

A REGULAR MEETING
Of The
TRAVERSE CITY LIGHT AND POWER BOARD

Will Be Held On

TUESDAY, September 22, 2015

At

5:15 p.m.

In The

COMMISSION CHAMBERS
(2nd floor, Governmental Center)
400 Boardman Avenue

Traverse City Light and Power will provide necessary reasonable auxiliary aids and services, such as signers for the hearing impaired and audio tapes of printed materials being considered at the meeting, to individuals with disabilities at the meeting/hearing upon notice to Traverse City Light and Power. Individuals with disabilities requiring auxiliary aids or services should contact the Light and Power Department by writing or calling the following.

Stephanie Tvardek
Administrative Assistant
1131 Hastings Street
Traverse City, MI 49686
(231) 922-4940 ext. 201

Traverse City Light and Power
1131 Hastings Street
Traverse City, MI 49686
(231) 922-4940

Posting Date: 09-18-15
4:00 p.m.

AGENDA

Pledge of Allegiance

1. Roll Call

2. Consent Calendar

The purpose of the consent calendar is to expedite business by grouping non-controversial items together to be dealt with by one Board motion without discussion. Any member of the Board, staff or the public may ask that any item on the consent calendar be removed therefrom and placed elsewhere on the agenda for full discussion. Such requests will be automatically respected. If an item is not removed from the consent calendar, the action noted in parentheses on the agenda is approved by a single Board action adopting the consent calendar.

None.

3. Unfinished Business

- a. West Side Transmission Line Upgrade Project re-authorization. (Myers-Beman) (p. 4)

4. New Business

- a. Consideration of approving minutes of the Regular Meeting of August 25 and Special Meeting of September 2, 2015. (p. 10)
- b. Consideration of authorizing a change order to C.C. Power, LLC in the not to exceed amount of \$45,000 for the Wayne Street Distribution Line Rebuild. (Myers-Beman) (p. 14)
- c. 2015 Energy Optimization Biennial Filing. (Wheaton) (p. 15)
Public comment will be accepted on the 2015 Energy Optimization Biennial filing.

5. Appointments

- a. Appointment of Secretary for the Light and Power Board. (Myers-Beman) (p. 20)

6. Reports and Communications

- a. From Legal Counsel.
- b. From Staff.
 1. MERS board presentation. (MERS/Myers-Beman) (p. 21)
 2. Interim Director placement services proposal. (Schroeder) (p. 86)
 3. 2014 Annual Summary for the Energy Optimization and Renewable Energy Plan. (Wheaton) (p. 90)
 4. Market Research – Customer Survey update. (Schroeder) (p. 92)
 5. Emergency Purchase (August Storm) – Report to Board. (Myers-Beman) (p. 95)

6. Announcement of employee appreciation lunch scheduled for September 30, 2015. (Myers-Beman) (p. 105)
7. Announcement of the TCL&P Open House scheduled for October 3, 2015. (Schroeder) (p. 106)
8. Communication from Acting Executive Director. (Colburn) (p. 107)

c. From Board.

7. Public Comment

/st



**TRAVERSE CITY
LIGHT & POWER**

To: Light & Power Board
From: Karla Myers-Beman, Controller
Date: September 16, 2015
Subject: Project Reauthorization Request – West Side Transmission Line and Wayne Street Distribution Line Rebuild

Staff has prepared a project reauthorization request for the West Side Transmission Line Upgrade to include Wayne Street Distribution Line Rebuild.

The change in the reauthorization of this project was recommended and brought to staff's attention by GRP Engineering, Inc. ("GRP") Staff evaluated whether or not to proceed with the Wayne Street Distribution Line Rebuild project and concurred with GRP recommendation for the following reasons:

1. TCL&P would save on equipment mobilization charges providing a lower per unit cost comparable to other like similar projects.
2. By doing the projects together the neighborhood would not have to be affected by traffic control and construction at a later date.
3. The rebuild would increase system reliability by replacing an asset that is past its useful life and bringing the line up to current day standards.
4. The payback of the project is estimated to be at less than 4 years based on the direct customers affected.

Staff will be prepared to answer any questions.

Staff recommends Board approval of the project reauthorization for West Side Transmission Line Upgrade and Wayne Street Distribution Line Rebuild.

If after Board discussion you agree with staff's recommendation the following motion would be appropriate:

**MOVED BY _____, SECONDED BY _____, THAT THE
BOARD AUTHORIZATION OF AMENDING THE WEST SIDE TRANSMISSION LINE
UPGRADE PROJECT AUTHORIZATION TO INCLUDE THE WAYNE STREET
DISTRIBUTION LINE REBUILD.**

Project Name: WEST SIDE TRANSMISSION LINE UPGRADE AND WAYNE STREET DISTRIBUTION LINE REBUILD

Date of Board Presentation/Consideration: ~~October 28, 2014~~ September 22, 2015

Budgeted in Capital Plan: Yes CIP: \$ 1.575 million

Objective: Target Completion date of ~~July 1, 2015~~ November 15, 2015

Project Description:

West Side Transmission Line

Reconstruction of the Gray to Hall Street 69KV transmission line will include replacement of all wood poles, insulators, conductor, plus associated hardware, guying, and anchoring. Poles will generally be replaced in the same location, although revised pole spacing will occur where it makes good engineering and practical sense. Poles will be taller due to increased conductor sag with the proposed #795 ACSS conductor. This increased height will provide the NESC required clearances over ground features plus distribution circuits, and joint-use (phone, cable, etc.) lines on the same poles. Line design will give preference to traditional round wood poles, with the exception of a few laminated self-supporting structures in the Hickory Hills Ski Area to improve skier safety. Self-supporting laminated wood structures will only be utilized in other areas if installation of guying and anchoring is not possible. The line will be insulated and operated at 69KV for the foreseeable future.

Wayne Street Distribution Line Rebuild

Rebuild of the Wayne Street distribution line will be from Cedar Street to the top of Wayne Hill and directly affect approximately 60 customers and indirectly affect an additional 340 customers (off spurs from the main distribution line). The rebuild will include replacement of wood poles, insulators, conductors plus associated hardware, guying, anchoring, fusing and transformers. Poles will generally be replaced in the same location with one distribution pole being removed from the line. New transformers will be installed due to additional load on the system from recent residential construction and fusing will be installed on all feeder lines to mitigate large outages on the system.

Project Purpose and Necessity:

West Side Transmission Line

The 69KV Gray to Hall Street transmission line must remain in service to provide the most reliable transmission system for TCL&P and interconnected utilities by eliminating potential customer outages under first (single) contingency conditions and to meet MISO requirement of having transmission lines looped. Completion of the South Substation project including installation of 69KV circuit breakers will allow for automatic clearing of any faults on the south line section thereby maintaining service to all TCL&P customers plus Wolverine Power's South Airport Substation assuming the Gray to Hall Street 69KV line is re-conducted. Completion of two 69KV transmission loops capable of serving peak system load provides adequate redundancy within the transmission system.

Wayne Street Distribution Line Rebuild

The distribution line is over forty years old evident by the current conductor being copper and has passed its normal asset useful life. This line needs to be brought up to current day standards for system reliability purposes. This includes installation of fusing at taps to limit faults causing outages to feeder lines, provide a higher level of power quality to our customers with the installation of new conductor and transformers to meet current demand load, and reduce the potential risk that comes with aging infrastructure deteriorating. Additionally, taking advantage of utilizing the current contractor reconstructing the West Side Transmission Line reduces the cost by incurring no equipment mobilization charges and minimizes construction disturbance to the neighborhood.

Project Benefits:

West Side Transmission Line

The transmission line is the most aged transmission infrastructure on TCL&P's system and is considered past its useful life and is not built to current day standards. Upgrading the line will include larger conductor that will allow for increased amperage, while maintaining the same voltage, to carry the full load required by the system in the event another transmission circuit is out of service, for whatever reason. Its upgrade will also allow the utility to receive the full benefits of the multi-million dollar investment into the Gray Substation.

-Wayne Street Distribution Line Rebuild

The benefits of rebuilding the line include increasing public safety by replacing aged poles and wire that have the potential of falling down; improving customer service by reducing the number of outages and increasing power quality; reducing energy needs by reducing losses that occur in the older conductor; and maintenance costs related to emergency repairs.

Other Alternatives:

West Side Transmission Line

Line removal was researched and determined to be detrimental to the utility's reliability in a first (single) contingency outage situation. The utility also researched relocating the line to the M-72/Grandview Parkway corridor. That route was cost estimated and staff considered all of the obstacles and increased costs of that option.

Wayne Street Distribution Line Rebuild

Not applicable.

Timing of Project: Due to the age of the 55 year old transmission line, this project is the highest priority capital project for 2015. Typical life of a transmission and distribution line is 35-40 years.

Project Timeline: Bidding of materials and construction contractors will commence over the winter months with a spring 2015 start date.

Preliminary Engineering Cost Estimate: \$1,665,311 -See attached detailed estimate from GRP Engineering, Inc. for West Side Transmission Line and \$69,400 for Wayne Street Distribution Line Rebuild.

Financing: No bonding or borrowing is required. Current cash reserves have been allocated within the Six Year Capital Improvements Plan.

Additional Revenues: None, other than the reimbursement from MISO for the capital costs to upgrade the transmission line which will occur over an 8-10 year period.

Impact on O&M Expenses: No increase. Since the line will be newly constructed the maintenance would be decreased from its current status.

Staff Recommendation: Reconstruction of the transmission line overhead in its current utility easement with a slight realignment in Hickory Hills Ski Area. Rebuild of the distribution line overhead in its current utility easement.

**TRAVERSE CITY LIGHT & POWER
GRAY ROAD TO HALL STREET TRANSMISSION LINE
REBUILD INCLUDING MINOR CENTERLINE REVISION & SELF-SUPPORTING POLES
CONSTRUCTION COST ESTIMATE**

ITEM	ITEM DESCRIPTION	UNITS	LABOR	MATERIAL	TOTAL	EXTENDED TOTAL
1	Poles	LS	\$99,700.00	\$270,250.00	\$369,950.00	\$369,950
2	Self-Supporting Laminated Wood Poles	LS	\$20,000.00	\$30,000.00	\$50,000.00	\$50,000
3	Self-Supporting Pole Foundations	LS	\$80,000.00	\$10,000.00	\$90,000.00	\$90,000
4	Transmission Top Assemblies	LS	\$53,250.00	\$70,600.00	\$123,850.00	\$123,850
5	Distribution Top Assemblies	LS	\$11,825.00	\$8,135.00	\$19,960.00	\$19,960
6	Phase Conductor & OPTGW	LS	\$117,221.30	\$104,800.50	\$222,021.80	\$222,022
7	Guying & Anchoring	LS	\$34,670.00	\$17,385.00	\$52,055.00	\$52,055
8	Transformers/Secondaries/Services	LS	\$13,395.00	\$2,245.00	\$15,640.00	\$15,640
9	Grounding	LS	\$7,755.00	\$5,850.00	\$13,605.00	\$13,605
10	Distribution Transfers	LS	\$9,935.00	\$0.00	\$9,935.00	\$9,935
11	Miscellaneous Construction	LS	\$93,007.50	\$11,395.00	\$104,402.50	\$104,403
12	Tree Trimming	LS	\$50,000.00	\$0.00	\$50,000.00	\$50,000
13	Site Restoration	LS	\$25,000.00	\$2,500.00	\$27,500.00	\$27,500
14	Demolition & Removals	LS	\$97,391.72	\$0.00	\$97,391.72	\$97,392
15	Topographic Survey	LS	\$30,000.00	\$0.00	\$30,000.00	\$30,000
16	Soil Borings & Environmental	LS	\$5,000.00	\$0.00	\$5,000.00	\$5,000
17	Traffic Control & Signage	LS	\$22,000.00	\$0.00	\$22,000.00	\$22,000
18	Mobilization	LS	\$25,000.00	\$0.00	\$25,000.00	\$25,000
19	Insurance & Bonding	LS	\$4,000.00	\$0.00	\$4,000.00	\$4,000

Subtotal	\$1,332,311
Contingency (15%)	\$200,000
Design Engineering	\$133,000
Staking & Inspections	\$67,000
Total Estimated Construction Cost	\$1,665,311

Notes:

- All costs are estimated as 2015 construction costs.
- Cost estimate is based on rebuilding the existing 69kV transmission line from Gray Road to the Wayne & Division Street underground riser pole along the same centerline with the exception of a minor revision within Hickory Hills.
- Cost estimate is based on traditional round wood pole construction and self-supporting laminated wood structures at the base of the ski runs in Hickory Hills.
- The cost estimate submitted herein is based on time-honored practices within the construction industry. As such, the Engineer does not control the cost of labor, materials, equipment or a contractor's method of determining prices and competitive bidding practices or market conditions. The estimate contained represents our best judgement as design professionals using current information available at the time of preparation. The Engineer cannot guarantee that proposals, bids and/or construction costs will not vary from this cost estimate.

