2017**

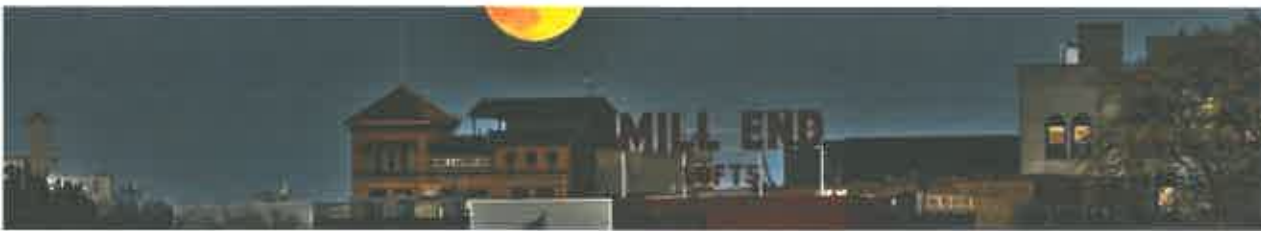
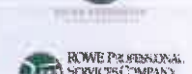
Presenting Sponsor



Friends of the MDA



ADKISON, NEED & ALLEN  
PLANNERS ARCHITECTS INTERIORS



**Annual Statewide Michigan Downtowns Conference 2017 Registration Form**

Name Sandra Korhorn  
Organization Cascade Township  
Phone 616 949 1500 Email Sandra@cascade.twp.com

Registration Fees (use registration form or register online at [www.michigandowntowns.com](http://www.michigandowntowns.com)):  
Early (Now through 10/10) MDA Members: \$160 Non-Members: \$205 Students: \$50  
Regular Registration & At the Door (After 10/10) MDA Member: \$185 Non-Member: \$230 Student: \$55

Conference Sponsor: \$500 (Includes a table and two registrations)

RSVP: Michigan Downtown Association, P.O. Box 82369 Rochester, MI 48308-2369 ph 248.838.9711  
info@michigandowntowns.com [www.michigandowntowns.com](http://www.michigandowntowns.com)

Please return form with payment to MDA by Oct. 11, 2017. Make checks payable to the Michigan Downtown Association. If you cannot get your check processed by that time, we can accept payment at the door or payment by invoice. You may also register and pay online via PayPal. Visit [michigandowntowns.com/events.php](http://michigandowntowns.com/events.php)

\_Visa \_MC \_Dis \_Amex Card No. \_\_\_\_\_ Exp. Date \_\_\_\_\_ Sec. Code: \_\_\_\_\_  
Name on Card: \_\_\_\_\_ Signature: \_\_\_\_\_  
Zip Code: \_\_\_\_\_

AICP and AIA credits are available on a self-reporting basis.

MICHIGAN  
DOWNTOWN  
ASSOCIATION



Annual Statewide  
Michigan Downtowns Conference

*Strengthening Downtowns*



# FOCUS FORWARD

## JOIN THE DOWNTOWN MOVEMENT

Scottish Rite Masonic Center,  
614 Center Ave. Bay City, MI  
October 18-19, 2017



**Cascade Charter Township  
Seminar/Conference Attendance Request Form**

This form must be filled out if the employee is requesting Township payment or reimbursement for the employee's attendance to a seminar or conference.

Conditions:

1. Cascade Charter Township will reimburse employees for approved registration for work related seminars and conferences. Individual seminars and conferences must be related to the employee's current job duties or a foreseeable-future position in the organization in order to be eligible for educational assistance.
2. Some seminars/conferences that an employee may attend may be unrelated to their particular job or government in general, and are therefore not covered by this assistance policy.
3. Any request that requires an overnight stay or expenditure over \$200 requires Township Board approval before the seminar/conference is attended.
4. Under extenuating circumstances, the Township Manager may approve an overnight stay or expenditure over \$200 for a conference or seminar prior to Township Board approval. The request must be made before attendance to a seminar/conference. The Township Board will be informed of request at their next scheduled meeting.

*This form must be completed by the employee and approved by the Township Manager and/or Township Board before the seminar/conference is attended.*

Name: MERS 2017 ANNUAL CONFERENCE - **BEW SWAYZE**

Application Date: 9/21/2017 – 9/22/2017

Location of Seminar/Conference DETROIT MI

Name of Proposed Seminar/Conference: MERS DC PLAN INFORMATION

Description of Seminar/Conference: (may also be attached) AGENDA ATTACHED

(over)

How will the Seminar/Conference benefit the employee and the township? INFORMATION ON THE FUNDING, DESIGN, AND UPDATES TO PLAN

Cost of the Seminar/Conference: (Registration) \$ 250

(Lodging) \$ 169 + HOTEL TAXES (Travel) \$ 170

Account #: 101-171-724-000

Your Signature: \_\_\_\_\_

Approvals:

Department Head: \_\_\_\_\_ Date: \_\_\_\_\_

Township Manager: B.S. \_\_\_\_\_ Date: 8.21.17 \_\_\_\_\_

Clerk's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

(Showing Township Board approval)

Original to personnel file

1 copy to applicant

1 copy to Accounting



(index.html)



## Registration

# Conference Registration

The registration fee includes all scheduled meeting events and scheduled meals. All individuals (including spouses) who plan to attend sessions must complete a registration form and pay the full registration fee. Individual meal tickets are available for purchase for guests who do not plan to attend any sessions.

**Member\* Associate Register  
Attendees\*\***

August 12 - \$250  
September 13 \$500

[CLICK TO REGISTER \(HTTP://WWW.CVENT.COM/D/15Q3BK\)](http://www.cvent.com/d/15Q3BK)

On-site \$350 \$600

*\*Employer / Employee Delegates and non-voting attendees (including spouses who are attending meals AND educational sessions)*

*\*\*An Associate Attendee is defined as someone employed by a trade association or vendor organization*

### Guest Meal

You may purchase meal tickets for a guest when you register online or at the MERS registration desk at the Detroit Marriott during registration hours.

(**Note:** Only purchase meal tickets for those guests who do not plan to attend any general or breakout sessions.)

Cost per meal:

- Breakfast/Lunch
  - \$30 if purchased online (\$35 if purchased on-site)
- Thursday Reception/Dinner aboard the Detroit Princess
  - \$65 if purchased online (\$70 if purchased on-site)

### **Note for Delegates**

Prior to registering for the conference, please complete the [delegate form \(Delegate.html\)](#) and save it to your computer. During the online registration process, you will be asked to attach the form to your registration. Please do not submit a delegate form if you do not plan to attend annual conference or have not been elected/appointed by your municipality to attend as a delegate.

### **Cancellations and Refunds**

Cancellations must be received by **Wednesday, September 13** in order to receive a refund for conference registration or guest meal fees. You may cancel by using the link that was provided in the confirmation email you received when you registered, or you can fax your request to 517-703-9707 or email it to [jolivarez@mersofmich.com](mailto:jolivarez@mersofmich.com). Check refunds will be issued after Annual Conference.

(**Note:** Refunds will not be issued for cancellations made after September 13 or conference no-shows.)

## **Hotel Registration**



The Detroit Marriott at the Renaissance Center has reserved a block of rooms for MERS Annual Conference attendees.

**Rates are guaranteed until Wednesday, September 6, 2017.** Please make your hotel reservation when registering for the conference to ensure availability. Rooms do fill up fast!

**Guestroom Reservations  
Type & Rate**

**Guestroom Reservations**  
**Type & Rate**

---

Hotel Guestroom single/double occupancy  
\$169.00/night + tax and applicable fees

Call the Detroit Marriot at 877-901-6632 (mention that you are with the MERS Annual Conference to get the discounted rate) or

**BOOK ONLINE ([HTTPS://AWS.PASSKEY.COM/GO/MERS2017ANNUALCONFERENCE](https://aws.passkey.com/go/mers2017annualconference))**

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**Tax Exempt Governmental Entities**

In order to exercise tax exempt status, please bring the following at the time of hotel check-in:

- A form from the Internal Revenue Service/Dept. of Treasury stating your exemption status. It must fall under Section 501(c)3 or 501(c)4 in order to qualify for exemption from Michigan Sales and Use Tax.
- If paying by CHECK, the check must be drawn on the Tax Exempt Group/ Organization's Funds. A 501(c)3 or 501(c)4 form must accompany the check.
- If paying by CREDIT CARD (such as municipality credit card), you must use the organization's credit card along with a 501(c)3 or 501(c)4 form accompanied with the credit card. Tax exempt status applies only to Michigan State Sales Tax and not to other city, visitor bureau, or hotel taxes.
- Each individual must settle their outstanding balance with the hotel before a tax exemption may be posted.

**Special Needs**

The hotel will be happy to assist you with any special needs. Please identify any special needs you might have at the time you make reservations.

**Hotel Changes/Cancellations**

Make all changes and cancellations directly with the hotel. Check with the hotel regarding their cancellation policy.

**Hotel Reservations**

(index.html)



# Agenda

# Agenda

**FULL AGENDA**    **EMPLOYER VIEW**    **PARTICIPANT VIEW**

Legend:  = Continuing education credits

### Education Credits

## Wednesday, September 20

Time	Event
4:00 – 7:00	<b>Early Arrivers Registration</b>
4:00 p.m.	<b>MERS Retirement Board Meeting</b>

You asked – we listened. This year MERS will be offering continuing education credits for several breakout sessions.

5:00 – 6:00 P.M.	<b>Preconference Workshop: Speed-Dating Your MERS Plan</b> Learn more & register. ( <a href="http://www.cvent.com/d/f5qg8v">http://www.cvent.com/d/f5qg8v</a> ) <input checked="" type="checkbox"/> <i>Approved for 1.00 credits (SHRM and HRCI)</i>
------------------	--



Six sessions have been approved by both the Human Resource Certification Institute (HRCI) and the Society for Human Resource Management (SHRM) to provide continuing education credits at the MERS Annual Conference.

6:00 – 7:00 p.m.	<b>Preconference Workshop: Speed-Dating Your MERS Plan</b> Learn more & register. ( <a href="http://www.cvent.com/d/f5qg8v">http://www.cvent.com/d/f5qg8v</a> ) <input checked="" type="checkbox"/> <i>Approved for 1.00 credits (SHRM and HRCI)</i>
------------------	--

7:00 – 8:00 p.m.	<b>Early Arrivers Networking Reception</b>
------------------	--

## Thursday, September 21

Time    Event

requirements for certified public accountants to earn continuing professional

7:00 a.m. – 1:00 p.m. **Registration**

education. Watch for more information coming soon.