TRAVERSE CITY LIGHT & POWER
WAYNE STREET DISTRIBUTION LINE REBUILD

<u>ITEM</u>	<u>ITEM DESCRIPTION</u>	<u>TOTAL</u>
<u>1</u>	<u>Contract Labor</u>	<u>\$42,000.00</u>
<u>2</u>	<u>Materials</u>	<u>14,400.00</u>
<u>3</u>	<u>Engineering</u>	<u>5,200.00</u>
<u>4</u>	<u>Contingencies</u>	<u>7,800.00</u>
	<u>Total</u>	<u>\$69,400.00</u>

**TRAVERSE CITY
LIGHT AND POWER BOARD**

Minutes of Regular Meeting
Held at 5:15 p.m., Commission Chambers, Governmental Center
Tuesday, August 25, 2015

Board Members -

Present: Barbara Budros, Jim Carruthers, Pat McGuire, Jan Geht, John Taylor

Absent: Jeff Palisin, Bob Spence

Ex Officio Member -

Present: Marty Colburn, City Manager

Others: Scott Menhart, Karla Myers-Beman, Kelli Schroeder, Rod Solak,
Stephanie Tvardek, Mark Watson, Jessica Wheaton, Blake Wilson

The meeting was called to order at 5:15 p.m. by Chairman Taylor.

Item 2 on the Agenda being Consent Calendar

Moved by Carruthers seconded by McGuire, that the following actions, as recommended on the Consent Calendar portion of the Agenda be approved:

- a. Minutes of the Regular Meeting of July 28, 2015.
- b. Receive and file minutes of the HR Ad Hoc Committee Meeting of August 4, 2015.
- c. Appointment of Kelli Schroeder as Officer Delegate and Karla Myers-Beman as Officer Alternate Delegate to cast official votes on behalf of TCL&P at the Annual Meeting of the Municipal Employees Retirement Systems.
- d. Purchase order to Sauber Manufacturing in the amount of \$60,906 for a single place distribution class puller/tensioner trailer.

CARRIED unanimously. (Palisin, Spence absent)

Items Removed from the Consent Calendar

None.

Item 3 on the Agenda being Unfinished Business

None.

Item 4 on the Agenda being New Business

- a. Consideration of authorizing a consulting agreement to InfoGeographics for GIS and electric model updated and corrections.

The following individuals addressed the Board:

Scott Menhart, Manager of Telecom & Technology

Moved by McGuire, seconded by Geht, that the Board authorizes the Chairman and Secretary to enter into a consulting agreement for GIS and electric model updates and corrections with InfoGeographics in the amount not to exceed \$88,500; subject to approval as to substance by the Executive Director and as to form by General Counsel.

CARRIED unanimously. (Palisin, Spence absent)

Item 5 on the Agenda being Appointments

None.

Item 6 on the Agenda being Reports and Communications

a. From Legal Counsel.

None.

b. From Staff.

1. Staff provided a quarterly Strategic Plan update.

The following individuals addressed the Board:

Karla Myers-Beman, Controller

Blake Wilson, System Engineer

Scott Menhart, Manager of Telecom & Technology

Kelli Schroeder, Manager of Human Resources & Communications

Jessica Wheaton, Manager of Energy Services & Key Accounts

2. Karla Myers-Beman reported on the recent storm outage.

c. From Board.

1. City Manager Marty Colburn mentioned his evaluation to the City Commission last night was inclusive of reviewing the CIP, he stated he will work with TCL&P staff to work on coordinating projects in the future.

2. Jan Geht asked the City Manager if he wants to proceed with the Joint Study Session between the TCL&P Board and the City Commission regarding the coal dock so soon before the election.

3. Chairman Taylor mentioned the Board would be discussing the Executive Director's health situation and how to remedy it at the next regular meeting.

Item 7 on the Agenda being Public Comment

No one from the public commented.

There being no objection, Chairman Taylor declared the meeting adjourned at 5:40 p.m.

/st

Tim Arends, Secretary
LIGHT AND POWER BOARD

**TRAVERSE CITY
LIGHT AND POWER BOARD**

Minutes of Special Meeting
Held at 5:15 p.m., Training Room, Governmental Center
Wednesday, September 2, 2015

Board Members -

Present: Barbara Budros, Jim Carruthers, Bob Spence, Jan Geht, John Taylor

Absent: Pat McGuire, Jeff Palisin

Ex Officio Member -

Present: Marty Colburn, City Manager

Others: Tim Arends (via conference call), W. Peter Doren, Scott Menhart, Karla Myers-Beman, Kelli Schroeder, Mark Watson

The meeting was called to order at 5:15 p.m. by Chairman Taylor.

Item 2 on the Agenda being New Business

- a. Consideration of a periodic evaluation of the Executive Director.

Moved by Geht, seconded by Budros, that the Board enter closed session to consider a periodic evaluation of Tim Arends, Executive Director.

Roll Call:

Yes – Budros, Carruthers, Spence, Geht Taylor

No – None

CARRIED unanimously. (McGuire, Palisin absent)

5:17 p.m. the Board entered closed session.

5:37 p.m. the Board returned to open session.

5:38 p.m. Tim Arends joined the meeting via conference call.

The following individuals addressed the Board:

W. Peter Doren, General Counsel

Moved by Budros, seconded by Spence, that the Board allow the Executive Director to go on a sixty (60) days sick leave with notice to be given before expiration of that leave as to whether he will return to work.

CARRIED unanimously. (McGuire, Palisin absent)

- b. Consideration of administration of the Light and Power Department.

The following individuals addressed the Board:

Marty Colburn, City Manager

It was the consensus of the Board to follow the language in the Executive Director and City Manager contracts, naming Marty Colburn, City Manager, acting interim Executive Director for TCL&P during Tim Arends' sick leave.

Item 3 on the Agenda being Reports and Communications

a. From Legal Counsel.

None.

b. From Staff.

1. Karla Myers-Beman provided a report to the board regarding emergency purchases made during the August storm outage.

c. From Board.

None.

Item 4 on the Agenda being Public Comment

Tom Mair, 612 5th St, Ratepayer

There being no objection, Chairman Taylor declared the meeting adjourned at 6:03 p.m.

/st

Tim Arends, Secretary
LIGHT AND POWER BOARD



To: Light and Power Board
From: Karla Myers-Beman, Controller *KMB*
Date: September 15, 2015
Subject: Wayne Street Distribution Line Rebuild

This report coincides with the project reauthorization of West Side Transmission Line and Wayne Street Distribution Line Rebuild. GRP Engineering, Inc. requested staff to reevaluate the benefits of rebuilding the Wayne Street Distribution Line while contractors were in place reconstructing the West Side Transmission Line. After staff evaluated the request they recognized benefits noted in the project reauthorization.

The cost to incorporate the change of scope to rebuild the Wayne Street Distribution Line is a not to exceed amount of \$45,000.00.


Staff recommends Board approval of the execution of change order to the West Side Transmission Line Contract to include the Wayne Street Distribution Line Rebuild for a not to exceed fee of \$45,000.

If after Board discussion you agree with staff's recommendation the following motion would be appropriate:

**MOVED BY _____, SECONDED BY _____, THAT THE
BOARD AUTHORIZES THE ACTING EXECUTIVE DIRECTOR TO EXECUTE
A CHANGE ORDER WITH CC POWER LLC NOT TO EXCEED \$45,000.**



TRAVERSE CITY
LIGHT & POWER

To: Light & Power Board
From: Jessica Wheaton, Manager of Energy Services & Key Accounts 
Date: June 22, 2015
Subject: 2015 Energy Optimization Biennial Filing

Attached is the 2015 Energy Optimization Biennial Filing that was prepared by the Michigan Public Power Agency (MPPA) on behalf of Traverse City Light & Power (TCL&P). It is a requirement of Public Act 295 that the utility files an updated plan with the Michigan Public Service Commission (MPSC) that outlines the goals set for the utility in regards to energy optimization. The filing included in your packet covers program years 2016 and 2017. Because the future of Michigan's energy optimization program requirements are currently unknown, the MPSC has approved municipal utilities to refile their 2015 program goals for 2016 and 2017.

MPPA filed the attached plan with the MPSC in August. The MPSC is now accepting public comment on the filed plan and TCL&P is required to offer an opportunity for the public to comment on the documents filed. Those comments will then be submitted to the MPSC for review. Although there is not a motion associated with this agenda item, I respectfully request that an opportunity for public comment be offered.

**STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION**

MMEA is Michigan's trade association of municipally owned electric utilities. As units of local government, municipal electric systems are non-profit, community owned and operated, and regulated directly by the city and customers they serve. In 2012, MMEA's members (Applicants) accounted for approximately 7.5% of all Michigan retail sales and served over 300,000 customers. Municipal utilities are small with confined service territories, and customer concentration and budgets for Energy Optimization (EO) programs can be very limited.

MMEA is requesting to exercise the option to file joint EO biennial plans for the years 2016-2017 as allowed under docket number U-17008 approved by the MPSC on April 17, 2012.

Based on conversations with MPSC staff, filing joint biennials will be acceptable if they are accompanied with updates from the last biennial filing in 2013. There has been two major plan updates since the 2013 biennial filing: Administrative Changes under U-17008 approved by the MPSC April 12, 2012 and the Market Transformation Multiplier for LED technologies, heat pumps and heat pump water heaters which MPSC found in compliance with PA 295 in March of 2014. Updates for both those filings are as follows.

Applicants request to continue operating under the current Commission-approved plans, with no changes at this time, through 2016 and 2017. The EO portfolio summary which details program budget and goals for 2016 and 2017 for each municipal utility can be found in Attachment A.

Administrative Changes under U-17008

On April 17, 2012 the MPSC issued an order U-17008 that allowed the MMEA members certain administrative changes in the way the Municipal Utilities (MUs) will be permitted to design and administer the energy optimization plans required under 2008 PA 295 (Act 295); MCL 460.1001 *et seq.*, in the future. The benefits of these administrative changes since this order was issued are outlined below.

A. Beginning with the 2011 annual reports due on May 31, 2012 and for all future annual reports thereafter, MUs shall be authorized to file individually or jointly in a combined energy optimization annual report format as provided in this order.

- Since 2011, the MUs have filed a joint annual report and this has resulted in time and cost-savings while providing consistent reporting data to the Michigan Public Service Commission (MPSC).

B. Beginning with the 2013 biennial energy optimization plans, MUs shall be authorized to have the option of filing either an individual or a joint energy optimization plan as provided in this order.

- MMEA is filing this joint biennial plan in 2015 for the years 2016 and 2017. This filing will continue to use the plans that were approved for the year 2015 in the biennial filing approved by the MPSC on November 12, 2013.

C. MUs shall be authorized to reallocate expenditures budgeted for a specific program offering within a customer class to successful programs in another customer class when the municipal utility's experience shows that the market in that customer class is not responding to energy optimization program offerings and the change is reasonable and cost effective as provided in this order.

- This benefits MUs by allowing the transfer of funds from one program to another that is performing well. One example is Bay City Electric Light & Power (BCELP). The utility's efficient lighting program experienced high participation and they were able to keep meeting customer demand by reallocating funds from a less successful program. Another MU, the Lansing Board of Water & Light (BWL) had low participation in a Residential Multifamily New Construction Pilot Program so funds were reallocated to the utility's high performing Business Custom Program. Holland Board of Public Works (BPW) and Traverse City Light & Power (TCLP) have also transferred funds between programs.
- Allowing the member utilities to reallocate expenditures within a customer class has allowed active programs to receive additional funding when it becomes evident that the budget for a less successful program will not be spent. This allows customers to continue participating in popular and effective EO programs and ensures that these programs will not be shut down partway through a program year.

D. MUs are authorized to limit the third party evaluations performed for certification purposes to the certification of a municipal utility's gross kilowatt-hour savings as provided in this order.

- This benefits MUs due to the limited funding available to invest in independent third party evaluations of incremental savings.

E. MUs shall be authorized to include savings resulting from load management programs that reduce overall energy usage and that allow for the transfer of renewable energy credits as provided in this order.

- At this time no MU is participating in this option.

F. MUs shall be authorized to calculate net energy savings towards the kilowatt-hour goals found in MCL 460.1077 by including energy savings resulting from a municipal utility customer's participation in an energy optimization heating, ventilation, and air conditioning program or a fuel-switching pilot program that results in the municipal utility customer thereafter undertaking fuel-switching that involves geothermal or air-to-air heat pumps as provided in this order. In addition, a municipal utility shall be authorized to include annual energy savings associated with customers installing solar thermal systems.

- MMEA members continue to evaluate these opportunities.

G. MUs shall be authorized the additional flexibility to allocate savings and budget over a multi-year period up to and including the projected life of the project by allowing their large commercial and industrial customers to implement multi-year projects with significant energy savings and costs as provided in this order if they continue to offer energy optimization programs to all customer classes.

- Several MUs have benefited from the ability to carry forward both savings and budgets into multiple years. Large (C&I) customers factor in the EO incentives when planning for energy efficiency upgrades with large electric savings potential. An example of this is the BWL's

projects with a large industrial customer. For this customer to invest in energy efficiency improvements they must meet certain payback criteria. One project produced savings of over 6 million kilowatt-hours (kWh). If BWL were only allowed to carry over 33%, over 2 million kWh savings would not have been claimed. Another example is Sebewaing Light & Water (SLW), a small rural utility with a large industrial processing plant. This customer implemented a significant Variable Frequency Drive (VFD) project in one year. Unless the associated savings can be carried forward, SLW would not be allowed to claim a significant amount of kWh savings, which could have challenged SLW's ability to meet their goals in future program years.

H. Upon petition by a municipal utility, the Commission may, for good cause, grant up to two extensions for compliance with the electric savings standard established by MCL 460.1077(1)(d) as provided in this order. Upon subsequent petition by a municipal electric provider, at least three months before the expiration of the second extension, the Commission may, for good cause, establish a permanent revised energy efficiency standard of less than 1%.

- At this time no MU is participating in this option. This may become more important as smaller municipal utilities reach market saturation of certain energy efficiency measures.