8:00 – 9:00 a.m. **Breakfast**

9:00 – 9:30 a.m. **Opening Session**

9:30 - 10:30 a.m. **General Session – *Taskforce for Responsible Retirement Reform – A Panel Discussion***

10:30 - 10:45 a.m. **Refreshment Break**

10:45 a.m. – 12:00 p.m. **Breakout Sessions**

**Cybersecurity Tips and Best Practices – A 2017 Update**

- ✓ *Approved for 1.25 credits (SHRM and HRCI)*
- ✓ *Approved for 1.50 Continuing Professional Education units for CPAs*

(view description)

**Pension Funding & Plan Design Part 1 – The Fundamentals**

- ✓ *Approved for 1.25 credits (SHRM, HRCI)*
- ✓ *Approved for 1.50 Continuing Professional Education units for CPAs*

(view description)

**Pension Funding & Plan Design Part 2 – A Deeper Dive**

- ✓ *Approved for 1.50 Continuing Professional Education units for CPAs*

(view description)

**An Overview of the Defined Benefit Plan**

- ✓ *Approved for 1.25 credits (SHRM, HRCI)*

(view description)

**Social Security Basics**

(view description)

12:00 - 12:30 p.m. **Lunch**

12:30 – 1:15 p.m. **Keynote Address**

What Freud Could Teach Buffett: The Four Pillars of Investor Psychology



Dr. Daniel Crosby  
(click to learn more)

(<http://www.mersofmich.com/portals/0/Microsite/AnnualConference/Style/assets/DanielCrosby.pdf>)

(view description)

1:30 – 2:45 p.m. **Breakout Sessions**

**Pension Funding & Plan Design Part 1 – The Fundamentals**

- ✓ *Approved for 1.25 credits (SHRM, HRCI)*
- ✓ *Approved for 1.50 Continuing Professional Education units for CPAs*

(view description)

**Pension Funding & Plan Design Part 2 – A Deeper Dive**

- ✓ *Approved for 1.50 Continuing Professional Education units for CPAs*

(view description)

**Social Security Basics**

(view description)

**Understanding Your Healthcare Options in Retirement**

✓ *Approved for 1.25 credits (SHRM, HRCI)*

(view description)

2:45 – 3 p.m. **Afternoon Refreshment Break**

3 – 4:15 p.m. **Breakout Sessions**

**Pension Funding & Plan Design Part 3 – A Panel Discussion**

✓ *Approved for 1.25 credits (SHRM, HRCI)*

✓ *Approved for 1.50 Continuing Professional Education units for CPAs*

(view description)

**Rock 'n' Roll to a Successful Retirement Using AC/DC Strategies**

(view description)

**Understanding Your Healthcare Options in Retirement**

✓ *Approved for 1.25 credits (SHRM, HRCI)*

(view description)

**Designing Your DC Plan to Maximize Retirement Adequacy**

(view description)

4:15 – 6:00 p.m. **Break**

6:00 – 10:00 **Dinner aboard the Detroit Princess**

p.m.

**Friday, September 22**

**Time Event**

7:00 – 8:00 a.m. **Breakfast**

8:00 – 9:00  
a.m.

**General Session - MERS Investment Update and State of the Investment Industry**

9:00 – 9:15 a.m. **Refreshment Break**

9:15 – 10:30  
a.m.

**Breakout Sessions**

**Cybersecurity Tips and Best Practices – A 2017 Update**

✓ *Approved for 1.25 credits (SHRM and HRCI)*

✓ *Approved for 1.50 Continuing Professional Education units for CPAs*

(view description)

**Pension Funding & Plan Design Part 3 – A Panel Discussion**

✓ *Approved for 1.25 credits (SHRM, HRCI)*

✓ *Approved for 1.50 Continuing Professional Education units for CPAs*

(view description)

**An Overview of the Defined Benefit Plan**

✓ *Approved for 1.25 credits (SHRM, HRCI)*

(view description)

**Designing Your DC Plan to Maximize Retirement Adequacy**

(view description)

**Rock 'n' Roll to a Successful Retirement Using AC/DC Strategies**

(view description)

**HR Roundtable**

- 10:30 – 10:45 a.m. **Refreshment Break**
- 10:45 – 11:15 a.m. **General session**
- 11:15 a.m. – 12:30 p.m. **Business Meeting/Closing Remarks**
- 12:30 p.m. **Lunch**

*Continuing Professional Education Concern Resolution Policy*

*For more information regarding administrative policies such as complaints, please contact Allison Buhs at 517-703-9030 [abuhs@mersofmich.com](mailto:abuhs@mersofmich.com).*

*MERS is registered with the National Association of State Boards of Accountancy (NASBA) as a sponsor of continuing professional education on the National Registry of CPE Sponsors. State boards of accountancy have final authority on the acceptability of courses for CPE credit. Complaints regarding registered sponsors may be submitted to the National Registry of CPE Sponsors through its website: [www.nasbaregistry.org](http://www.nasbaregistry.org) (<https://www.nasbaregistry.org/>).*

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**Cascade Charter Township  
Education Reimbursement Request**

**Conditions for Reimbursement:**

- Individual courses or courses that are part of a degree, licensing or certification program must be related to the employee's current job duties or a foreseeable -- future position in the organization in order to be eligible for educational assistance.
- Cascade Charter Township will reimburse employees for approved registration and tuition for work related courses taken through college or schools accredited by regional accreditation associations.
- Some electives that an employee may be required to complete for a degree may be unrelated to their particular job or government in general, and are therefore not cover by this assistance policy.

***This form must be completed by the employee and approved by the Township Board before the course is taken in order to qualify for reimbursement.***

Name: David Lintemuth

Application Date: 8-29-17

Name of Educational Institution: Great Lakes EMS

Name of Proposed Course:

EMT-Basic

Cost of Tuition: \$1065.00

Your Signature: [Signature]

Account #: \_\_\_\_\_

**Approvals:**  
Department Head: [Signature] Date: 8-29-17

Township Manager: [Signature] Date: 9-7-17

Clerk's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

*(Showing Township Board approval)*



Great Lakes  
EMS Academy



# Receipt

8/25/2017

David Lintemuth

Date	Description	Total
	EMT Basic Matriculation Course	\$1065.00
	Total paid:	\$1065.00

Thank you!

**Great Lakes EMS Academy**

1001 S. Division Ave

Grand Rapids, MI 49503

Phone: 616-459-1736

Fax: 616-459-2251

[www.GreatLakesEMS.com](http://www.GreatLakesEMS.com)



**Cascade Charter Township  
Seminar/Conference Attendance Request Form**

This form must be filled out if the employee is requesting Township payment or reimbursement for the employee's attendance to a seminar or conference.

**Conditions:**

1. Cascade Charter Township will reimburse employees for approved registration for work related seminars and conferences. Individual seminars and conferences must be related to the employee's current job duties or a foreseeable-future position in the organization in order to be eligible for educational assistance.
2. Some seminars/conferences that an employee may attend may be unrelated to their particular job or government in general, and are therefore not covered by this assistance policy.
3. Any request that requires an overnight stay or expenditure over \$200 requires Township Board approval before the seminar/conference is attended.
4. Under extenuating circumstances, the Township Manager may approve an overnight stay or expenditure over \$200 for a conference or seminar prior to Township Board approval. The request must be made before attendance to a seminar/conference. The Township Board will be informed of request at their next scheduled meeting.

*This form must be completed by the employee and approved by the Township Manager and/or Township Board before the seminar/conference is attended.*

Name: OXANA SOURINE

Application Date: 8/30/17

Location of Seminar/Conference THOMPSONVILLE, MI

Name of Proposed Seminar/Conference: MMTA

Description of Seminar/Conference: (may also be attached) \_\_\_\_\_

SEE ATTACHED

(over)

How will the Seminar/Conference benefit the employee and the township? INFORMATION  
UPDATES ON INVESTMENT, TECHNOLOGY, AND FUNDS MANAGEMENT.

Cost of the Seminar/Conference: (Registration) \$ 305.00

(Lodging) \$ 250.00 (Travel) \$ 200.00

Account #: 101-253-724-000

Your Signature: *Q. Souliere*

Approvals:

Department Head: *Ken Pearce* Date: 8/31/17

Township Manager: *B. S.* Date: 9-7-17

Clerk's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

(Showing Township Board approval)

Original to personnel file

1 copy to applicant

1 copy to Accounting

# Conference Registration

Register by September 21, 2017 to avoid late fees

EASY ONLINE REGISTRATION  
AT [MMTA-MI.ORG](http://MMTA-MI.ORG)

First Name Oxana Last Name Sourine  
Title Deputy Treasurer Organization Cascade Township  
Address 2865 Thornhills Dr. City, State, Zip Grand Rapids, MI 49546  
Phone 616-949-6944 Email oxana@cascaadetwp.com

- Active MMTA member (municipal or associate): \$305**  
 New to MMTA (includes one year municipal membership): \$355  
 New to MMTA (includes one year associate membership for a non-municipal business): \$670  
 New to MMTA (for additional employees of an associate member): \$370  
 YES! For \$20 I want printed conference materials in a 3-ring binder. *Electronic downloads of materials will be available at no charge.*  
 YES! Please register me for the 9 hole Fore Fun golf outing: \$45  
 Please contact me regarding meals for additional guests.

\$ 305 Total Amount Due

## Payment

Pay via check or credit card. Make checks payable to:  
**Michigan Municipal Treasurers Association**  
P.O. Box 324 • Tawas City, MI 48764

EASY ONLINE REGISTRATION: [MMTA-MI.ORG](http://MMTA-MI.ORG)

- A \$60 late charge will be added to registrations received after September 21.
- The easiest way to register or pay by credit card is to register online at [MMTA-MI.ORG](http://MMTA-MI.ORG). Please do not fax or email your credit card information.
- Cancellations must be in writing and emailed by registration deadline for full refund. Partial refunds may be given if cancellation is received by 9/28/17, no refunds after that date. All cancellations are subject to a \$25 fee.
- If you have any questions, call Shelley and Janel at 989.820.8389 or send email to [info@dovetailvs.com](mailto:info@dovetailvs.com).

# MISSION: ACCOMPLISHED

## Fall Conference Sessions

### Sunday

- Registration
- 9 Hole Fore Fun Golf Event (2:00 shotgun start)
- 19th Hole Gathering
- Past President's Reception (6:00 start)



### Monday

- Registration and Breakfast
- Welcome and Introduction
- Public Finance and Current Issues for Local Government - *Eric Scorsone, Senior Deputy State Treasurer*
- Legislative Update - *Judy Allen, MTA and Chris Hackbarth, MML*
- Lunch
- Annual Meeting and Service Awards
- Breakout Sessions
  - Personal Financial Wellness - *Keith Sawdon*
  - Audit RFPs and What to Expect  
*Keith Szymanski and Pam Hill, Plante Moran*
  - Treasurer/Assessor Relationships - *Marie Sherry and Chris Renius*
- Mission Accomplished: Networking Event



### Tuesday

- Breakfast
- Collaboration with Public Funds (Do's and Don'ts)
- Embezzlement and Public Corruption - *Federal Bureau of Investigation*
- Lunch
- Breakout Sessions
  - Ransomware and Municipalities - *Collin Boyce, City of Lansing*
  - Financial Policies: What's Required and What's Expected
  - Advanced Revenue Collection
- Economic Update: Michigan's Economy - *Paul Traub, Federal Reserve Bank of Chicago*
- Networking Reception
- PRIME Award Presentation & Networking Event



### Wednesday

- Breakfast
- Fighting Fraud in Government

## Fore Fun 9 Hole Golf Event

Ready for a different golf experience? Don't miss this event - you're guaranteed to have a blast during this ... unconventional golf scramble. It's only nine holes, so it won't be too taxing, but it will be a ton of fun.

Reach out to your friends and make sure they sign up, too! Entry fee of \$45 includes all the fun contests on the course, snacks and refreshments. *Sign up when you register!*

If you prefer to play a regular round of golf on your own, we have





Municipal Employees' Retirement System of Michigan  
 1134 Municipal Way • Lansing, MI 48917  
 800.767.MERS (6377) • Fax: 517.703.9707  
 www.mersofmich.com

## 2017 Officer and Employee Delegate Certification Form

MERS 71<sup>st</sup> Annual Conference | September 21-22, 2017 | Detroit Marriott at the Renaissance Center

Please print clearly • Retain a copy for your records

**IMPORTANT:** A voting delegate registered to attend the MERS Annual Conference is **NOT** confirmed to have voting rights until this form has been received by MERS.

The voting delegate representative must be a MERS member, defined as an **active employee on payroll** who is enrolled in either a MERS Defined Benefit Plan, Defined Contribution Plan or Hybrid Plan.

**If you are NOT attending MERS Annual Conference, you do not need to submit this form.**

### 1. Officer (and alternate) delegate information

The officer delegate (or alternate) shall be a MERS member who holds a department head position or above, exercises management responsibilities, and is directly responsible to the legislative, executive, or judicial branch of government.

Officer Delegate name

Ben Swayze

Officer Alternate name

Officer delegate and alternate listed above were appointed to serve at the 2017 MERS Annual Conference by official action of the governing body (or chief judge for a participating court) on 9-13, 2017.

### 2. Employee (and alternate) delegate information

The employee delegate (or alternate) shall be an employee member who is not responsible for management decisions, receives direction from management and, in general, is not directly responsible to the legislative, executive, or judicial branch of government.

Employee Delegate name

Mildred Pinder

Employee Alternate name

Employee delegate and alternate listed above were elected to serve at the 2017 MERS Annual Conference by secret ballot election conducted by an authorized officer on 9-13, 2017.

### 3. Certification

**NOTE:** Certification should be signed by a member of the governing body or chief administrative officer, or the chief judge for a participating court.

I certify that the officer delegate and alternate selections are true and correct, and the secret ballot election results for the employee delegate and alternate are true and correct.

Employer/municipality name*		Municipality number*	Email address	
Cascade Charter Township		4110	dmb@cascadetwp.com	
Employer address	Employer city	Employer state	Employer zip code	
2865 Thornhills	Grand Rapids	MI	49546	
Signature of authorized authority*		Printed name		
		Ben Swayze		
		Title of authorized authority*		Date
Township Manager		9-14-17		

\* Required field

**TIP:** Scan and upload this completed form to your computer. Then attach it to your registration when you register online to attend the conference.  
[www.mersofmich.com](http://www.mersofmich.com)

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INTEROFFICE MEMORANDUM

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**TO:** SUPERVISOR BEAHAN AND TOWNSHIP BOARD MEMBERS  
**FROM:** SUSAN B. SLATER, CLERK  
**SUBJECT:** ELECTION EQUIPMENT PURCHASE  
**DATE:** SEPTEMBER 1, 2017

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The State of Michigan authorized the purchase of new voting equipment with the approval of the Board to apply for a grant to purchase a new voting system from Dominion Voting. The grant application provides for the following:

- 10 ICP Tabulators w/ standard bin and lid
- 10 ICX-BMD-A Accessible Ballot Marking Device and Printer

The Dominion Voting system has a different configuration of equipment than the M100/Automark machines we previously used. The ICX-BMD-A system consists of (2) pieces of equipment along with additional cabling. In order to keep delivery and set-up on election morning to a minimum we are requesting the purchase of an ICX Case for each Precinct. Also available for this new piece of equipment is an ICX Shield which gives the voter added privacy. (see attached) The following are the quoted prices for the above mentioned items:

10	ICX Cases	\$ 380.00/ea.	\$ 3,800.00
10	ICX Shields	\$ 20.00/ea.	<u>\$ 200.00</u>
			\$ 4,000.00

Additionally, the new equipment requires a modem for each ICP Tabulator. The quoted cost for this item is as follows:

10	ICP External Wireless Cellular Modem	\$ 295.00	\$ 2,950.00
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Last but not least, the State of Michigan allotted each jurisdiction with additional ICP Tabulators for their Absentee Voting Counting Boards (AVCB). Currently Cascade is eligible for (2) additional ICP Tabulators. Each jurisdiction had the opportunity to "upgrade" their equipment to a high-speed tabulator which would eliminate the need for additional AVCB's in a large election. Denise and I attended a demonstration of the system and believe Cascade would benefit from the purchase of this system.

As stated in our request for the grant application, this equipment will be partially funded by the Township. The following is the quoted price:

1	ICC G1130 High Speed Absentee Ballot Counting System	\$ 35,350.00
	Credit for exchange of ALL allotted AV Tabulators	<u>- 12,980.00</u>
		\$ 22,370.00

The equipment was an anticipated purchase during the 2017 Budget process...the budgeted amount is \$30,000.00. The total cost of the proposed additional equipment is \$ 29,320.00.

**MICHIGAN  
NEW EQUIPMENT  
PRODUCT ROLL-OUT**

	<p>VB-1000 <b>Select ICX Voting Booth</b> Voting Booth with aluminum frame and heavy duty writing surface to accommodate the Dominion's ImageCast ICX with printer. Dimensions Folded 60 3/4" H x 35" W x 3 3/4" D. Deployed 60 3/4" H x 35" W x 35" D. Writing surface 30" from the floor <b>\$385.00</b></p>	<p><b>QTY.</b></p>
	<p><b>Dominion ImageCast Precinct (ICP) Thermal Paper Roll</b> IM-05 <b>\$3.50</b> Each IM-05B <b>\$34.00</b> 10 Rolls IM-05C <b>\$339.95</b> 100Rolls/Case</p>	<p><b>QTY.</b></p>
	<p>IM-COLLAPSIBLE BIN <b>Collapsible ImageCast Precinct Tabulator Bin</b> Collapses to 35" x 28" x 6" Doors have locks and sealing points Simple set up and take down Features a separate compartment for write-in ballots and auxiliary slot. <b>\$950.00</b></p>	<p><b>QTY.</b></p>
	<p>BA-58 <b>Tabulator Bag</b> Tabulator Bag is designed to fit ImageCast precinct tabulators. This padded bag has pockets for cables and memory cards. Comes with carry handles and detachable shoulder strap 15" H x 20" W X 6" D <b>\$49.00</b></p>	<p><b>QTY.</b></p>

	<p>PS-1010 <b>Adjustable Height Folding Precinct Table</b> 4' x 2' adjustable height folding table. <b>\$70.00</b></p>
	<p>IM-ICX CASE <b>ICX Case</b> Protect and transport your Dominion ImageCast X with a hard case. This case has custom foam cut to the dimensions of the ICX and printer. This durable case is waterproof and features wheels and slide out handle. Comes with two lifting handles and is can be locked with a padlock or security seal. L24" x W24" x D14" <b>\$380.00</b></p>
	<p>IM-ICX CART <b>ICX Cart</b> Custom cart designed for use with the Dominion ImageCast X. The ICX can slide to the side to accommodate a wheel chair. Heavy Duty swiveling and locking casters make transporting smooth and easy. Comes with a power strip so you just need to roll it into place and plug it in. Size L22" x W22" H32" <b>\$450.00</b></p>
	<p>IM-ICX SHIELD <b>ICX Shield</b> Privacy Shield for Dominion ImageCast X. This shield attaches to the ICX with Velcro and gives the voter added privacy. Made of durable Cora Plastic. <b>\$20.00</b></p>

**RESOLUTION # -2017  
CASCADE CHARTER TOWNSHIP  
KENT COUNTY, MICHIGAN**

**APPROVING A GENERAL RECORDS RETENTION AND DISPOSAL SCHEDULE  
FOR ALL OFFICES OF THE TOWNSHIP OF CASCADE**

At a regular meeting of Cascade Charter Township, held on the 13th day of September, 2017 the following resolution was offered by Trustee \_\_\_\_\_ and seconded by Trustee \_\_\_\_\_

**WHEREAS**, the Cascade Charter Township Board creates and maintains various records in its day-to-day operation and is required by statute (Michigan compiled Laws, section 399.5 and 750.491) to retain those records in accordance with an approved retention schedule; and

**WHEREAS**, the retention of records beyond the period required by statutory law poses operational and feasibility difficulty in terms of creating adequate storage space, and devising a system that simplifies locating specific records within that space; and

**NOW, THEREFORE BE IT RESOLVED**, that the Cascade Charter Township Board adopts, as policy, **General Records Retention and Disposal Schedule #10** that has been comprehensively updated by the state's Record Management Services.

**YEAS:**

**NAYS:**

**ABSENT:**

Resolution declared adopted September 13, 2017.

\_\_\_\_\_  
Susan B. Slater  
Cascade Charter Township Clerk

**CERTIFICATION**

I hereby certify the foregoing to be a true copy of a Resolution adopted at a Regular Meeting of the Cascade Charter Township Board held on September 13, 2017.

\_\_\_\_\_  
Susan B. Slater  
Cascade Charter Township Clerk

## CASCADE CHARTER TOWNSHIP RECORDS MANAGEMENT POLICY

Cascade Charter Township (Township), recognizing that good records management is vital to the effective and efficient operation of government operations, enacts the following records management policy:

### **Applicability**

This records management policy shall apply to all employees, agents, independent contractors, and volunteers of the Township.

### **Definitions**

**Agency-specific schedule:** covers records that are unique to a particular government agency. Agency-specific schedules only address the records of the agency named on the schedule, and may not be used by another agency. Any record that is not covered by a general schedule must be listed on an agency-specific schedule. Agency-specific schedules always supersede general schedules.