G. MUs and their governing bodies have sole discretion with respect to the use of volumetric or per-meter energy optimization surcharges as provided by law.

- At this time there is only one municipal utility that has a per-meter charge for residential customers.

Market Transformation Multiplier

On March 10, 2013 MMEA submitted a revised update to the 2014-2015 Energy Optimization Plan. This revision included the use of a market transformation multiplier for LED technology and Residential Heat Pumps and Heat Pump Water Heaters. The MPSC staff reviewed and found this update in compliance with PA 295.

- The market transformation multiplier on LED technologies, mini-split systems, heat pumps and heat pump water heaters began in 2014. Due to the increased savings allowed for these measures, MUs were able to offer higher incentives. In particular, this brought the price of LEDs down and made them more affordable for customers to purchase. Because of the competitive pricing, BCLEP, BWL, BPW and TCLP along with several other MUs have focused on featuring LED technologies prominently in their EO programs. In addition, prices dropped due to the increase in sales and competition. As more retailers and manufacturers wanted to be involved, it drove demand and spurred manufacturers to increase production of LEDs. In summary, retail prices for LEDs dropped in the market as a result of increased competition among manufacturers and retailers due to higher incentives offered.

Attachment A: Traverse City Light and Power Energy Optimization Program Portfolio U-17417

Program Portfolio	USRT Results	CCE Results	2015 Plan Filing		2016 Plan Filing		2017 Plan Filing	
			Gross First Year kWh	Program Budget	Gross First Year kWh	Program Budget	Gross First Year kWh	Program Budget
Low Income Services	N/A	N/A	22,827	\$4,648	22,827	\$4,648	22,827	\$4,648
Residential Services	2.60	\$0.02	415,135	\$91,261	415,135	\$91,261	415,135	\$91,261
Educational Services	4.30	\$0.01	49,768	\$8,126	49,768	\$8,126	49,768	\$8,126
Pilot Programs	4.30	\$0.01	82,947	\$13,543	82,947	\$13,543	82,947	\$13,543
Subtotal - Residential Solutions	3.00	\$0.02	570,677	\$117,578	570,677	\$117,578	570,677	\$117,578
Self-Direct Customers	4.30	\$0.01	2,614,499	\$369,961	2,614,499	\$369,961	2,614,499	\$369,961
Business Services	4.30	\$0.01	49,768	\$8,126	49,768	\$8,126	49,768	\$8,126
Educational Services	4.30	\$0.01	82,947	\$13,543	82,947	\$13,543	82,947	\$13,543
Pilot/Emerging Technology Programs	4.30	\$0.01	2,747,215	\$391,630	2,747,215	\$391,630	2,747,215	\$391,630
Subtotal - Business Solutions	4.30	\$0.01	2,747,215	\$391,630	2,747,215	\$391,630	2,747,215	\$391,630
Total Program Portfolio	3.9	\$0.01	3,317,892	\$509,208	3,317,892	\$509,208	3,317,892	\$509,208
Utility Administration				\$21,668		\$21,668		\$21,668
Evaluation (EM&V)				\$10,834		\$10,834		\$10,834
Subtotal - Admin/Evaluation				\$32,503		\$32,503		\$32,503
Projected Annual Totals	3.9	\$0.01	3,317,892	\$541,710	3,317,892	\$541,710	3,317,892	\$541,710



**TRAVERSE CITY
LIGHT & POWER**

To: Light & Power Board
From: Karla Myers-Beman, Controller *KMB*
Date: September 18, 2015
Subject: Appointment of Board Secretary

Tim Arends was appointed Secretary for the Light and Power Board at the April 14, 2015 organizational meeting. In his absence, the Board will need to appoint an interim Secretary to the Board. Staff recommends appointment of Marty Colburn, Acting Executive Director.

If the Board concurs, the following motion is recommended:

**MOVED BY _____, SECONDED BY _____, THAT
MARTY COLBURN, ACTING EXECUTIVE DIRECTOR, BE APPOINTED
SECRETARY FOR THE LIGHT AND POWER BOARD.**



TRAVERSE CITY
LIGHT & POWER

To: Light & Power Board
From: Karla Myers-Beman, Controller *VMW*
Date: September 10, 2015
Subject: MERS (Municipal Employees Retirement System) Presentation

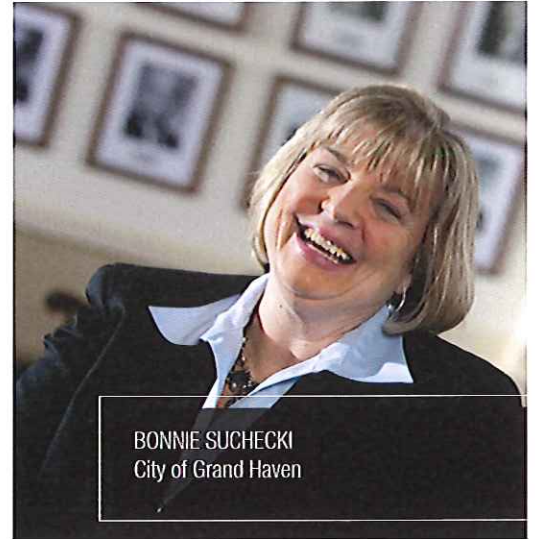
During the audit presentation on January 13, 2015 questions were asked about the supplementary information in the audit pertaining to Traverse City Light and Power's (TCL&P) retirement system. Based on the questions asked staff thought it would be best for a presentation to be made on the retirement system. Tony Radjenovich, MERS regional manager, agreed to be in attendance and present on the following:

1. Overview of the MERS Retirement System
2. TCL&P's December 31, 2014 annual actuarial valuation
3. Outcomes of their most recent experience study

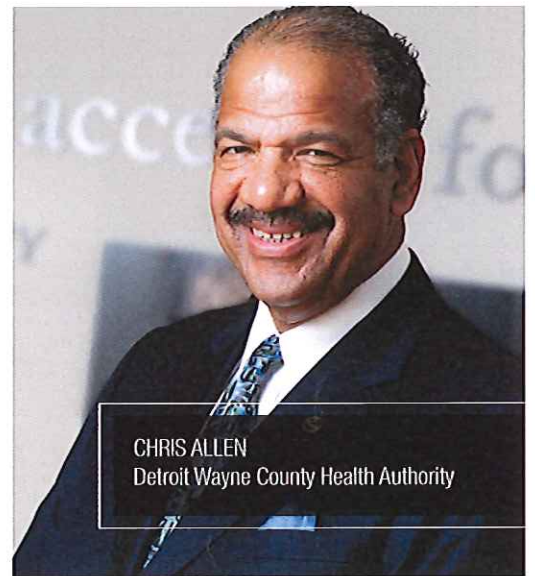
Staff has included in the board packet a pamphlet about MERS, TCL&P's annual actuarial valuation, and MERS 2014 Annual Actuarial Valuation – Appendix, which provides assumption information for the annual actuarial valuation.



AKEMI GORDON
Eastern U.P. Transit Authority



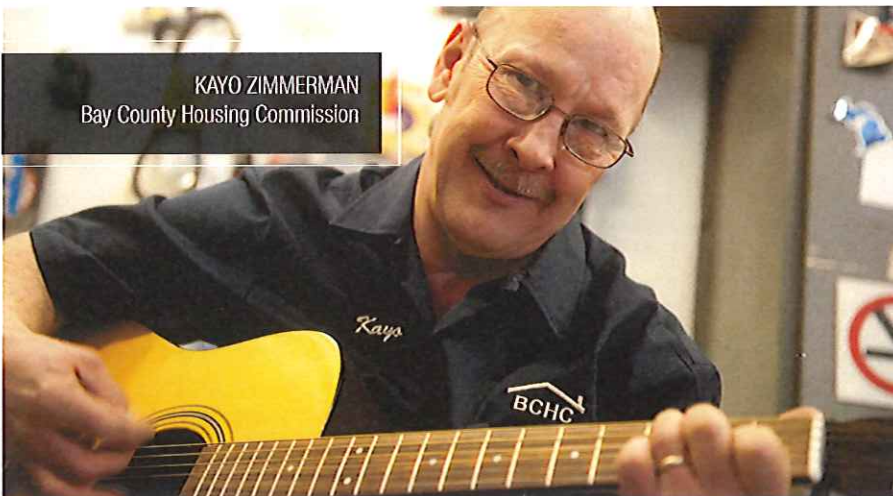
BONNIE SUCHECKI
City of Grand Haven



CHRIS ALLEN
Detroit Wayne County Health Authority



Your Partner in
RETIREMENT



KAYO ZIMMERMAN
Bay County Housing Commission

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



JANETTE DAVIS
 Detroit Wayne County Health Authority



The Municipal Employees' Retirement System (MERS) of Michigan is an independent, professional retirement services company that serves municipal members across the state of Michigan.

The team at MERS is made up of top industry experts who use cutting-edge technology and fiscal best practices to give members peace of mind and security in their retirement. MERS listens and works in partnership with our members to deliver a superior value that meets our members' needs.

We proudly serve more than 100,000 participants, including local firefighters, nurses, and the men and women who plow our roads and keep our communities safe.

BY THE NUMBERS



ABOUT MERS

We are an independent, nonprofit professional retirement services company serving municipal members across Michigan.

AN INDEPENDENT ELECTED BOARD

MERS is a nonprofit governed by an elected board that operates without compensation. Our board is committed to accountability and transparency, holding the line on costs, and watching out for the best interest of our members.

Three Officer Members:
Officers of a participating municipality, elected by membership

Three Employee Members:
Non-officers of a participating municipality, elected by members

Two Expert Members:
With experience in retirement systems or investment management, appointed by the Board

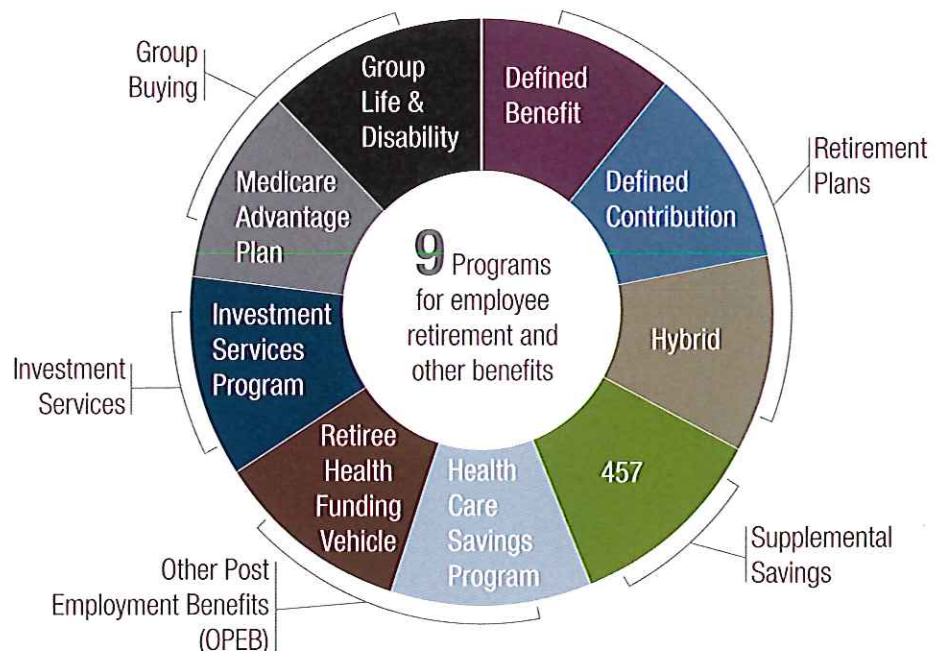


MERS Retirement Board
is responsible for administration of the system with fiduciary responsibility for the investment of assets and oversight.

One Retiree Member:
Retiree of the system, appointed by the Board

A PROGRAM FOR EVERY NEED

At MERS, we recognize that every member has unique needs and we offer a broad range of customizable plans to fit our members' budgets, needs, and goals.



WELL-FUNDED STABILITY

MERS partners with municipalities, helping them set fiscal goals and discussing options, to find the programs and provisions that best fit the municipality's unique needs.

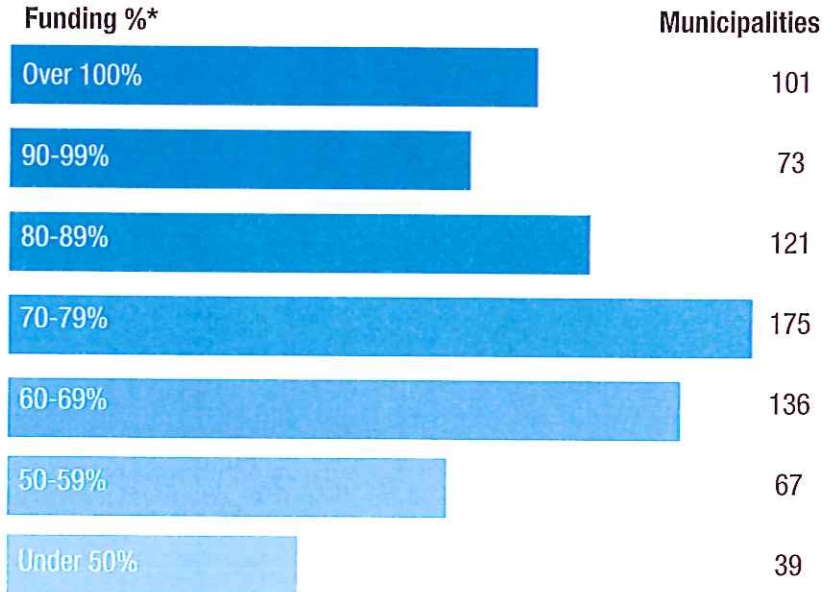
OUR PLANS



Funded at 70% or higher*



Average funded percentage*



*Funding data as of 12/31/13



BENJAMIN COOK
City of Hazel Park

COST-REDUCTION OPTIONS

MERS partners with municipalities, helping them set fiscal goals and discussing options, to find the programs and provisions that best fit the municipality's unique needs.



DEBRA WILHELM
Charter Township of Northville

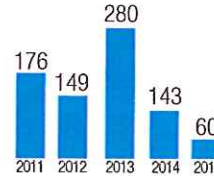
“MERS has been a great recruiting tool for us and provides employees with an excellent benefit.”

DEBRA WILHELM
HR Director,
Charter Township of Northville

MUNICIPAL ACTIONS – ANNUAL TRENDS

Cost Sharing for Existing Employees

Employees contribute to help fund the overall cost of plan



Reduces the employer cost, but does *not* affect total cost or the plan's unfunded liability

Lower Benefit to New Hires

New hires receive a lower tier of Defined Benefit provisions



Existing employees are not affected

Reduces liability for new hires

Bridged Benefits for Existing Employees

Benefits are offered in parts to existing employees. Multiplier is then lowered on a going-forward basis

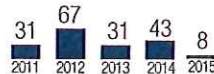


Leaves earned benefits unchanged

Reduces liability for new hires and existing employees

Hybrid for New Hires

New hires receive a Hybrid Plan

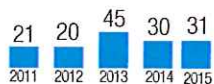


Existing employees are not affected

Reduces liability for new hires

Defined Contribution for New Hires

Employees contribute to help fund the overall cost of plan

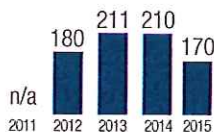


Existing employees are not affected

Eliminates liability for new hires

Voluntary Contributions

Additional payments made into plan toward unfunded liability



Reduces existing liability

Extra dollars are invested and recognize market returns

Bonding

Municipalities may bond for all or a portion of their unfunded accrued liabilities – pension or OPEB



Bond proceeds are deposited and may fully fund the accrued liability

No guarantee that future unfunded liabilities won't occur

INVESTING IN RETIREMENT

MERS strives for a completely diversified fund utilizing various management strategies that will provide downside market protection with upside market participation

INVESTMENT POLICY



Law and Regulation

MERS must follow **Michigan state law** and prudent standards of diligence. We maintain strict oversight and management. Our assets are invested in accordance with the **Public Employee Retirement System Investment Act (PERSIA)**. MERS conducts quarterly compliance reviews.

PERSIA



Performance

MERS consistently **outperforms its benchmarks** and market averages, with a prudent, long-term approach designed to provide downside protection and upside market participation.



Investment Earnings

For more than 20 years, approximately **2 out of every 3 dollars** from MERS retirement benefits have come from Investment earnings, not taxpayer dollars. Investing your assets into a total asset allocation portfolio means that administrative and investment costs are shared and affordable.



JUSTEN LEWIS
Wayne County Health Authority

A TRACK RECORD OF SUCCESS

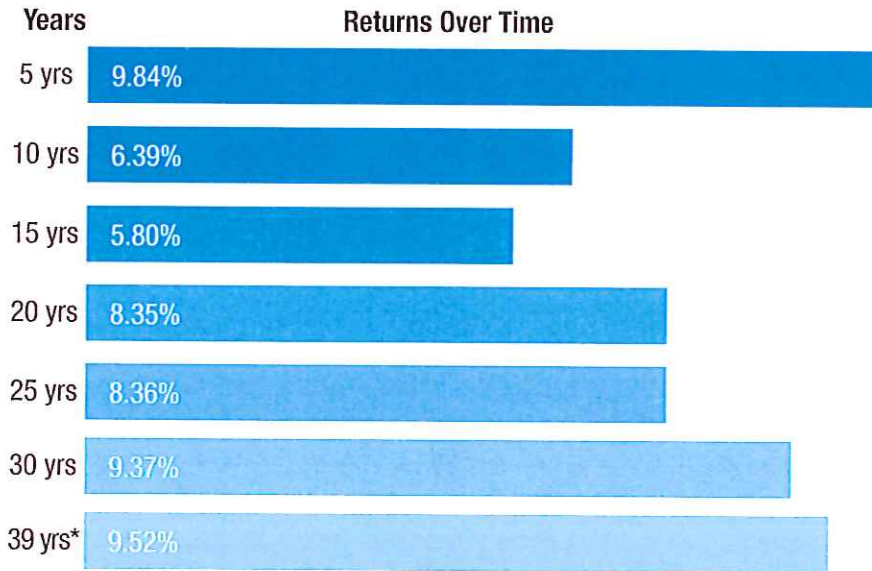
MERS is dedicated to providing our municipalities with excellent returns at affordable costs, while protecting the pensions and assets of our many members.

INVESTMENT HISTORY

MERS Long-Term Investment Returns

October 1975 – December 2014

Not annualized if less than 1 year



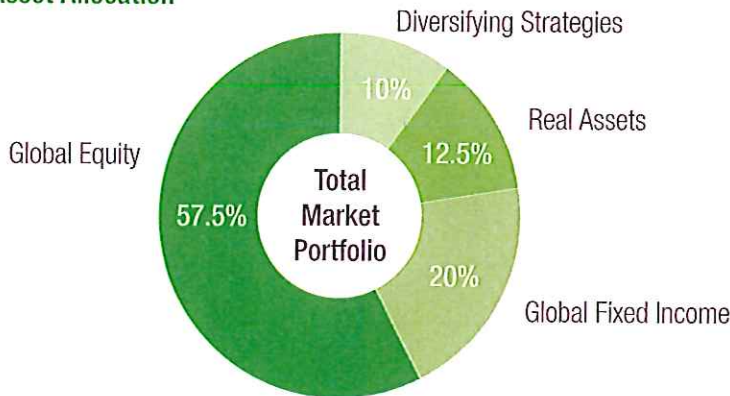
*Since inception

All rates are shown as gross of fees

Year-by-Year Returns

Year	Rate of Return
2014	6.68%
2013	15.00
2012	11.39
2011	2.29
2010	14.43
2009	17.31
2008	-24.81
2007	8.58
2006	13.62
2005	6.62
2004	14.91
2003	24.70
2002	-8.34
2001	-1.92
2000	-2.76
1999	16.99
1998	14.18
1997	14.44
1996	12.69
1995	23.95
1994	0.52
1993	9.67
1992	8.05
1991	22.14
1990	2.94
1989	19.10
1988	11.20
1987	5.51
1986	13.55
1985	24.33
1984	4.50
1983	21.50

Policy Asset Allocation



FISCAL BEST PRACTICES

The team at MERS is made up of top industry experts who apply cutting edge technology and fiscal best practices to give our members peace of mind and security.

PROVEN PRACTICES



Customizable Plans

We work with municipalities to design plans that fit budgets, needs, and goals of each group



In-House Legal Staff

As a plan fiduciary, MERS has staff experts that monitor state and federal laws ensuring compliance and maintaining qualified status as a 401(a) plan with the Internal Revenue Service



In-Person Service

Our Regional Teams are dedicated to providing responsive local service across Michigan, providing expert information and taking feedback from members



50% Funded Requirement to Join

To join MERS, municipalities must meet minimum requirements for plan funding



100% Funded Requirement for Improvements

For any benefit enhancements, municipal plans must be fully funded



Actuarial Reports

Financial impacts of benefit improvements are required to ensure plan stability



Actuarial Loads

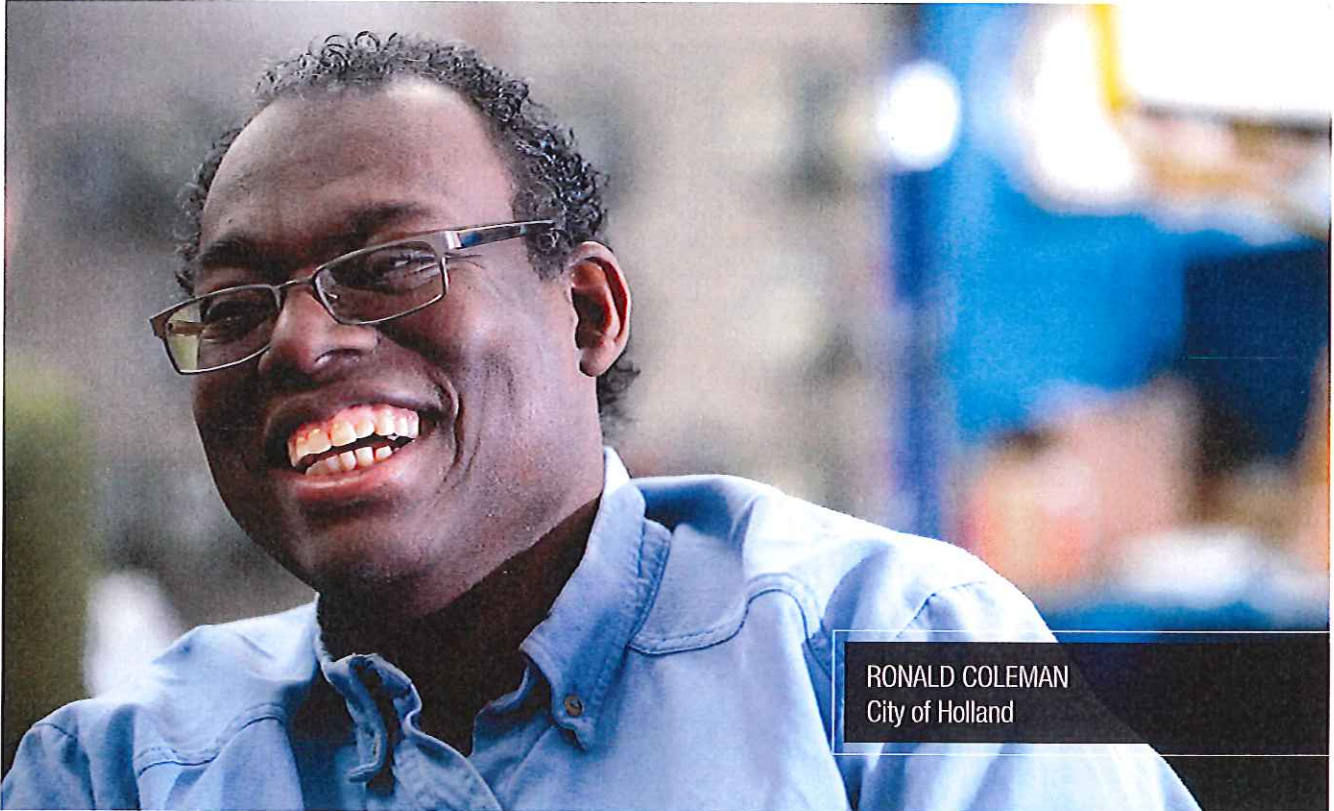
Actuarial loads are applied to groups that have demonstrated a history of unexpected final average compensation spikes



KEVIN CORSINI
Hazel Park Fire Department

POOLING POWERS FINANCIAL SECURITY

Pooling municipal assets for investment purposes provides huge benefits to members, including lower administrative costs.



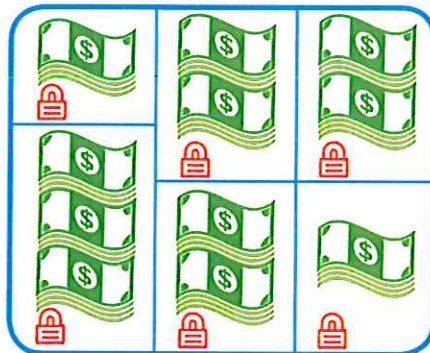
RONALD COLEMAN
City of Holland

POOLED ASSETS

Each municipality's retirement plan is maintained in a separate trust, which gives our members the benefits of pooling resources for investments while maintaining the integrity and individuality of each plan.

Additionally, MERS has a successful track record of improving the financial health of our members' retirement plans, including turning around and rehabilitating plans that are struggling financially when they enter MERS.

Pooled assets for buying power



Separate trusts to maintain each municipality's security

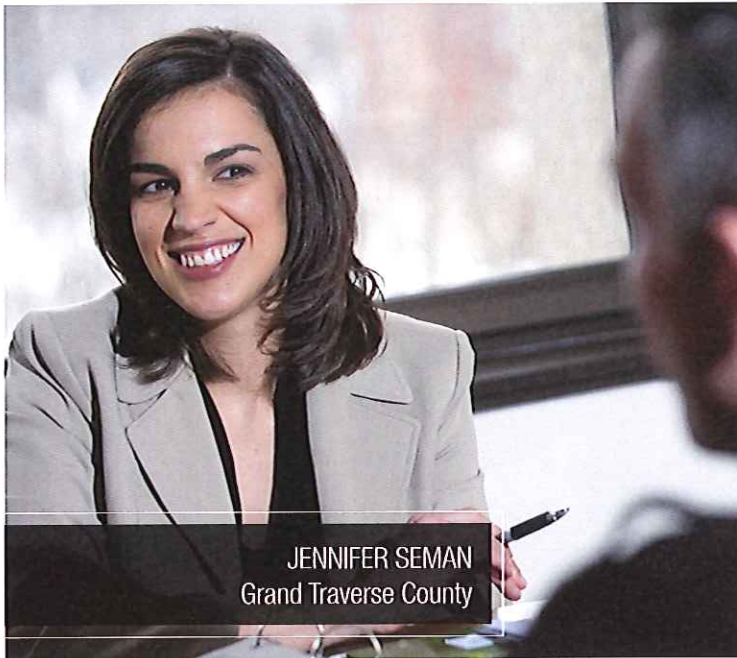
Shared Services

MERS is one of the largest, most established, and most successful shared services stories in Michigan, providing administration, investment expertise, fiduciary responsibility, and oversight for benefit plans. This allows local governments to focus on core services, leaving day-to-day administration to us. Services include:

- Plan Governance
- On-Staff Auditor
- Legal Counsel
- Legislative Advocacy
- Administration of Benefits

READYING MICHIGAN FOR RETIREMENT

We are dedicated to helping employers and participants understand their MERS plans and resources to find answers they need to prepare for retirement.