**General schedule:** covers records that are common to a particular type of government agency. General schedules may not address every single record that a particular office may have in its possession. *General schedules do not mandate that any of the records listed on the schedule be created.* However, if they are created in the normal course of business, the schedule establishes a minimum retention period for them. Retention for longer periods is authorized if the individual has reason to believe that a record may be required beyond the minimum retention period for the efficient operation of the agency.

**Non-record Materials:** include, but are not limited to, extra copies of documents retained only for convenience of reference, and letters of transmittal/routine correspondence that do not document significant activities of the agency. A more comprehensive description may be found within General Schedule #1 which is available from the State of Michigan, Records Management Services' website.

**Public Records:** recorded information "prepared, owned, used, in the possession of, or retained by a public body in the performance of an official function, from the time it is created." Michigan Freedom of Information Act (FOIA) (M.C.L. 15.232)

**Retention and Disposal Schedule:** define how long each record, regardless of its physical format, should be retained. Retention and Disposal Schedules also indicate which records have archival value, and when those records should be transferred to the Archives of Michigan. According to Michigan law, no public records may be destroyed without the authorization of an approved Retention and Disposal Schedule. All schedules are approved by the Records Management Services, the Archives of Michigan and the State Administrative Board.

### **Records**

Each individual who creates, sends or receives official records is responsible for retaining these records in accordance with this records management policy.

### **Non-Records**

Employees are not required to retain non-record materials once their reference value to the individual has expired. However, if a FOIA request is received, or if the agency becomes involved in litigation, non-records may be requested and may be released, if they have not already been destroyed.

### **Record Retention**

All public records shall be retained in accordance with an approved Retention and Disposal Schedule. Records not listed on an approved Retention and Disposal Schedule may not be disposed of until a schedule is approved. Michigan Penal Code (MCL 750.491)

### **Record Maintenance**

Individuals and offices shall organize their records to promote fast and efficient retrieval of information. Appropriate and cost-effective office equipment, indexes and tools shall be used to maintain records.

Records that will be retained for more than 10 years shall be stored in an environment that facilitates the security and stability of the storage media. Recommended environmental conditions are available online at [http://www.michigan.gov/documents/hal\\_mhs\\_rms\\_storage\\_conditions\\_125646\\_7.phf](http://www.michigan.gov/documents/hal_mhs_rms_storage_conditions_125646_7.phf).

The Township Clerk shall work in conjunction with the IT personnel/department to determine the most cost effective and reliable method of maintaining electronic records for their full retention Period so technology changes do not render them in accessible and unusable. The Township Clerk shall publish that method to all affected individuals.

The Township shall comply with the State of Michigan's standards for record reproduction, as authorized by the Records Reproduction Act (MCL 24.401-24.406). These standards are available online at [http://www.michigan.gov/hal/0,1607,7-160-17445\\_19273\\_21738-96210--,00.html](http://www.michigan.gov/hal/0,1607,7-160-17445_19273_21738-96210--,00.html).

Records containing sensitive or confidential information shall be protected against unauthorized access, especially records that are protected by state or federal laws, records containing private information, financial information, background checks, medical information, and social security numbers. Individuals and offices shall employ appropriate locks, passwords and other devices to protect the privacy of this information.

### **Separation from Employment**

Employees shall not take public records with them when they terminate employment with the Township, and they shall not destroy records that have not yet fulfilled their approved retention period. Supervisors are responsible for ensuring that the records (including e-mail and other electronic records) of employees who are separating from employment with the Township continue to be retained in accordance with this policy.

## **Disposal**

Public records which have reached their minimum retention period, and which are no longer required for the efficient operation of the agency, may be disposed of. Disposal shall be made by a method which is guaranteed to ensure the privacy of sensitive confidential information.

The Township shall destroy sensitive or confidential information by internal procedures. The Township shall destroy open records by recycling or regular trash disposal.

Some records possess permanent or historical value. These records may be designated for eventual transfer to the Archives of Michigan for permanent preservation. The Township shall follow the Archives' procedures for transferring records, which are available online at [http://www.Michigaqn.gov/hal/0,1607,7-160-17451\\_18673\\_19379-56050---00.html](http://www.Michigaqn.gov/hal/0,1607,7-160-17451_18673_19379-56050---00.html).

## **Litigation, Investigations, and Freedom of Information Act Requests**

No records that are the subject of litigation, a pending investigation request, or a pending Freedom of Information Act (FOIA) request shall be destroyed until the legal action or activity has ended, even if the records are otherwise scheduled for destruction pursuant to this policy. Any individual with knowledge of pending litigation, a pending investigation, or a FOIA request shall immediately inform the Township Clerk or Legal Counsel. The Township Clerk or Legal Counsel shall direct all relevant individuals to immediately cease disposal of all records relevant to the pending litigation, pending investigation, or FOIA request. If the relevant records are in electronic form (including e-mail) the Township Clerk or Legal Counsel shall notify the IT personnel/department so they can protect the records from destruction (which may include stopping the rotation of backup tapes). Should questions arise as to what records are relevant to the pending litigation, pending investigation, or FOIA request, the Township Clerk or Legal Counsel shall direct the immediate cessation of the disposal of all records. The moratorium on the disposal of all records relevant to the pending litigation, pending investigation, or FOIA request shall remain in effect for the duration of the litigation, investigation, or until the FOIA request had been fully processed.

## **Failure to Adhere to this Records Management Policy**

Failure to adhere to this records management policy may result in applicable discipline, up to and including discharge from employment, termination of the contractor status, termination of the volunteer relationship, or expulsion.

Further, the removal, mutilation, or destruction of public records may result in civil and criminal liability, up to and including a penalty of not more than two years in state prison or a fine of not more than \$1,000.

## **References**

### **Laws**

M.C.L. 15.231 – 15.232	(Freedom of Information Act, Definitions)
M.C.L. 18.1284 – 1292	(Management and Budget Act, Records Management)
M.C.L. 399.1 – 10	(Historical Commission Act)
M.C.L. 750.491	(Penal Code, Public Records)

Note: The Michigan Compiled Laws are available online at <http://www.legislature.mi.gov/>

### **General Schedules for Local Governments**

A current list of the general schedules that are approved for use by local governments is available online at [http://www.michigan.gov/hal/0,1607,7-160-17451\\_18673\\_31548-56101--,00.html](http://www.michigan.gov/hal/0,1607,7-160-17451_18673_31548-56101--,00.html) .

### **Additional Information**

Agencies may contact the State of Michigan, Records Management Services at (517) 335-9132. Additional information is also available from the Records Management Services' website <http://www.michigan.gov/recordsmanagement/> , including records management manuals, general schedules, e-mail retention guidelines, microfilming standards and digital imaging standards, etc.



**CASCADE CHARTER TOWNSHIP**  
2865 Thornhills SE Grand Rapids, Michigan 49546-7140

**Date:** September 13th, 2017  
**To:** Supervisor Beahan and Township Board Members  
**From:** Ben Swayze, Township Manager  
**Subject:** Water Utility Service District Change

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**FACTS:**

Cascade and Ada Township have been approached by the homeowner at 7115 Gladys regarding public water service. The homeowner has requested public water due to the corrosive nature of their well water. Cascade Township is not in the position to provide water to this residence, but Ada Township is. There is an opportunity for the resident to connect to the Ada watermain on Driftwood via an extended service line placed in private easements.

In order for Ada Township to serve this Cascade resident, Cascade Township would have to consent to the Ada Township water utility service district extending into our Township. We have done this in other areas of the Township where there is a demand for service but no ability for Cascade to serve. Most recently in 2015 we added a small area of the Township in the vicinity of Spaulding and Cascade Road to the Ada Township sewer USD to facilitate the recently approved Assisted Living Complex development project.

Ada has indicated a willingness to serve other Cascade residents in this area of the Township as well. While the initial plan would call for the resident at 7115 Gladys to connect to the Ada Township System through a long service line that would connect to the watermain on Driftwood, Ada has indicated they would consider a watermain in the future that would extend down Thornapple River Drive and into Gladys to serve all of the residents on that street.

Attached for your review is:

- Schematic of the proposed water service connection from 7115 Gladys to Ada Township watermain on Driftwood.
- Proposed long term water service plan for Gladys neighborhood
- Proposed Water Service USD map amendments for Ada Township.

**ANALYSIS & CONCLUSIONS:**

Currently the Gladys neighborhood is not in the Cascade Township USD, so an amendment to the Cascade USD is not needed. However, the Cascade Township must consent to Ada Township adding this portion of Cascade to their USD before the City of Grand Rapids will consider it.

The Infrastructure Committee reviewed the request at their August meeting. Of primary concern to the committee was the potential for forced water utility service in the area or the potential for a SAD to fund the water utility extension that may be opposed by the residents. In response to those concerns the following information was provided:

- Ada Township does not have imminent plans to extend their watermain onto Gladys. This was only provided as a potential opportunity in the future should it prove beneficial to Cascade and Ada Townships and the Gladys residents.
- Cascade retains all taxing authority for this area, so the ability to institute a SAD remains solely vested in the Cascade Township Board.
- Cascade retains the authority over the right-of-way on Gladys, therefore any watermain extension in the future would need to be approved by both Cascade Township and the Kent County Road Commission.

The result of the extension of the Ada Township USD into Cascade will be:

- Resident at 7115 Gladys will be able to connect to Ada Township water through privately negotiated easements.
- Other Gladys area residents can engage Ada Township in conversations regarding water service.
- Cascade, Ada and Gladys residents can talk about water service extension onto Gladys in the future.