JENNIFER SEMAN
Grand Traverse County

“ We stress to our new employees that it's never too early and it's never too late to start saving for retirement. MERS makes it easy for them to do this by providing many great tools to be able to save for the future. ”

JENNIFER SEMAN
HR Director, Grand Traverse County



Online Resources

myMERS offers participants up-to-the-minute account information, online calculators, and other resources to help stay on the right retirement track.



Retirement Readiness

Individualized retirement readiness reports will be sent to participants, offering a comprehensive view of how MERS benefits can work with other retirement income – and whether they're on track to meet their retirement goals.



MERS Events and Seminars

MERS Regional Teams hold quarterly meetings at convenient locations throughout the state. *Pizza & Planning* events are free and open to all MERS participants and their beneficiaries. *Morning Breaks with MERS* focus on employer and administrative topics.



Publications, Statements, and News

MERS provides employers and participants with a variety of publications and resources about their retirement plan.



On-site Education

We are available to hold group presentations, attend benefit fairs, and hold one-on-one meetings for all MERS programs.



MERS Service Center

MERS Service Center offers, knowledgeable, over-the-phone assistance for a wide variety of benefit questions, including support with participant online account information. The Service Center is available weekdays at 800.767.MERS (6377).

PARTICIPANT COMMUNICATION

MERS makes communications with our customers a top priority. We use comprehensive participant data and clearly defined objectives to targeted audiences to create a thoughtfully designed plan that empowers our members and their employees.



Mass Communication

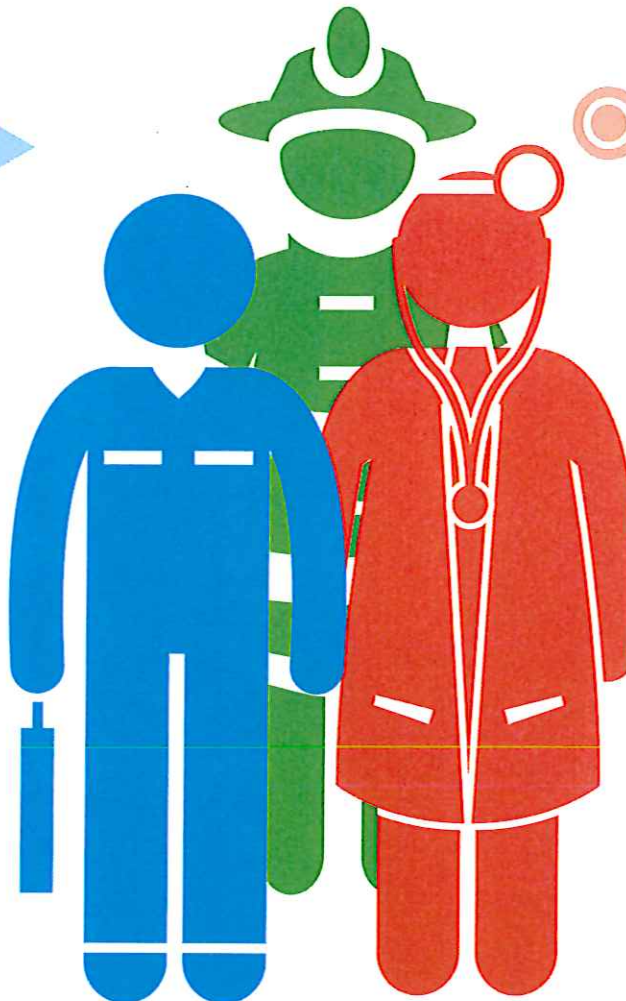
Messaging appropriate to all active participants, available through mailings and regional seminars

- **Mailings and Alerts:** Encouraging online account reviews and information updating. Quarterly statements and news for participant-directed accounts.
- **Pizza & Planning Seminars:** Plan overviews presented at locally hosted regional meetings.

Employment Lifecycle

MERS pays special attention to significant life events so participants can prepare for a safe, secure retirement.

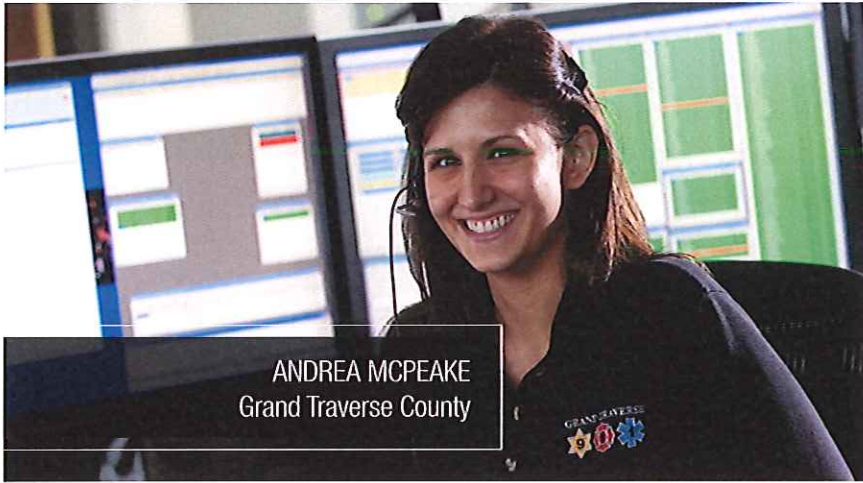
- **New Hire:** New Hire packets, including information employers provide during onboarding, email containing benefit highlights, access to myMERS, and new hire video link.
- **Vesting:** Email alert offering congratulations and link to "Vested" page of website. Regional seminars focusing on vested participants.
- **Plan Changes:** Email alerts with links to additional information and resources.
- **Ready to Retire:** Employer and participant resources directing members to "Retirement Ready" section of website.



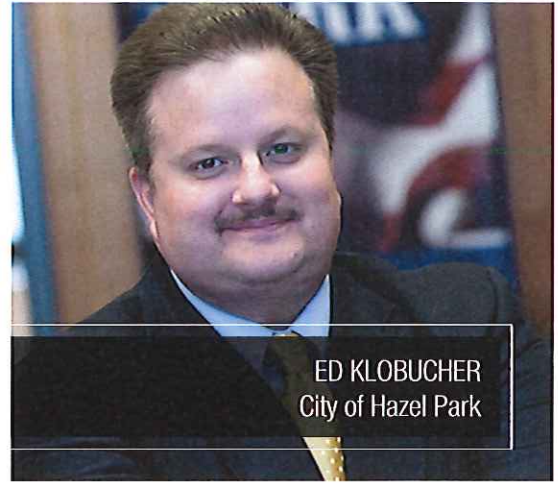
Targeted Messaging

Focused information when it's relevant instead of overwhelming participants with everything at once

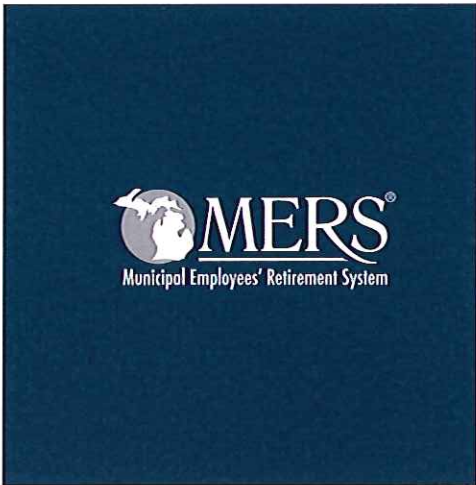
- **18-34:** Highlighting budgeting and the benefits of compounding.
- **35-49:** Highlighting budgeting tools and living in the "sandwich generation."
- **50+:** Highlighting debt pay-off before retirement.



ANDREA MCPEAKE
Grand Traverse County



ED KLOBUCHER
City of Hazel Park



This publication contains a summary description of MERS benefits, policies or procedures. MERS has made every effort to ensure that the information provided is accurate and up to date. If this presentation conflicts with the relevant provisions of the Plan Document, the Plan Document controls. MERS, as a governmental plan, is exempted by state and federal law from registration with the SEC. However, it employs registered investment advisors to manage the trust fund in compliance with Michigan Public Employee Retirement System Investment Act. Past performance is not a guarantee of future returns. Please make independent investment decisions carefully and seek the assistance of independent experts when appropriate.

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



BRIAN AZEVEDO
Eastern U.P. Transit Authority



MUNICIPAL EMPLOYEES' RETIREMENT SYSTEM OF MICHIGAN
ANNUAL ACTUARIAL VALUATION REPORT DECEMBER 31, 2014
TRAVERSE CITY LIGHT & POWER (2811)



Spring, 2015

Traverse City Light & Power

In care of:
Municipal Employees' Retirement System of Michigan
1134 Municipal Way
Lansing, Michigan 48917

This report presents the results of the Annual Actuarial Valuation, prepared as of December 31, 2014. The report includes the determination of liabilities and contribution rates resulting from the participation of Traverse City Light & Power (2811) in the Municipal Employees' Retirement System of Michigan ("MERS"). MERS is a nonprofit organization, independent from the State, that has provided retirement plans for municipal employees for more than 65 years. Traverse City Light & Power is responsible for the employer contributions needed to provide MERS benefits for its employees and former employees under the Michigan Constitution and the MERS Plan Document.

The purpose of the December 31, 2014 annual actuarial valuation is to:

- Measure funding progress
- Establish contribution requirements for the fiscal year beginning July 1, 2016
- Provide actuarial information in connection with applicable Governmental Accounting Standards Board (GASB) statements

This valuation report should not be relied upon for any other purpose. Reliance on information contained in this report by anyone for anything other than the intended purpose could be misleading.

The valuation uses financial data, plan provision data, and participant data as of December 31, 2014 furnished by MERS. In accordance with Actuarial Standards of Practice No. 23, the data was checked for internal and year to year consistency as well as general reasonableness, but was not otherwise audited. CBIZ Retirement Plan Services does not assume responsibility for the accuracy or completeness of the data used in this valuation.

The actuarial assumptions and methods are adopted by the MERS Retirement Board, and are reviewed every five years in an Experience Study, which will be completed in 2015. Please refer to the division-specific assumptions described in table(s) in this report, and to the Appendix on the MERS website at:

www.mersofmich.com/Portals/0/Assets/Resources/AAV-Appendix/MERS-2014AnnualActuarialValuation-Appendix.pdf.



The actuarial assumptions used for this valuation produce results that we believe are reasonable.

To the best of our knowledge, this report is complete and accurate, was prepared in conformity with generally recognized actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board, and is in compliance with Act No. 220 of the Public Acts of 1996, as amended, and the MERS Plan Document as revised. All of the undersigned are members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. The Retirement Board of the Municipal Employees' Retirement System of Michigan confirms that the System provides for payment of the required employer contribution as described in Section 20m of Act No. 314 of 1965 (MCL 38.1140m).

This information is purely actuarial in nature. It is not intended to serve as a substitute for legal, accounting or investment advice.

This report was prepared at the request of the Retirement Board and may be provided only in its entirety by the municipality to other interested parties (MERS customarily provides the full report on request to associated third parties such as the auditor for the municipality). CBIZ Retirement Plan Services is not responsible for the consequences of any unauthorized use.

You should notify MERS if you disagree with anything contained in the report or are aware of any information that would affect the results of the report that have not been communicated to us. If you have reason to believe that the plan provisions are incorrectly described, that important plan provisions relevant to this valuation are not described, that conditions have changed since the calculations were made, that the information provided in this report is inaccurate or is in anyway incomplete, or if you need further information in order to make an informed decision on the subject matter in this report, please contact your Regional Manager at 1.800.767.MERS(6377).

Sincerely,

Alan Sonnanstine, MAAA, ASA
Cathy Nagy, MAAA, FSA
Jim Koss, MAAA, ASA

TABLE OF CONTENTS

	Page
Executive Summary	5
Employer Contribution Details Table 1	11
Benefit Provisions Table 2	12
Participant Summary Table 3	13
Reported Assets (Market Value) Table 4	14
Flow of Valuation Assets Table 5	15
Actuarial Accrued Liabilities and Valuation Assets Table 6	16
Actuarial Accrued Liabilities - Comparative Schedule Table 7	17
Division-Based Comparative Schedules Tables 8 and 9	18
GASB 68 Information	21
Benefit Provision History	22
Plan Provisions, Actuarial Assumptions, and Actuarial Funding Method	23

Executive Summary

Funded Ratio and Required Employer Contributions

The MERS Defined Benefit Plan is an agent multiple-employer plan, meaning that assets are pooled for investment purposes but separate trusts are maintained for each individual employer. Each municipality is responsible for their own plan liabilities; MERS does not borrow from one municipality's account to pay for another.