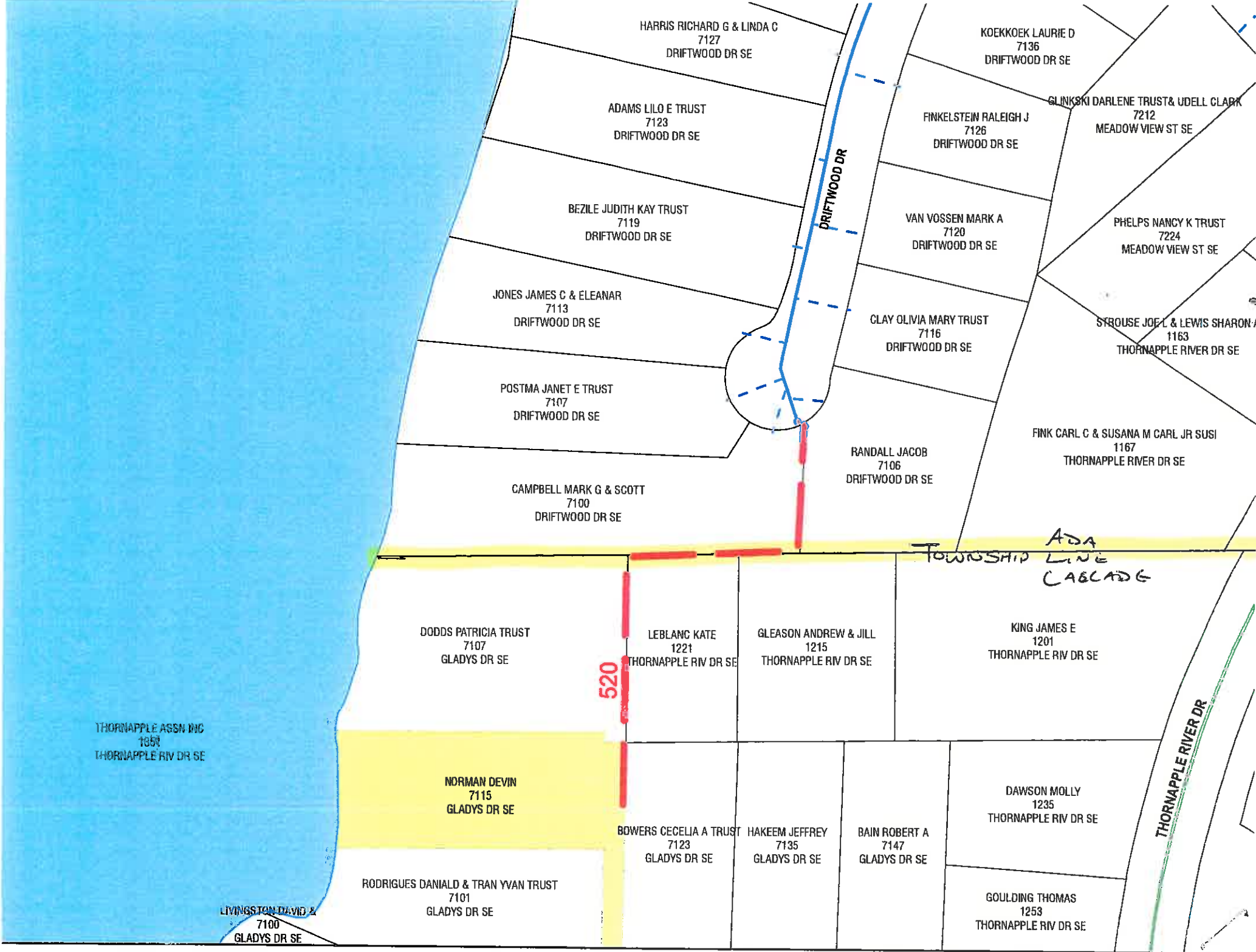
The Infrastructure Committee has recommended the Township Board approve the extension of the Ada Township water USD into Cascade Township in the area of Gladys.

**FINANCIAL CONSIDERATIONS:**

Allowing the extension of the Ada Township water USD into Cascade Township in the area of Gladys will have no financial effect on Cascade Township.

**RECOMMENDED ACTION:**

Approve the extension of the Ada Township water USD into Cascade Township in the area of Gladys.



HARRIS RICHARD G & LINDA C  
7127  
DRIFTWOOD DR SE

KOEKKOEK LAURIE D  
7136  
DRIFTWOOD DR SE

ADAMS LILO E TRUST  
7123  
DRIFTWOOD DR SE

FINKELSTEIN RALEIGH J  
7126  
DRIFTWOOD DR SE

GLINKSKI DARLENE TRUST & UDELL CLARK  
7212  
MEADOW VIEW ST SE

BEZILE JUDITH KAY TRUST  
7119  
DRIFTWOOD DR SE

VAN VOSSEN MARK A  
7120  
DRIFTWOOD DR SE

PHELPS NANCY K TRUST  
7224  
MEADOW VIEW ST SE

JONES JAMES C & ELEANAR  
7113  
DRIFTWOOD DR SE

CLAY OLIVIA MARY TRUST  
7116  
DRIFTWOOD DR SE

STROUSE JOEL & LEWIS SHARON /  
1163  
THORNAPPLE RIVER DR SE

POSTMA JANET E TRUST  
7107  
DRIFTWOOD DR SE

RANDALL JACOB  
7106  
DRIFTWOOD DR SE

FINK CARL C & SUSANA M CARL JR SUSI  
1167  
THORNAPPLE RIVER DR SE

CAMPBELL MARK G & SCOTT  
7100  
DRIFTWOOD DR SE

ADA  
TOWNSHIP LINE  
CABLADG

DODDS PATRICIA TRUST  
7107  
GLADYS DR SE

LEBLANC KATE  
1221  
THORNAPPLE RIV DR SE

GLEASON ANDREW & JILL  
1215  
THORNAPPLE RIV DR SE

KING JAMES E  
1201  
THORNAPPLE RIV DR SE

520

THORNAPPLE ASSN INC  
1051  
THORNAPPLE RIV DR SE

NORMAN DEVIN  
7115  
GLADYS DR SE

BOWERS CECELIA A TRUST  
7123  
GLADYS DR SE

HAKEEM JEFFREY  
7135  
GLADYS DR SE

BAIN ROBERT A  
7147  
GLADYS DR SE

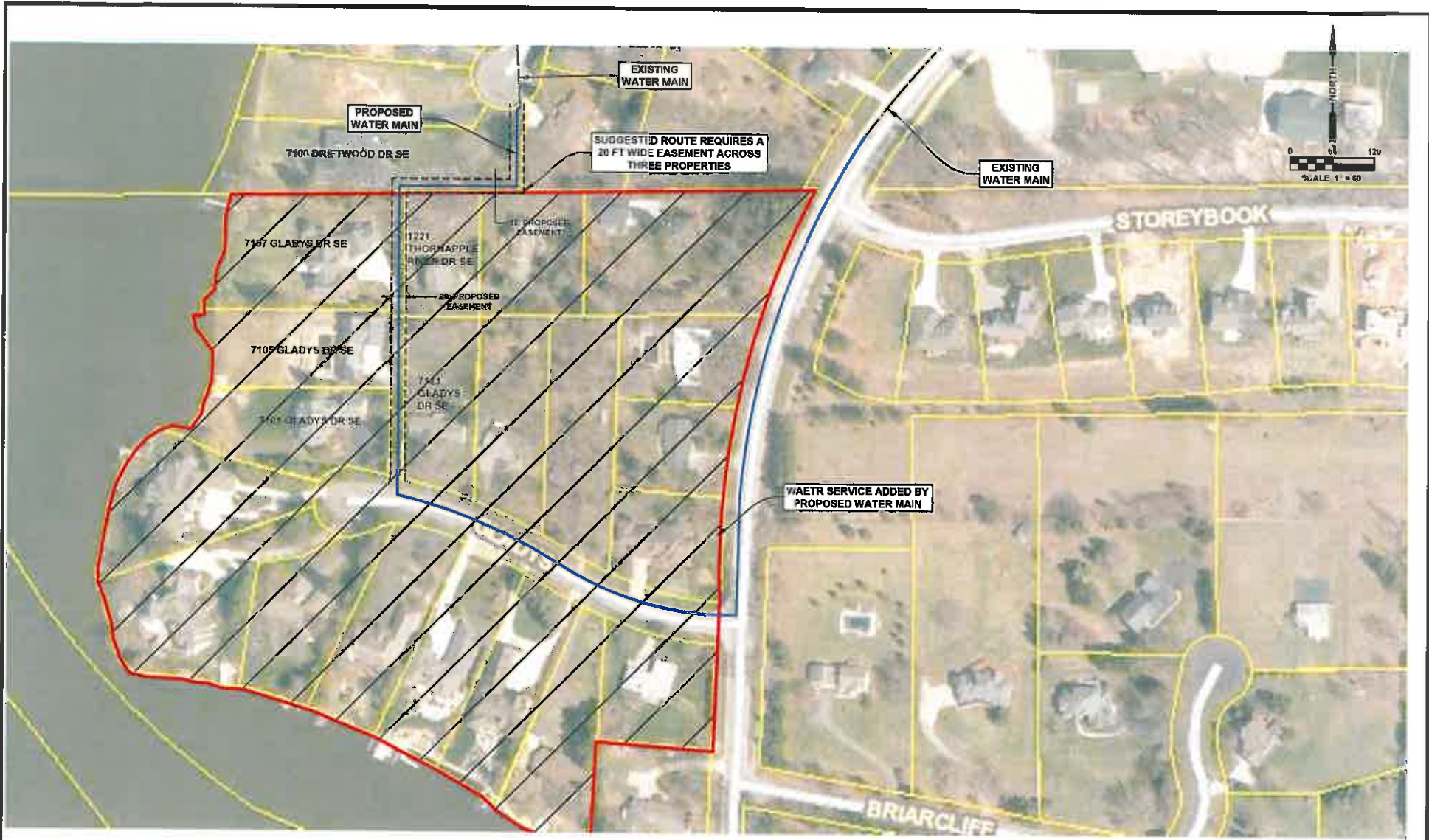
DAWSON MOLLY  
1235  
THORNAPPLE RIV DR SE

RODRIGUES DANIALD & TRAN YVAN TRUST  
7101  
GLADYS DR SE

GOULDING THOMAS  
1253  
THORNAPPLE RIV DR SE

LIVINGSTON DAVID &  
7100  
GLADYS DR SE

THORNAPPLE RIVER DR



**PRELIMINARY WATER MAIN ROUTE**



Know what's below.  
Call before you dig.