The funded ratio of a plan is the percentage of the dollar value of the accrued benefits that is covered by the actuarial value of assets.

Your Funded Ratio:

	12/31/2014	12/31/2013
Funded Ratio	63%	64%

Michigan Law requires that pension plans be pre-funded, meaning money is set aside now to pay for future benefits. Pension plans are usually funded by employer and employee contributions, and investment income.

How quickly a plan attains the 100% funding goal depends on many factors such as:

- The current funded ratio
- The future experience of the plan
- The amortization period

It is more important to look at the trend in the funded ratio over a period of time than at a particular point in time.

Your Required Employer Contributions:

Your minimum required employer contributions are shown in the following table. Employee contributions, if any, are in addition to the required employer contributions.

Valuation Date:	Percentage of Payroll		Monthly \$ Based on Valuation Payroll	
	12/31/2014	12/31/2013	12/31/2014	12/31/2013
Fiscal Year Beginning:	July 1, 2016	July 1, 2015	July 1, 2016	July 1, 2015
Division				
01 - Non-Union	29.14%	29.16%	\$ 20,249	\$ 17,847
10 - Union	-	-	57,972	53,578
12 - Union hired after 7/1/	7.39%	7.22%	478	386
Municipality Total			\$ 78,699	\$ 71,811

Employee contribution rates reflected in the valuations are shown below:

Valuation Date:	Employee Contribution Rate	
	12/31/2014	12/31/2013
Division		
01 - Non-Union	0.00%	0.00%
10 - Union	0.00%	0.00%
12 - Union hired after 7/1/	0.00%	0.00%

For employee contribution rates that are not flat percentages, the rate shown is a weighted average flat employee contribution rate.

You may contribute more than the minimum required contributions, as these additional contributions will earn investment income, and later you may have to contribute less than otherwise. **MERS strongly encourages employers to contribute more than the minimum contribution shown above.**

Assuming that experience of the plan meets actuarial assumptions:

- To accelerate to a 100% funding ratio in 10 years, estimated monthly employer contributions for the entire employer would be \$ 129,209, instead of \$ 78,699.
- To accelerate to a 100% funding ratio in 20 years, estimated monthly employer contributions for the entire employer would be \$ 85,763, instead of \$ 78,699.

If you are interested in making additional contributions, please contact MERS and they can assist you with evaluating your options.

How and Why Do These Numbers Change?

In a defined benefit plan contributions vary from one annual actuarial valuation to the next as a result of the following:

- Changes in benefit provisions (see Table 2)
- Changes in actuarial assumptions and methods (see the [Appendix](#))
- Experience of the plan (investment experience and demographic experience); this is the difference between actual experience of the plan and the actuarial assumptions

Actuarial valuations do not affect the ultimate cost of the plan; the benefit payments (current and future) determine the cost of the plan. Actuarial valuations only affect the timing of the contributions into the plan. Because assumptions are for the long term, plan experience will not match the actuarial assumptions in any given year (except by coincidence). Each annual actuarial valuation will adjust the required employer contributions up or down based on the prior year's actual experience.

Comments on the Investment Markets

At this time, MERS maintains the 8% annual return assumption on investments in the belief that over the long-term this is achievable. For example, MERS' 30 year return was 9.17% on December 31, 2014. The MERS portfolio returned 6.49% in 2014; the two year (10.54%), three year (10.73%), four year (8.48%), and five year (9.59%) returns all exceed the 8% annual return assumption. When comparing these actual returns to the 8% net return assumption, deduct roughly .25% from these actual returns to reflect administrative expenses. It has now been seven years since the peak of the financial crisis and the stock market decline still weighs down MERS' medium term returns. This was a one in fifty year event comparable only to the Stock Market Crash of 1929 during the Great Depression. The stock market and economy have stabilized since 2008 and are on the long road to recovery. MERS regularly monitors the investment return assumption to make sure it is reasonable compared to long term expectations.

The actuarial value of assets, used to determine both your funded ratio and your required employer contribution, is based on a 10-year smoothed value of assets. Only a portion (seven-tenths, for 2008 through 2014) of the 2008 investment market losses was recognized in this actuarial valuation report. This reduces the volatility of the valuation results, which affects your required employer contribution and funded ratio. The smoothed actuarial rate of return for 2014 was 5.90%.

As of December 31, 2014 the actuarial value of assets is 106% of market value. This means that meeting the actuarial assumption in the next few years will require average annual market returns that exceed the 8% investment return assumption.

If the December 31, 2014 valuation results were based on market value on that date instead of 10-year smoothed funding value: i) the funded percent of your entire municipality would be 59% (instead of 63%); and ii) your total employer contribution requirement for the fiscal year starting July 1, 2016 would be \$ 1,010,568 (instead of \$ 944,388).

The asset smoothing method is a powerful tool for reducing the volatility of your required employer contributions. **However, if the current 6% difference between the smoothed value and the market value of assets is not made up, the result would be gradual increases in your employer contribution requirement over the next few years (to around the levels described above).**

Risk Characteristics of Defined Benefit Plans

It is important to understand that retirement plans, by their nature, are exposed to certain risks. While risks cannot be eliminated entirely, they can be mitigated through various strategies. Below are a few examples of risk (this is not an all-inclusive list):

- Economic - investment return, wage inflation, etc.
- Demographic - longevity, disability, retirement, etc.
- Plan Sponsor and Employees - contribution volatility, attract/retain employees, etc.

The MERS Retirement Board adopts certain assumptions and methods to mitigate the economic and demographic risks, and the contribution volatility risks. For example, the investment risk is the largest economic risk and is mitigated by having a balanced portfolio and a clearly defined investment strategy. Demographic risks vary based on the age of the workforce and are mitigated by preparing special studies called experience studies on a regular basis to determine if the assumptions used are reasonable compared to the experience. Risk may be mitigated through a plan design that provides benefits that are sustainable in the long run. An Experience Study is completed every five years to review the assumptions and methods. The next Experience Study will be completed in 2015.

Alternate Scenarios to Estimate the Potential Volatility of Results ("What If Scenarios")

The calculations in this report are based on assumptions about long-term economic and demographic behavior. These assumptions will never materialize in a given year, except by coincidence. Therefore the results will vary from one year to the next. The volatility of the results depends upon the characteristics of the plan. For example:

- Open divisions that have substantial assets compared to their active employee payroll will have more volatile employer contribution rates due to investment return fluctuations.
- Open divisions that have substantial accrued liability compared to their active employee payroll will have more volatile employer contribution rates due to demographic experience fluctuations.
- Small divisions will have more volatile contribution patterns than larger divisions because statistical fluctuations are relatively larger among small populations.
- Shorter amortization periods result in more volatile contribution patterns.

The analysis in this section is intended to review the potential volatility of the actuarial valuation results. It is important to note that calculations in this report are mathematical estimates based upon assumptions regarding future events, which may or may not materialize. Actuarial calculations can and do vary from one valuation to the next, sometimes significantly depending on the group's size.

Many assumptions are important in determining the required employer contributions.

For example:

- Lower investment returns would result in higher required employer contributions, and vice-versa.
- Smaller than projected pay increases would lower required employer contributions.
- Reductions in the number of active employees would lower required contribution dollars, but would usually increase the contribution rate expressed as a percentage of (the now lower) payroll.
- Retirements at earlier ages than projected would usually increase required employer contributions.
- More non-vested terminations of employment than projected would decrease required contributions.
- More disabilities or survivor (death) benefits than projected would increase required contributions.
- Longer lifetimes after retirement than projected would increase required employer contributions.

In the table below, we show the impact of varying one actuarial assumption: the future annual rate of investment return. Lower investment returns would result in higher required employer contributions, and vice-versa.

The relative impact of each investment return scenario below will vary from year to year, as the participant demographics change. The impact of each scenario should be analyzed for a given year, not from year to year. The results in the table are based on the December 31, 2014 valuation, and are for the municipality in total, not by division.

	Assumed Future Annual Smoothed Rate of Investment Return			
	Lower Future Annual Returns		Valuation Assumption	Higher Returns
	6%	7%	8%	9%
12/31/2014 Valuation Results				
Accrued Liability	\$ 34,135,225	\$ 30,462,219	\$ 27,378,082	\$ 24,769,074
Valuation Assets	\$ 17,198,964	\$ 17,198,964	\$ 17,198,964	\$ 17,198,964
Unfunded Accrued Liability	\$ 16,936,261	\$ 13,263,255	\$ 10,179,118	\$ 7,570,110
Funded Ratio	50%	57%	63%	69%
Monthly Normal Cost	\$ 42,655	\$ 32,794	\$ 25,363	\$ 19,745
Monthly Amortization Payment	\$ 74,093	\$ 63,911	\$ 53,336	\$ 42,329
Total Employer Contribution¹	\$ 116,748	\$ 96,705	\$ 78,699	\$ 62,074

¹ If assets exceed accrued liabilities for a division, the division's amortization payment is negative and is used to reduce the division's employer contribution requirement. If the overfunding credit is larger than the normal cost, the division's full credit is included in the municipality's amortization payment above but the division's total contribution requirement is zero. This can cause the displayed normal cost and amortization payment to not add up to the displayed total employer contribution.

Five Year Projection Scenarios

The following table illustrates the plan's projected liabilities and required employer contributions for the next five fiscal years, under three actuarial assumptions and future economic scenarios. All three scenarios take into account the 2008 financial losses that will continue to affect the smoothed rate of return for the next three years.

Valuation Year Ending 12/31	Fiscal Year Beginning 7/1	Actuarial Accrued Liability	Valuation Assets	Funded Percentage	Required Annual Employer Contribution ¹
8% Assumed Interest Discount Rate and Future Annual Market Rate of Return					
2014	2016	\$ 27,378,082	\$ 17,198,964	63%	\$ 991,824
2015	2017	28,200,900	17,406,600	62%	1,050,800
2016	2018	28,911,100	17,481,500	61%	1,118,500
2017	2019	29,538,000	17,557,500	59%	1,195,700
2018	2020	30,201,400	18,091,800	60%	1,234,900
7% Assumed Interest Discount Rate and Future Annual Market Rate of Return					
2014	2016	\$ 30,462,219	\$ 17,198,964	57%	\$ 1,227,264
2015	2017	31,261,800	17,396,700	56%	1,278,000
2016	2018	32,092,800	17,601,500	55%	1,342,100
2017	2019	32,756,100	17,868,300	55%	1,412,800
2018	2020	33,551,400	18,567,700	55%	1,460,400
6% Assumed Interest Discount Rate and Future Annual Market Rate of Return					
2014	2016	\$ 34,135,225	\$ 17,198,964	50%	\$ 1,492,152
2015	2017	35,056,700	17,396,700	50%	1,536,700
2016	2018	35,822,100	17,644,600	49%	1,599,000
2017	2019	36,637,500	18,199,100	50%	1,672,700
2018	2020	37,382,000	19,203,800	51%	1,721,300

¹ For an employer with any open divisions, this column will include the impact of projected increases in total payroll from 2014 to the applicable fiscal year. This will cause the projected contribution for the fiscal year beginning in 2016 to be higher than the Estimated Annual Contribution shown in Table 1.

The first scenario provides an estimate of required employer contributions based on current actuarial assumptions, and a projected 8% market return. The other scenarios may be useful if the municipality chooses to budget more conservatively, and make contributions in addition to the minimum requirements. The 7% and 6% projections provide an indication of the potential required employer contribution if MERS were to realize investment returns of 7% and 6% over the long-term.

Employer Contribution Details For the Fiscal Year Beginning July 1, 2016

Table 1

Division	Amort. Period for Unfund. Liab. ^{4,5}	Employer Contributions ¹			Blended Employer Contribut. ⁷	Employee Contribution Rate ⁶	Employee Contribut. Conversion Factor ²
		Normal Cost	Unfunded Accrued Liability	Total Required Employer Contribut.			
Percentage of Payroll							
01 - Non-Union	24	11.72%	17.42%	29.14%		0.00%	0.86%
10 - Union	24	-	-	-	33.48%	0.00%	
12 - Union hired after	24	7.03%	0.36%	7.39%	33.48%	0.00%	0.96%
Estimated Monthly Contribution³							
01 - Non-Union	24	\$ 8,144	\$ 12,105	\$ 20,249			
10 - Union	24	16,764	41,208	57,972			
12 - Union hired after	24	455	23	478			
Total Municipality		\$ 25,363	\$ 53,336	\$ 78,699			
Estimated Annual Contribution³							
		\$ 304,356	\$ 640,032	\$ 944,388			

¹ The above employer contribution requirements are in addition to the employee contributions, if any.

² If employee contributions are increased/decreased by 1.00% of pay, the employer contribution requirement will decrease/increase by the Employee Contribution Conversion Factor. The conversion factor is usually under 1%, because employee contributions may be refunded at termination of employment, and not used to fund retirement pensions. Employer contributions will all be used to fund pensions.

³ For divisions that are open to new hires, estimated contributions are based on valuation payroll. Actual contributions will be based on actual reported monthly pays, and will be different from the above amounts (usually higher). For divisions that will have no new hires, invoices will be based on the above dollar amounts which are based on projected fiscal year payroll. See description of Open Divisions and Closed Divisions in the [Appendix](#).

⁴ If projected assets exceed projected liabilities as of the beginning of the July 1, 2016 fiscal year, the negative unfunded accrued liability is amortized (spread) over 10 years. This amortization is used to reduce the employer contribution rate. Note that if the overfunding credit is larger than the normal cost, the full credit is shown above but the total contribution requirement is zero. This will cause the displayed normal cost and unfunded accrued liability contributions to not add across.