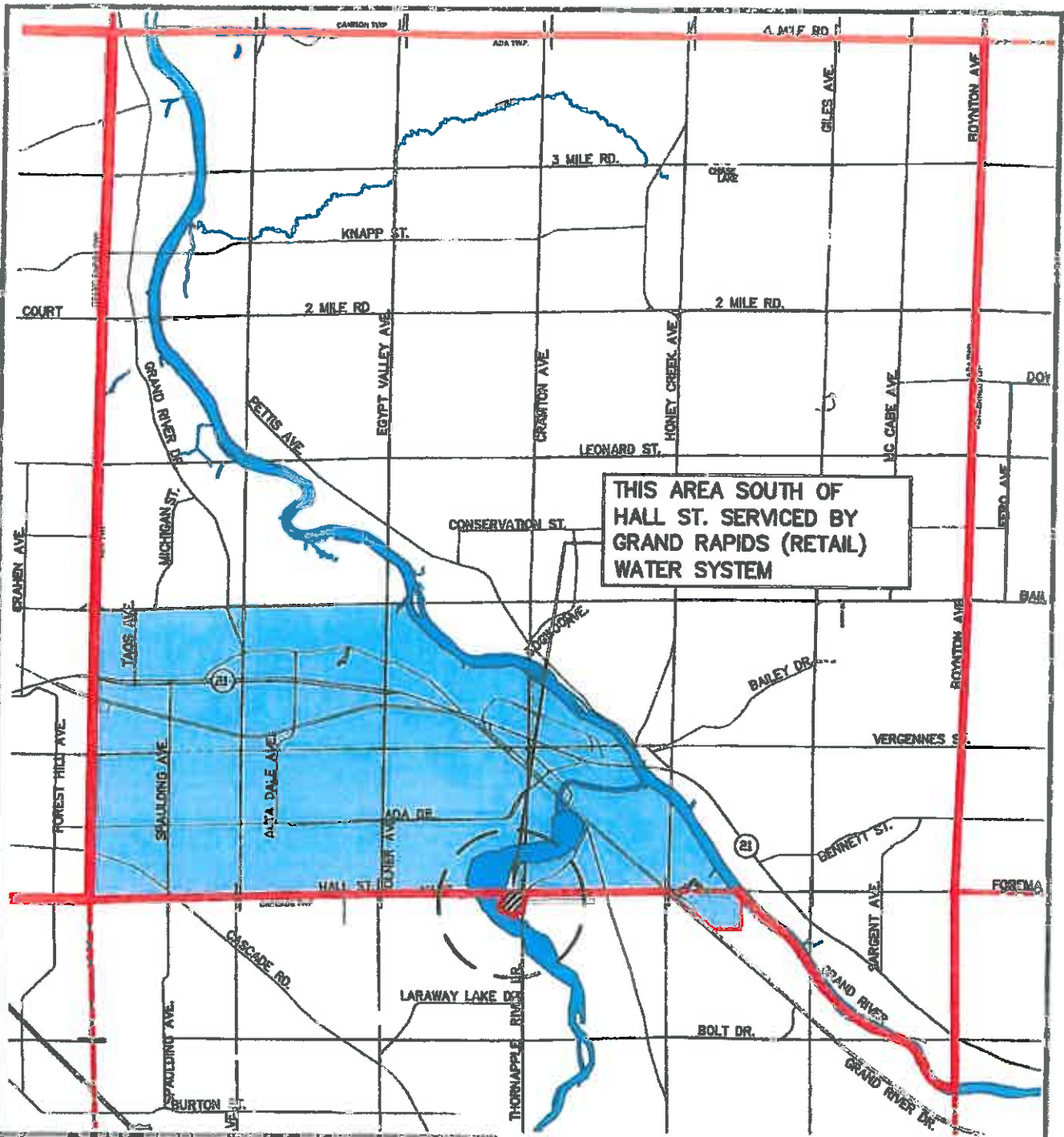
PLAN NO. 18080

**MOORE & BRUGGINK, INC.**  
 Consulting Engineers  
 2020 Monroe Avenue N.W.  
 Grand Rapids, Michigan 49505-4298  
 Phone: (616) 265-2801 Web: www.arbes.com

DESIGNED BY:	JY
CHECKED BY:	SC
PLAN DATE:	MARCH 2011

**PRELIMINARY WATER MAIN ROUTE**  
 FOR  
**ADA TOWNSHIP SERVICE DISTRICT**  
**EXPANSION**  
 CASCADE, KENT, MICHIGAN

PROJECT NUMBER:	18080
PROJECT NAME:	
PROJECT NUMBER:	1



THIS AREA SOUTH OF HALL ST. SERVICED BY GRAND RAPIDS (RETAIL) WATER SYSTEM

# Water Service District Ada Township

-  ADDITIONAL PROPOSED AREA FROM CASCADE TO ADA
-  UTILITY SERVICES DISTRICT

NOTS: SUBJECT TO BE 200' BY 2' LOT BOUND. SERVING LOTS OR OTHER LAND DIVISION LINES WHERE POSSIBLE WITHOUT ENTERING NEIGHBORING GOVERNMENT BOUNDARY.



MOORE & BRUGGINK, INC.  
Land Surveying & Engineering  
 10000 N. 10th Ave., Suite 100  
 Grand Rapids, MI 49506  
 Phone: 616-235-1200

APPROVED BY: ADA TOWNSHIP

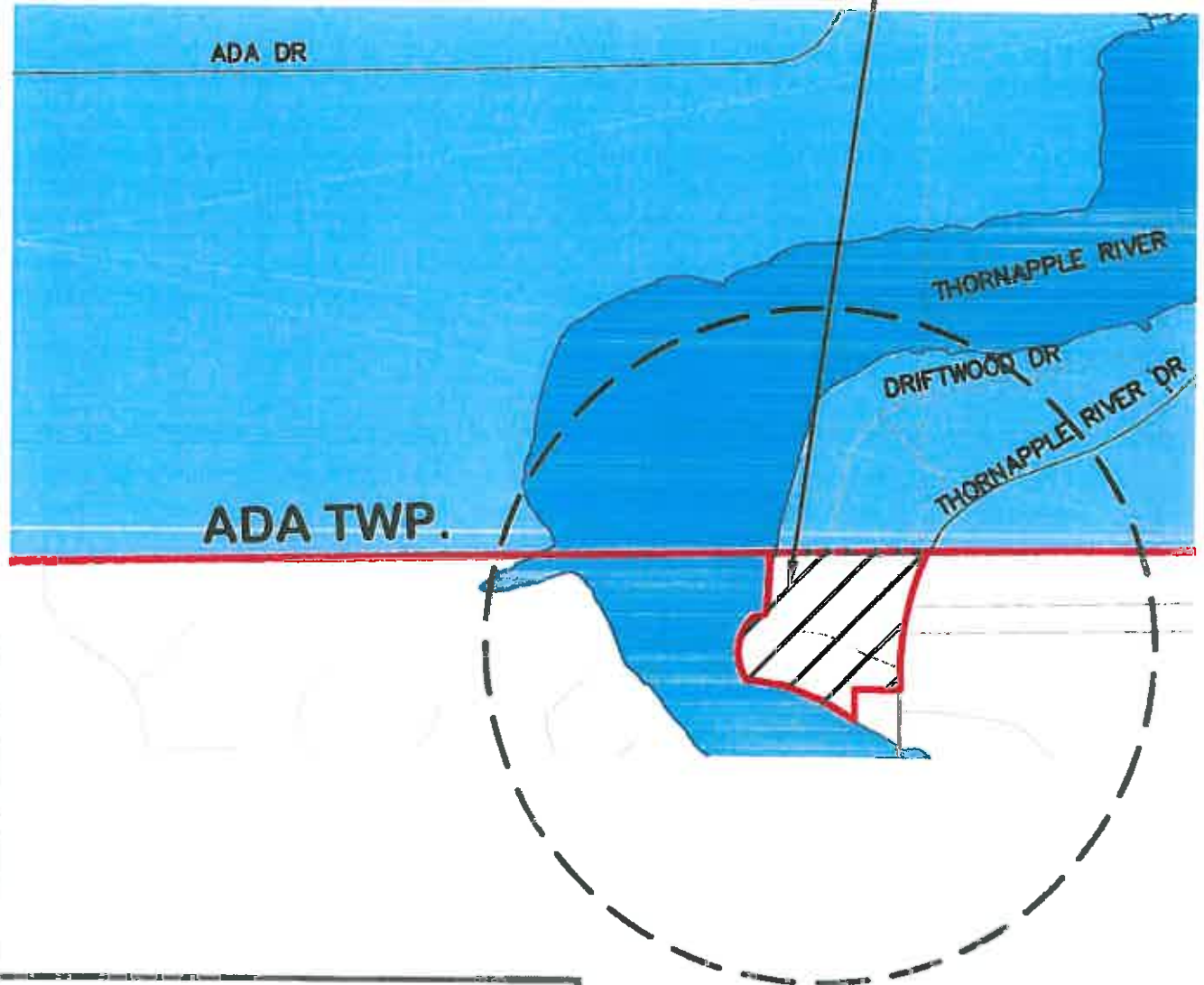
*George Hoga*  
 George Hoga, Supervisor

*7/11/17*

Date

MAU10102 Norman Water Main Loop Subwatershed.dwg, 7/5/2017 9:28:41 AM, CHUCK F. BARTISOLO/MEW

THIS AREA IS FOR  
WATER MAIN ONLY



# Water Service District Ada Township

-  ADDITIONAL PROPOSED AREA FROM CASCADE TO ADA
-  CURRENT SERVICES DISTRICT

NOTE: DISTRICT TO BE SHOWN ON  
S. OF ROAD. SECTION LINE OR OTHER  
LAND DIVISION LINES SHOULD BE SHOWN  
WITHOUT ENTERING NEIGHBORING  
GOVERNMENT JURISDICTION



**MOORE & BRECCINK, INC.**  
Consulting Engineers  
2440 North State St.  
Grand Rapids, Michigan 49503-4244  
Phone: (616) 241-1999

APPROVED BY: ADA TOWNSHIP

*George Haga*  
George Haga, Supervisor

7/11/17  
Date



# CASCADE CHARTER TOWNSHIP

2865 Thornhills SE Grand Rapids, Michigan 49546-7140

**Date:** September 13th, 2017  
**To:** Supervisor Beahan and Township Board Members  
**From:** Ben Swayze, Township Manager  
**Subject:** Contract with Aquatic Consulting Services for Gypsy Moth Population Survey

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## **FACTS:**

The Township has received the proposed agreement from Aquatic Consulting Services LLC to conduct gypsy moth egg mass surveys to determine areas that require aerial spraying in 2018. The Township has worked with Aquatic Consulting Services for the past 20 years to assist in our Gypsy Moth aerial spraying program. If approved, the survey would be conducted this fall, and the results of the survey would be utilized to determine spray block configuration for efficient aerial treatment of the high priority areas in the spring of 2018.

The Township last sprayed for gypsy moths in spring of 2017. During the spring 2017 the Township sprayed approximately 433 acres. The follow up survey in the fall indicated that the 2017 spraying program was a success. Neal Swanson, biologist for Aqua Consulting services indicated,

*"It appears that we have achieved good results in the treated blocks. I was able to confirm that the area of Whitneyville Ave near 52nd St does in fact have a building gypsy moth population. Natural density dependent control mechanisms appear to be limited in that area, so our monitoring efforts are especially important to suppress the population. I would strongly recommend monitoring that area as well as other areas of concern over the next few seasons at least. I visited [a resident] on Whitneyville Rd and her property is definitely fairly heavily infested. It's a strange situation though, considering she has 2 trees almost completely defoliated yet trees across the street are untouched (I took a few pictures). This is a prime example of the need for continued research and monitoring to better understand gypsy moth population trends.*

*Regardless, our efforts so far are definitely yielding good results and with continued effort, we should be able to reduce the populations to unnoticeable levels in the next few seasons."*

We have received reports that other areas of Kent County are reporting heavy damage from the Gypsy Moth caterpillar population this year. Walker and Wyoming have both recently restarted their programs after several years of not spraying, utilizing the same biologist and spray applicator that we do. Caledonia Township has also recently investigated implementing a spray program.