⁵ If the division is closed to new hires, with new hires not covered by MERS Defined Benefit Plan or Hybrid Plan provisions, the amortization period will decrease as follows: Under Amortization Option A, the period will decrease by 2 years each valuation year, until it reaches 6 or 5 years. Then it decreases by 1 year each valuation year until the UAL is paid off. Under Amortization Option B, the period will decrease by 2 years each valuation year, until it reaches 16 or 15 years. Thereafter, the period will reduce by 1 year each valuation year, until the UAL is paid off. This will result in amortization payments that increase faster than the usual 4.5% each year. If the division is closed to new hires, with new hires (and transfers) covered by MERS Defined Benefit Plan or Hybrid Plan provisions, the standard open division amortization period will apply.

⁶ For employee contribution rates that are not flat percentages, the rate shown is a weighted average flat employee contribution rate.

⁷ For linked divisions, the employer will be invoiced the Total Required Employer Contribution rate shown above for each linked division (a contribution rate for the open division; a contribution dollar for the closed-but-linked division), unless the employer elects to contribute the Blended Employer Contribution rate shown above, by contacting MERS at 800-767-2308.

Please see the Comments on the Investment Markets.

Benefit Provisions

Table 2

01 - Non-Union: Open Division

	2014 Valuation	2013 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	5 years	5 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
COLA for Current Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	0%	0%
Act 88:	No	No

10 - Union: Closed to new hires, linked to Division 12

	2014 Valuation	2013 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	5 years	5 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
COLA for Current Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	0%	0%
Act 88:	No	No

12 - Union hired after 7/1/2012: Open Division, linked to Division 10

	2014 Valuation	2013 Valuation
Benefit Multiplier:	1.50% Multiplier (no max)	1.50% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	5 years	5 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	0%	0%
Act 88:	No	No

Participant Summary

Table 3

Division	2014 Valuation		2013 Valuation		2014 Valuation		
	Number	Annual Payroll ¹	Number	Annual Payroll ¹	Average Age	Average Benefit Service ²	Average Eligibility Service ²
01 - Non-Union							
Active Employees	10	\$ 833,871	9	\$ 734,440	40.6	7.6	9.4
Vested Former Employees	4	51,949	4	51,949	54.4	7.0	10.5
Retirees and Beneficiaries	12	425,063	12	416,225	68.2		
10 - Union							
Active Employees	26	\$ 1,950,871	26	\$ 1,866,308	46.7	16.1	16.1
Vested Former Employees	1	6,537	1	6,537	39.8	6.1	6.1
Retirees and Beneficiaries	41	1,203,956	43	1,221,169	67.7		
12 - Union hired after 7/							
Active Employees	2	\$ 77,749	2	\$ 64,040	23.4	2.0	2.0
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Total Municipality							
Active Employees	38	\$ 2,862,491	37	\$ 2,664,788	43.9	13.1	13.6
Vested Former Employees	5	58,486	5	58,486	51.5	6.8	9.6
Retirees and Beneficiaries	<u>53</u>	1,629,019	<u>55</u>	1,637,394	67.8		
Total Participants	96		97				

¹ Annual payroll for active employees; annual deferred benefits payable for vested former employees; annual benefits being paid for retirees and beneficiaries.

² Description can be found under Miscellaneous and Technical Assumptions in the [Appendix](#).

Reported Assets (Market Value)

Table 4

Division	2014 Valuation		2013 Valuation	
	Employer and Retiree ¹	Employee ²	Employer and Retiree ¹	Employee ²
01 - Non-Union	\$ 4,006,646	\$ 5,762	\$ 4,022,352	\$ 5,762
10 - Union	12,021,529	180,922	11,901,618	180,525
12 - Union hired after 7/1/2012	11,543	0	5,260	0
Municipality Total	\$ 16,039,718	\$ 186,684	\$ 15,929,230	\$ 186,287
Combined Reserves	\$ 16,226,402		\$ 16,115,517	

¹ Reserve for Employer Contributions and Benefit Payments

² Reserve for Employee Contributions

The December 31, 2014 valuation assets are equal to 1.059937 times the reported market value of assets (compared to 1.061840 as of December 31, 2013). The derivation of valuation assets is described, and detailed calculations of valuation assets are shown, in the [Appendix](#).

Flow of Valuation Assets

Table 5

Year Ended 12/31	Employer Contributions		Employee Contributions	Investment Income	Benefit Payments	Employee Contribution Refunds	Net Transfers	Valuation Asset Balance
	Required	Additional						
2011	\$ 480,918	\$ 0	\$ 0	\$ 2,558,269	\$ (775,815)	\$ 0	\$ 14,645,174	\$ 16,908,546
2012	730,008	0	0	713,871	(1,411,666)	0	168	16,940,927
2013	717,265	0	0	953,208	(1,564,717)	0	65,418	17,112,101
2014	773,230	0	0	939,877	(1,626,244)	0	0	17,198,964

Notes:

Transfers in and out are usually related to the transfer of participants between municipalities, and to employer and employee payments for service credit purchases (if any) that the governing body has approved.

Additional employer contributions, if any, are shown separately starting in 2011. Prior to 2011, additional contributions are combined with the required employer contributions.

In the actuarial valuation additional employer contributions are combined with required contributions and used to reduce computed future required employer contributions.

**Actuarial Accrued Liabilities and Valuation Assets
As of December 31, 2014**

Table 6

Division	Actuarial Accrued Liability	Valuation Assets ¹	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
01 - Non-Union				
Active Employees	\$ 1,584,361	\$ 0	0.0%	\$ 1,584,361
Vested Former Employees	446,168	0	0.0%	446,168
Retirees And Beneficiaries	4,656,805	4,252,900	91.3%	403,905
Pending Refunds	0	0	0.0%	0
Total	\$ 6,687,334	\$ 4,252,900	63.6%	\$ 2,434,434
10 - Union				
Active Employees	\$ 7,055,201	\$ 180,922	2.6%	\$ 6,874,279
Vested Former Employees	16,533	0	0.0%	16,533
Retirees And Beneficiaries	13,602,148	12,752,907	93.8%	849,241
Pending Refunds	0	0	0.0%	0
Total	\$ 20,673,882	\$ 12,933,829	62.6%	\$ 7,740,053
12 - Union hired after 7/1/2012				
Active Employees	\$ 16,866	\$ 12,235	72.5%	\$ 4,631
Vested Former Employees	0	0	0.0%	0
Retirees And Beneficiaries	0	0	0.0%	0
Pending Refunds	0	0	0.0%	0
Total	\$ 16,866	\$ 12,235	72.5%	\$ 4,631
Total Municipality				
Active Employees	\$ 8,656,428	\$ 193,157	2.2%	\$ 8,463,271
Vested Former Employees	462,701	0	0.0%	462,701
Retirees and Beneficiaries	18,258,953	17,005,807	93.1%	1,253,146
Pending Refunds	0	0	0.0%	0
Total Participants	\$ 27,378,082	\$ 17,198,964	62.8%	\$ 10,179,118
The following results show the combined accrued liabilities and assets for each set of linked divisions. These results are already included in the table above.				
Linked Divisions 12, 10				
Active Employees	\$ 7,072,067	\$ 193,157	2.7%	\$ 6,878,910
Vested Former Employees	16,533	0	0.0%	16,533
Retirees and Beneficiaries	13,602,148	12,752,907	93.8%	849,241
Pending Refunds	0	0	0.0%	0
Total	\$ 20,690,748	\$ 12,946,064	62.6%	\$ 7,744,684

¹ Includes both employer and employee assets.

Please see the Comments on the Investment Markets.

See the MERS Fiscal Responsibility Policy on the MERS website at:

http://www.mersofmich.com/Portals/0/Assets/PageResources/MERS/PlanDocument/Pension/sec_43c.pdf.

Actuarial Accrued Liabilities - Comparative Schedule

Table 7

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 24,854,814	\$ 16,908,546	68%	\$ 7,946,268
2012	25,730,036	16,940,927	66%	8,789,109
2013	26,572,254	17,112,101	64%	9,460,153
2014	27,378,082	17,198,964	63%	10,179,118

Notes: Actuarial assumptions were revised for the 2000, 2004, 2008, 2009, 2010, 2011, and 2012 actuarial valuations.

Division 01 - Non-Union

Table 8-01: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 5,615,827	\$ 4,061,061	72%	\$ 1,554,766
2012	5,870,582	4,170,628	71%	1,699,954
2013	6,403,787	4,277,213	67%	2,126,574
2014	6,687,334	4,252,900	64%	2,434,434

Notes: Actuarial assumptions were revised for the 2004, 2008, 2009, 2010, 2011, and 2012 actuarial valuations.

Table 9-01: Required Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Required Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2011	13	\$ 995,465	19.53%	0.00%
2012	12	999,231	21.26%	0.00%
2013	9	734,440	29.16%	0.00%
2014	10	833,871	29.14%	0.00%

¹ For open divisions, a percent of pay contribution is shown. For closed divisions, a monthly dollar contribution is shown.

² For employee contribution rates that are not flat percentages, the rate shown is a weighted average flat employee contribution rate. For each valuation year, the required employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the required employer contribution will be adjusted.

Division 10 - Union

Table 8-10: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 19,238,987	\$ 12,847,485	67%	\$ 6,391,502
2012	19,857,774	12,769,362	64%	7,088,412
2013	20,160,852	12,829,303	64%	7,331,549
2014	20,673,882	12,933,829	63%	7,740,053

Notes: Actuarial assumptions were revised for the 2004, 2008, 2009, 2010, 2011, and 2012 actuarial valuations.

Table 9-10: Required Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Required Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2011	29	\$ 1,943,524	30.03%	0.00%
2012	27	1,913,911	\$ 52,526	0.00%
2013	26	1,866,308	\$ 53,578	0.00%
2014	26	1,950,871	\$ 57,972	0.00%

¹ For open divisions, a percent of pay contribution is shown. For closed divisions, a monthly dollar contribution is shown.

² For employee contribution rates that are not flat percentages, the rate shown is a weighted average flat employee contribution rate. For each valuation year, the required employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the required employer contribution will be adjusted.

Division 12 - Union hired after 7/1/2012

Table 8-12: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 1,680	\$ 937	56%	\$ 743
2013	7,615	5,585	73%	2,030
2014	16,866	12,235	73%	4,631

Notes: Actuarial assumptions were revised for the 2004, 2008, 2009, 2010, 2011, and 2012 actuarial valuations.

Table 9-12: Required Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Required Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2012	1	\$ 24,829	7.27%	0.00%
2013	2	64,040	7.22%	0.00%
2014	2	77,749	7.39%	0.00%

¹ For open divisions, a percent of pay contribution is shown. For closed divisions, a monthly dollar contribution is shown.

² For employee contribution rates that are not flat percentages, the rate shown is a weighted average flat employee contribution rate. For each valuation year, the required employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the required employer contribution will be adjusted.

GASB 68 Information

The following information has been prepared to provide some of the information necessary to complete GASB Statement No. 68 disclosures. Statement 68 is effective for fiscal years beginning after June 15, 2014. Additional resources, including an Implementation Guide, are available at www.mersofmich.com.

Actuarial Valuation Date:	12/31/2014
Measurement Date of Total Pension Liability (TPL):	12/31/2014

At 12/31/2014, the following employees were covered by the benefit terms:

Inactive employees or beneficiaries currently receiving benefits:	53
Inactive employees entitled to but not yet receiving benefits:	5
Active employees:	<u>38</u>
	96

Covered employee payroll: (Needed for Required Supplementary Information)	\$ 2,862,491
Total Pension Liability as of 12/31/2013 measurement date:	\$ 25,914,564
Total Pension Liability as of 12/31/2014 measurement date:	\$ 26,685,121
Service Cost for the year ending on the 12/31/2014 measurement date:	\$ 313,020

Change in the Total Pension Liability due to:

- Benefit changes ¹ :	\$ 0
- Differences between expected and actual experience ² :	\$ 0
- Changes in assumptions ² :	\$ 0

Average expected remaining service lives of all employees (active and inactive): 4

¹ A change in liability due to benefit changes is immediately recognized when calculating pension expense for the year.

² Changes in liability due to differences between actual and expected experience, and changes in assumptions, are recognized in pension expense over the average remaining service lives of all employees.

Sensitivity of the Net Pension Liability to changes in the discount rate:

	1% Decrease (7.25%)	Current Discount Rate (8.25%)	1% Increase (9.25%)
Change in Net Pension Liability as of 12/31/2014:	\$ 2,955,785	-	\$ (2,504,941)

Note: The current discount rate shown for GASB 68 purposes is higher than the MERS assumed rate of return. This is because for GASB 68 purposes, the discount rate must be gross of administrative expenses, whereas for funding purposes it is net of administrative expenses.

Benefit Provision History

The following benefit provision history is provided by MERS. Any corrections to this history or discrepancies between this information and information displayed elsewhere in the valuation report should be reported to MERS. All provisions are listed by date of adoption.