Attached for your review are:

- Letter from Aquatic Consulting Resources LLC detailing the gypsy moth survey program

- Proposed agreement with Aquatic Consulting Services LLC for Gypsy Moth Population Surveys
- Gypsy Moth information brochure published by the MSU Extension
- Cascade Township 2017 Aerial Spray Map

**ANALYSIS & CONCLUSIONS:**

The Township has participated in the gypsy moth spray program in conjunction with Aquatic Consulting Services LLC for going on 20 years. The Township has participated in the program because of the acknowledgement of the devastating effect the gypsy moth population could have on the canopy cover of the Township.

The partnership with Aquatic Consulting Resources 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 have saved us from unnecessarily spraying, as was the case most recently in 2013 and in 2010-11.

**FINANCIAL CONSIDERATIONS:**

The proposed contract with Aquatic Consulting Services LLC is \$8,600. For fiscal year 2017 the Township has budgeted \$33,600 for the gypsy moth program, including surveying and spraying. The cost of the survey work is the same that it was in FY2016.

**RECOMMENDED ACTION:**

Approve the agreement with Aquatic Consulting Services LLC for Gypsy Moth Population Surveys for Aerial Spraying 2018.



## *Aquatic Consulting Services*

---

P.O. Box 530, Sanford, MI 48657  
[www.aquaticremedies.com](http://www.aquaticremedies.com)

989-689-0223

September 5, 2017

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

Dear Mr. Swayze:

Thank you for considering the continuation of your gypsy moth suppression program. Aquatic Services has been actively doing this work for 31 years throughout Michigan, and for the past 20 years in Cascade Charter Township.

The gypsy moth remains a problem in Michigan because it reaches such high numbers so quickly. Small, remnant populations can multiply quickly and become a nuisance at the least, and causing tree mortality at worst. This is referred to as a bimodal life history; with populations existing at either very low or very high numbers. Our job is to find the very short period of transition between these two extremes and intervene so the low populations do not become nuisance populations.

We accomplish this task by surveying the entire Township where suitable habitat exists, noting the gypsy moth populations, their health, degree of parasitism, egg viability, egg mass size, and other factors that influence the coming year's population. This information is analyzed with the threshold model developed in Michigan so we know when intervention is appropriate. By aerially spraying the selected areas, the population is kept in check indefinitely using only a minimum of spray. It is likely that the vast majority of your residents will never know the devastation of a gypsy moth outbreak as long as we maintain a proactive attitude toward monitoring and control.

I have attached an Agreement for the 2018 insect season for your consideration. If you find it acceptable, please return a signed copy to me and we will schedule the work. Mid-October is the best time to start and we usually finish by the end of the year. I will send a final report to you once surveying is complete.

Thanks again, for your consideration.

Sincerely,

Neal Swanson, Owner/Biologist

Enclosure



## ***Aquatic Consulting Services***

---

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

989-689-0223

### **AGREEMENT Gypsy Moth Population Surveys for Aerial Spraying 2018 Cascade Charter Township**

Aquatic Consulting Services LLC, PO Box 530, Sanford, MI 48657 agrees to provide certain work, analysis, and/or reports as described below:

1. Conduct gypsy moth egg mass surveys to determine areas that require aerial spraying in 2018 to prevent nuisance levels of gypsy moth larvae. The area to be surveyed includes the entire Township of Cascade except for the open area surrounding the airport, unless suitable tree cover is present to support a sustained gypsy moth population. The surveys will be completed during the autumn when conditions are favorable for this procedure and following approval and receipt of a final agreement.
2. Determine spray block configuration for efficient aerial treatment of the high priority areas and map the blocks using a computer based mapping system.
3. Maintain the egg mass count data and spray block records to include the 2018 data so the gypsy moth population can be tracked over time.
4. Analyze the egg mass survey data according to the method known as the "Kroll Threshold Model" to determine the risk of nuisance levels of larvae in each potential spray block.
5. Recommend areas to be treated by aerial spraying of *B. thuringiensis* (B.t.) to alleviate nuisance levels of gypsy moth larvae and to deter population buildup.
6. Provide paper and electronic maps of the areas recommended for treatment to both the Township and to the Aerial Contractor.
7. Provide the digitized spray blocks on computer media to the pilot for the AgNav cockpit GPS guidance system. Objectors to the spray, if any, will be excluded from the spray block providing the objector information is received by Aquatic Consulting Services from the Township by April 30, 2018.
8. The egg mass survey field work will be accomplished by January 31, 2018. The analysis, the recommended spray blocks, and the accompanying maps will be completed by February 28, 2018.

As Client, Cascade Charter Township, 2865 Thornhills, S.E., Grand Rapids, MI 49546, agrees to compensate Aquatic Consulting Services for the above described services as follows:

A total of \$8,600.00 upon completion of the survey and receipt of proper invoice.

Also, the Township agrees to furnish any existing maps, either paper or in electronic format, that may be of use in assisting the described work.

Client: \_\_\_\_\_ Date: \_\_\_\_\_  
*Ben Swayze, Township Manager*

Aquatic Consulting Services LLC: \_\_\_\_\_ Date: \_\_\_\_\_  
*Neal Swanson, Owner*

Terms:

# 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 explode 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 Michigan 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.

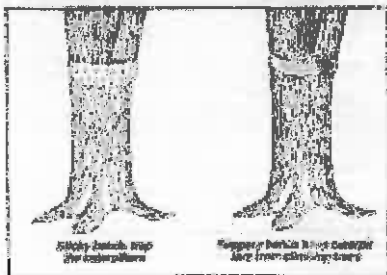
Sticky bands can be purchased or made using a nonporous material that can be wrapped around a tree trunk, then coated with a commercially made, vegetable-based sticky material. **Never put sticky material directly on the tree trunk.** This will permanently stain the bark and may harm the tree.

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 sticky 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 (*Cornus*).  
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 aspen.*

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.



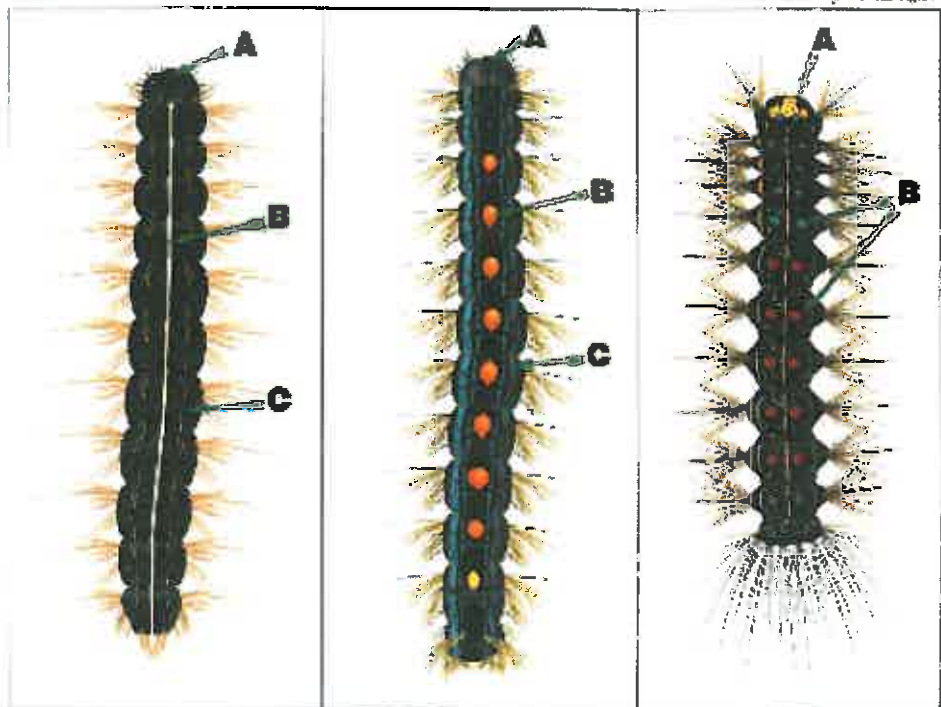
# Comparison of the Eastern Tent Caterpillar, Forest Tent Caterpillar and Gypsy Moth

Michigan State University Extension

**T**hese 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.

Illustrations by Dave Garavito


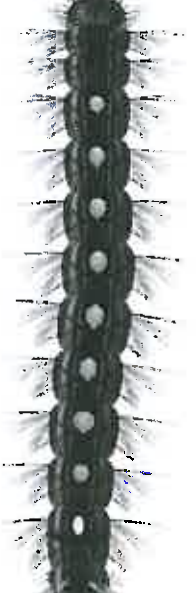
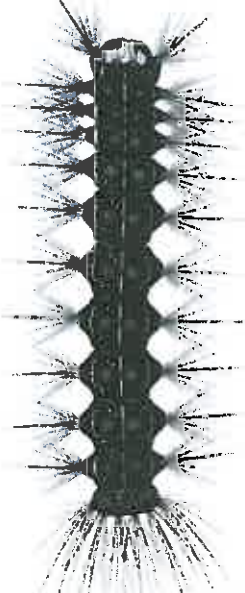





	<b>Eastern Tent Caterpillar</b> <i>Malacosoma americanum</i>	<b>Forest Tent Caterpillar</b> <i>Malacosoma disstria</i>	<b>Gypsy Moth Caterpillar</b> <i>Lycnautera dispar</i>
<b>Markings</b>	<b>A)</b> Dark head; <b>B)</b> prominent white or yellow stripe down the center of the body; <b>C)</b> small blue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

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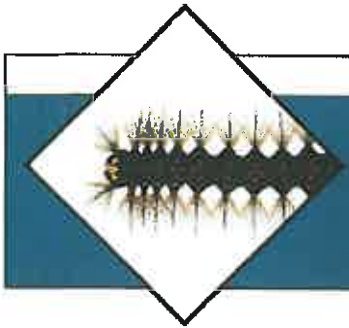
## Comparison of the Eastern Tent Caterpillar, Forest Tent Caterpillar and Gypsy Moth

	 <b>Eastern Tent Caterpillar</b> <i>(Malacosoma americanum)</i>	 <b>Forest Tent Caterpillar</b> <i>(Malacosoma disstria)</i>	 <b>Gypsy Moth Caterpillar</b> <i>(Lymantria dispar)</i>
<b>Egg Mass</b>	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. 
<b>Preferred Host Trees</b>	Black cherry, apple, crabapple.	Aspen, sugar maple, oaks, birch, black gum.	Oaks, aspen, birch, willow and more than 250 other species.
<b>Populations</b>	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.

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Revised 8:02 - 10M - KMF - JP - Price: 30¢, single copy free to Michigan residents. File 27 35 (Pests and Pest Management)



## *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.

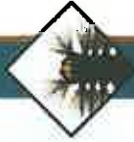
Additional introductions have since occurred and the fungus also is spreading naturally. *Entomophaga maimaiga* has now been found throughout most of Lower Michigan.

### 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.



## Entomophaga maimaiga – A Natural Enemy of Gypsy Moth



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.

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UNIVERSITY  
EXTENSION**

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Issued in furtherance of MSU Extension's work in agriculture and home economics, acts of May 8, and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Margaret A. Butler, acting Extension director, Michigan State University Extension, E. Lansing, MI 48824.

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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.

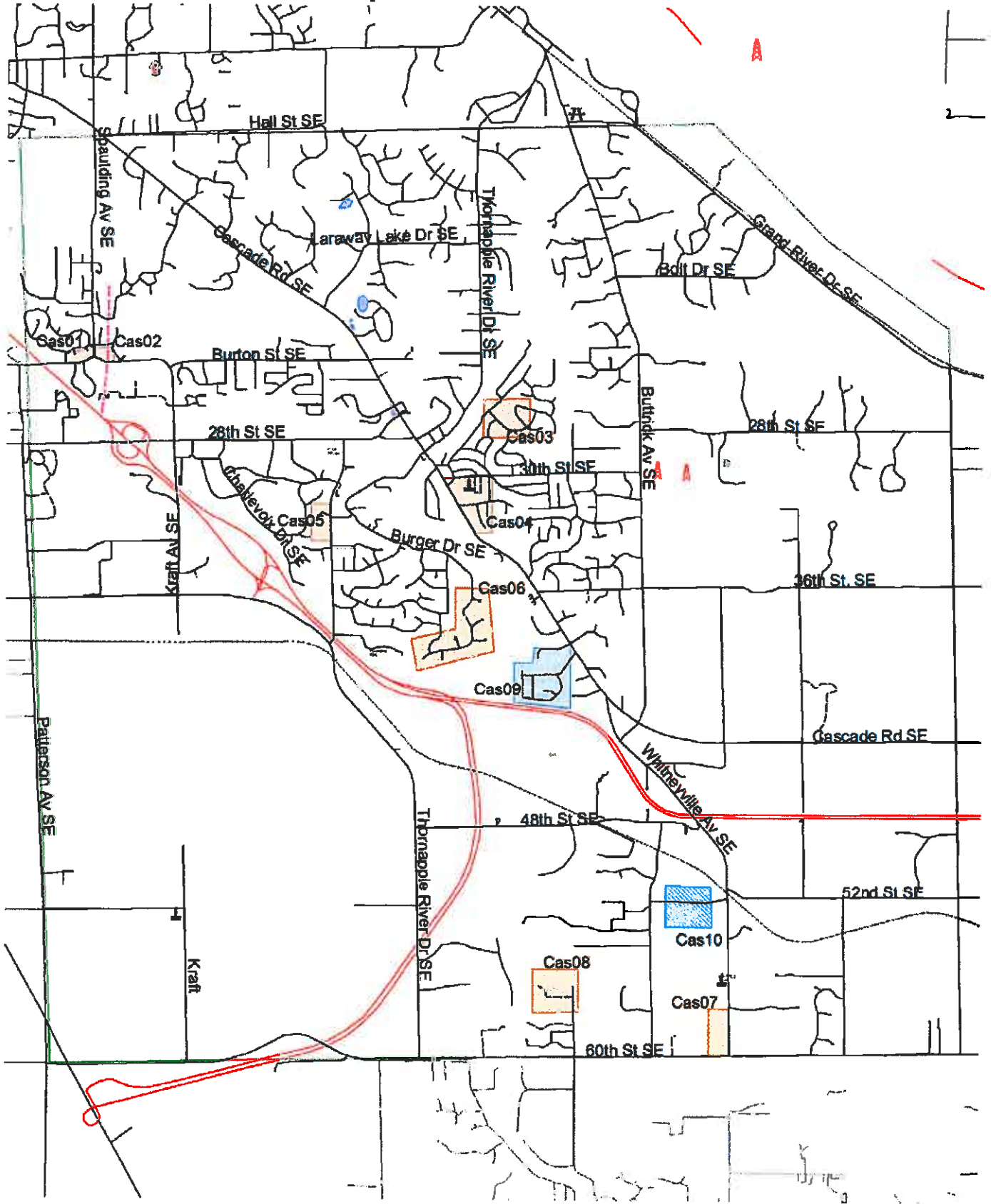
Through careful monitoring, sanitation practices, banding as well as localized pesticide treatment, you can help to keep Gypsy Moth in check while allowing natural pathogens, predators and parasites to gain back a balance of control. Our hope is that nature will continue to keep Gypsy Moth populations 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*

# Cascade Township Gypsy Moth Survey Report for 2017 Season



(Priority A) (Priority B)

Please See Accompanying  
Report for Description of Areas



— Township Border  
2016 Aquatic Consulting Services



**CASCADE CHARTER TOWNSHIP**  
2865 Thornhills SE Grand Rapids, Michigan 49546-7140

**Date:** September 13th, 2017  
**To:** Supervisor Beahan and Township Board Members  
**From:** Ben Swayze, Township Manager  
**Subject:** Resolution for "Prisoner of War/Missing in Action Recognition Day"

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**FACTS:**

The Township has received a request from the Michael J. Bost Chapter 18 of the Vietnam Veterans of America that the Township, along with other communities, issue a resolution declaring September 15<sup>th</sup>, 2017 as "Prisoner of War/Missing in Action Recognition Day." The request has also been made that the resolution be presented to the Michael J. Bost Chapter 18 of the Vietnam Veterans of America at a ceremony they will be conducting at 2:00pm in the chapel of the Michigan Home for Veterans in Grand Rapids.

Attached for your review is:

- Letter of request from the Michael J. Bost Chapter 18 of the Vietnam Veterans of America.
- Proposed Resolution to Provide for the Designation of September 15<sup>th</sup>, 2017 as Prisoner of War/Missing in Action Recognition Day

**ANALYSIS & CONCLUSIONS:**

The Township has approved similar resolutions in previous years. The Michael J. Bost Chapter 18 of the Vietnam Veterans of America is one of three in West Michigan that is working to increase awareness of the servicemen unaccounted for in the Vietnam and Gulf Wars. Currently there are nearly 1,700 Vietnam-era American servicemen and civilians unaccounted for in Southeast Asia, including 49 from the State of Michigan.

**FINANCIAL CONSIDERATIONS:**

Adoption of the proposed resolution will not have any financial considerations.

**RECOMMENDED ACTION:**

Adopt the Resolution recognizing September 15<sup>th</sup>, 2017 as "Prisoner of War/Missing in Action Recognition Day" in Cascade Township.

VIETNAM VETERANS OF AMERICA  
Michael J. Boat Chapter 18  
P. O. Box 1766  
Grand Rapids, MI 4950  
616-752-8387

August 4, 2017

Supervisor Robert Beahan  
Township of Cascade  
2868 Thornhills SE  
Grand Rapids, MI 49546-7192

Dear Supervisor Beahan;

The Michael J. Bost Chapter 18 of the Vietnam Veterans of America will observe Prisoner of War/Missing in Action Recognition Day on Friday, September 15, 2017. We will have a brief ceremony at **2:00 PM** in the chapel of the Michigan Home for Veterans in Grand Rapids.

We would like the Township of Cascade, with other communities, issue a proclamation declaring September 15, 2017 as Prisoner of War/Missing in Action Day. This resolution would then be presented to the Michael J. Bost Chapter of the Vietnam Veterans. A sample is included for your convenience.

Your presence is requested at this ceremony to make the presentation to the Vietnam Veterans of America Chapter 18. Out of respect for those who are present, we would appreciate dignitaries being present for the entire ceremony.

If you or your representative are able to attend this ceremony, please let us know.

Please use the front entrance. Other doors are locked.

For further questions, please call 616-752-8387.

Thank you for your consideration.

Sincerely,

Jim Pike  
President  
Michael J. Bost  
Chapter 18  
Vietnam Veterans of America

**CASCADE CHARTER TOWNSHIP  
KENT COUNTY, MICHIGAN**

**RESOLUTION \_\_\_ of 2017**

**RESOLUTION TO PROVIDE FOR THE DESIGNATION OF SEPTEMBER 15, 2017 AS  
“PRISONER OF WAR / MISSING IN ACTION RECOGNITION DAY”**

Minutes of a regular meeting of the Township Board of Cascade charter Township, County of Kent, State of Michigan, held at the Wisner Center in said Township on September 13th, 2017 at 7:00 o'clock p.m., Eastern Daylight Time

PRESENT: Members: \_\_\_\_\_

ABSENT: Members: \_\_\_\_\_

The following preamble and resolution were offered by Board Member \_\_\_\_\_ and supported by Board Member \_\_\_\_\_.

**WHEREAS**, the United States has fought in many wars, one of the longest of which was the Vietnamese Conflict; and

**WHEREAS**, Friday, September 15, 2017 is a day of remembrance for those who suffered as prisoners of war or are still missing as a result of any conflict; and,

**WHEREAS**, although cooperation has increased within the past few years, there are still nearly 1,700 American servicemen and civilians, including 49 from the State of Michigan, missing and unaccounted for in Indochina. The uncertainty surrounding their fates has caused their families to suffer great hardship; and,

**WHEREAS**, increasing public awareness and focusing public attention on this issue is one way to help achieve this goal.

**NOW, THEREFORE, BE IT HEREBY RESOLVED**, that the Board of Trustees of Cascade Charter Township shall designate **Friday, September 15, 2017** as:

**“PRISONER OF WAR / MISSING IN ACTION RECOGNITION DAY”**

We urge all of our citizens to take note of this important issue and remember those servicemen and civilians who were prisoners of war and those who are still missing and to commemorate the day with appropriate activities.

YEAS: Board members: \_\_\_\_\_

NAYS: Board members: \_\_\_\_\_

ABSTAIN: Board members: \_\_\_\_\_

ABSENT: Board members: \_\_\_\_\_

RESOLUTION DECLARED ADOPTED

\_\_\_\_\_  
Susan B. Slater, Township Clerk

I HEREBY CERTIFY that the foregoing is a true and complete copy of a resolution adopted by the Township Board of Cascade Charter Township, County of Kent, Michigan, at a regular meeting held on September 15th, 2017, and that said meeting was conducted and public notice of said meeting was given pursuant to and in full compliance with the Open Meetings Act, being Act 267, Public Acts of Michigan, 1976, and that the minutes of said meeting were kept and will be or have been made available as required by said Act.

Dated: \_\_\_\_\_

\_\_\_\_\_  
Susan B. Slater, Township Clerk