01 - Non-Union

1/1/2012	E1 2.5% COLA for past retirees (03/01/2011)
1/1/2012	E2 2.5% COLA for future retirees (03/01/2011)
3/1/2011	Benefit FAC-5 (5 Year Final Average Compensation)
3/1/2011	10 Year Vesting
3/1/2011	Exclude Temporary Employees
3/1/2011	Day of work defined as 8 Hours a Day for All employees.
3/1/2011	Benefit B-3 (80% max)
3/1/2011	Benefit F55 (With 25 Years of Service)
3/1/2011	Member Contribution Rate 0.00%
3/1/2011	Fiscal Month - July

10 - Union

1/1/2012	E1 2.5% COLA for past retirees (01/01/1991)
1/1/2012	E2 2.5% COLA for future retirees (03/01/2011)
3/1/2011	Benefit FAC-5 (5 Year Final Average Compensation)
3/1/2011	6 Year Vesting
3/1/2011	Exclude Temporary Employees
3/1/2011	Day of work defined as 8 Hours a Day for All employees.
3/1/2011	Benefit B-3 (80% max)
3/1/2011	Benefit F50 (With 25 Years of Service)
3/1/2011	Member Contribution Rate 0.00%
3/1/2011	Fiscal Month - July

12 - Union hired after 7/1/2012

7/1/2012	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/2012	6 Year Vesting
7/1/2012	Non Standard Compensation Definition
7/1/2012	Day of work defined as 5 Hours a Day for All employees.
7/1/2012	Benefit C-1 (New)
7/1/2012	Benefit F55 (With 25 Years of Service)
7/1/2012	E2 2.5% COLA for future retirees (07/01/2012)
3/1/2011	Fiscal Month - July

Plan Provisions, Actuarial Assumptions, and Actuarial Funding Method

Details on MERS plan provisions, actuarial assumptions, and actuarial methodology can be found in the [Appendix](#). Some actuarial assumptions are specific to this municipality and its divisions. These are listed below.

Increase in Final Average Compensation

Division	FAC Increase Assumption
All Divisions	0.00%

Withdrawal Rate Scaling Factor

Division	Withdrawal Rate Scaling Factor
All Divisions	100%

Miscellaneous and Technical Assumptions

Loads – None.



MUNICIPAL EMPLOYEES' RETIREMENT SYSTEM OF MICHIGAN

APPENDIX TO THE ANNUAL ACTUARIAL VALUATION REPORT DECEMBER 31, 2014

Summary of Plan Provisions, Actuarial Assumptions and Actuarial Funding Method
as of December 31, 2014

Introduction

An actuarial valuation is the mathematical process that estimates plan liabilities and employer contribution requirements for purposes of funding the individual employer plans within MERS. This process is repeated annually to update the liabilities and contribution requirements for changes in member census and plan features, and to reflect actual plan experience in the process. The valuation reflects the present provisions of the Municipal Employees' Retirement Act of 1984, as amended by 1996 Public Act 220 (as amended), as embodied in the MERS Plan Document (as revised). The specific benefit provisions in effect for each municipality are listed in Table 2 in the municipality's actuarial report.

In addition to using current membership and financial data, an actuarial valuation requires the use of a series of assumptions regarding uncertain future events. The assumptions and methods used in the December 31, 2014 Actuarial Valuation are those adopted by the Retirement Board. The most recent study of plan experience covered the period from December 31, 2003 through December 31, 2008. The actuarial assumptions are unchanged from those used in the December 31, 2013 valuations.

There have been no changes in the funding method, adopted by the Retirement Board beginning with the December 31, 1993 valuations. The basic funding method is entry age normal and employer contribution amounts are developed as a level percentage of projected payroll for employee divisions that are open to new employees.

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (MAAA).

Details on MERS plan provisions, actuarial assumptions, and actuarial methodology follow this section.

Assumption and Method Changes for the December 31, 2014 Actuarial Valuation

There are no changes in actuarial assumptions or methods affecting the December 31, 2014 Actuarial Valuations.

2009-2013 Experience Study

The 2009-2013 Five-Year Experience Study will be completed in Summer, 2015 and will first impact the December 31, 2015 Actuarial Valuations (affecting contribution requirements for fiscal years beginning in 2017). The experience study will likely result in changes in the assumptions and methods, which would impact future contribution requirements. Note the assumptions and methods do not impact the ultimate cost of the plan; they only impact the pattern of contributions.

Summary of Plan Provisions — Defined Benefit Plan¹

The benefits summarized in this section are intended only as general information regarding the Municipal Employees' Retirement System of Michigan. They are not a substitute for Act. No. 220 of the Public Acts of 1996, and the MERS Plan Document (as revised). If any conflict occurs between the information in this summary and Act. No. 220 of the Public Acts of 1996 (as amended) or the MERS Plan Document (as revised), the provisions of Act. No. 220 and the MERS Plan Document govern.

Eligibility for Retirement

MERS members are eligible to retire at:

- Age 60 with enough credited service to be vested (see below).
- Age 55 with 15 or more years of credited service.
- Age 50 with 25 or more years of credited service.

The retirement allowance is reduced $\frac{1}{2}$ of 1% for each complete month that the retirement date precedes 60. The reduction may be partially or fully waived by adopting the early retirement provisions outlined below.

Optional Retirement Programs (Unreduced Benefits)

- Age 50 with a required period of credited service of either 25 or 30 years.
- Age 55 with a required period of credited service of 15, 20, 25 or 30 years.
- Any age with a required period of credited service of 20, 21, 22, 23, 24, 25, 26, 27, 28, 29 or 30 years.

Mandatory Retirement

None.

Deferred Retirement (Vesting)

Retirement can be deferred if membership is terminated before age 60 other than by retirement or death, after becoming vested (10 years of credited service is required for vesting; adopting 5, 6, 7, 8 or 9 year vesting is optional). The retirement allowance begins when the application is filed with MERS and eligibility requirements for retirement are met. The deferred retirement allowance is computed in the same manner as a service retirement allowance, based on the benefit program in effect as of the date of termination of membership.

Rights to an allowance are forfeited if the member's accumulated contributions are refunded after termination of employment.

¹ Please see the description of the Hybrid Plan beginning on page 9.

Final Average Compensation (FAC)

MERS Plan benefits are based on a member's FAC, subject to the dollar compensation limits under Section 401(a)(17) of the Internal Revenue Code. For this purpose, FAC means one-fifth of the aggregate amount of compensation paid to a member and earned during the period of 5 consecutive years of the member's credited service in which the aggregate compensation paid is highest. The employer may optionally adopt an FAC averaged over 3 or more years, instead of 5 years.

Service Retirement Allowance

Credited service at time of termination of membership is multiplied by one of the following options:

- 1.00% of FAC to 2.50% of FAC, in increments of 0.05% of FAC, as adopted by the employer, with a maximum benefit of 80% of FAC.
- 1.0% of FAC (no 80% of FAC maximum). May not be adopted after January 2, 1986.
- 1.3% of FAC (no 80% of FAC maximum).
- Sum of 1.0% times the first \$4,200 of FAC, plus 1.5% times the portion of FAC over \$4,200. No 80% of FAC maximum. May not be adopted after January 2, 1986.
- 1.5% of FAC (no 80% of FAC maximum).
- Sum of 1.2% times the first \$4,200 of FAC, plus 1.7% times the portion of FAC over \$4,200. No 80% of FAC maximum. May not be adopted after January 2, 1986.
- 1.7% of FAC (no 80% of FAC maximum).
- 2.0% of FAC, payable until attainment of the age at which unreduced Social Security benefits are available (currently age 66 for normal retirement, gradually increasing to age 67). When this age is reached, the benefit reverts to between 1.0% of FAC and 1.7% of FAC adopted by the employer. No 80% of FAC maximum.
- 2.0% of FAC (no 80% of FAC maximum).
- Bridged Benefit: For service prior to the Bridged Benefit date, one of the above Benefit Program multiplier percentages of FAC (FAC may be frozen at the Bridged Benefit Date, or may be as of termination of membership). For service after the Bridged Benefit date, one of the above Benefit Program multiplier percentages of FAC (at termination of membership). The combined benefit may not exceed the larger of:
 - (i) the above benefit based on service prior to the Bridged Benefit date; and
 - (ii) 80% of FAC at termination of employment.

Maximum Benefit Payable by MERS

The maximum benefit that may be paid by MERS is governed by Section 415 of the Internal Revenue Code. Benefits in excess of the maximum benefit will be paid by the MERS Excess Benefit Plan.

Act 88 (Reciprocal Retirement Act, 1961 P.A. 88)

If the municipality has elected to come under the provision of Act 88 (see Table 2 in your municipality's actuarial report), service with former and future public employers in Michigan may be used to satisfy the service eligibility conditions of MERS. MERS maintains a statewide Act 88 adoption list:

https://employerportal.mersofmich.com/SharepointFormsService/Default.aspx?FormName=form_77.pdf

Disability Retirement Allowance

Total and permanent disability while employed by a participating municipality and after meeting the vesting requirement of the benefit program. The service requirement is waived if the disability is the natural and proximate result of duty-connected causes.

The allowance is computed in the same manner as a service retirement allowance, except that the reduction for retirement before age 60 is not applied.

If disability is due to duty-connected causes, the amount of the retirement allowance shall not be less than 25% of the member's FAC.

Adoption of optional Benefit Program D-2 provides a retirement allowance for a duty-connected disability that is the greater of:

- (i) 25% of the member's FAC; or
- (ii) A benefit based on 10 years of credited service in addition to the member's actual period of service, provided the total years of service do not exceed the greater of 30 years or the member's actual period of service.

Non-Duty Death Allowance

If a member or vested former member with the minimum years of service required to be vested dies before retirement, a monthly survivor allowance may be payable.

If the member is married, the spouse is the automatic beneficiary unless the spouse, in writing, declines a benefit in favor of another named beneficiary.

A contingent survivor beneficiary (named in an Option II Contingent Beneficiary Designation form filed with MERS) will receive a retirement allowance computed in the same manner as a service retirement allowance, based on service and FAC at death, but reduced to reflect an Option II (100% joint and survivor) election. The reduction for retirement before age 60 is not applied. Payment of a retirement allowance to the contingent survivor beneficiary of a deceased member commences immediately. Payment of a retirement allowance to the contingent survivor beneficiary of a deceased vested former member commences on the date the member would have first satisfied eligibility for retirement with an unreduced service retirement allowance.

If there is no named beneficiary and the member leaves a spouse, the spouse will receive an Option II survivor allowance. Payment of a retirement allowance to the surviving spouse of a deceased member commences immediately. Payment of a retirement allowance to the surviving spouse of a deceased vested former member commences on the date the member would have first satisfied eligibility for retirement for an unreduced service retirement allowance. The amount of a surviving spouse's retirement allowance shall be 85% of the deceased member's or deceased vested former member's accrued

retirement allowance computed in the same manner as a service retirement allowance, based on service and FAC at time of death.

The amount of a surviving spouse's benefit is always the larger of:

- (i) the benefit computed as a contingent survivor beneficiary; and
- (ii) the 85% of accrued retirement allowance benefit described above.

If there is no named beneficiary and no retirement allowance being paid to a surviving spouse, unmarried children under age 21 will be paid an equal share of 50% of the deceased member's or deceased vested former member's accrued retirement allowance. The reduction for retirement before age 60 is not applied.

If no retirement allowance becomes payable at death, the member's accumulated contributions, if any, are paid to the beneficiary or to the decedent's estate.

Duty-Connected Death Allowance

A duty death allowance, computed in the same manner as a non-duty death allowance, may be payable to a spouse or child(ren) if death occurs as the natural and proximate result of performance of duty with a participating municipality. The vesting requirement is waived, and the minimum benefit is 25% of the deceased member's FAC.

Adoption of optional Benefit Program D-2 provides a retirement allowance for a duty-connected death that is the greater of:

- (i) 25% of the member's FAC; or
- (ii) A benefit based on 10 years of credited service in addition to the member's actual period of service, provided the total years of service do not exceed the greater of 30 years or the member's actual period of service.

Member Contributions

Each member contributes a percent of annual compensation, as selected by the municipality, on the member's annual compensation up to the compensation limit under Section 401(a)(17) of the Internal Revenue Code. Any percentage from 0% to 10% (in 0.1% increments) may be selected. A 3%/5% contribution program was available prior to 1985 and may be continued (until any new benefit programs are adopted), but not adopted, after 1984. Under this program they contribute 3% of the first \$4,200 of annual compensation and 5% of portions of annual compensation over \$4,200. Interest is credited to accumulated member contributions each December 31 (and reflected in the Annual Member Statement provided to each member) at a rate determined by MERS, currently the one-year U.S. Treasury Bill rate determined as of each December 31. The interest rate credited for the 12-month period ending on the valuation date was 0.22%.

If a member leaves the employ of the municipality or dies without a retirement allowance or other benefit payable on their account, the member's accumulated contributions plus interest (as described above) are refunded with spousal consent, to the member, if living, or to the member's surviving spouse, if any, or to a named beneficiary (after spousal consent, if applicable).

Note for MERS' Defined Contribution Plan: The Annual Actuarial Valuation addresses assets and liabilities for participation under the MERS Defined Benefit Plan and Hybrid Plan. The MERS Defined Contribution Plan, which first became available for adoption in late 1997, is not addressed in the valuation results as it is not a defined benefit plan.

Post-Retirement Adjustments

Employers may adopt post-retirement cost-of-living adjustments (COLA):

One-Time COLA for present retirees and beneficiaries. The amount of the increase is equal to the number of years since the later of retirement or the date specified in the adopting resolution times either:

- (i) a fixed percentage of the present benefit; or
- (ii) a fixed dollar amount.

This COLA may be readopted from time to time.

Annual COLA – provides automatic annual benefit increases. The COLA may apply to either:

- (i) retirees (and their beneficiaries) retired before the effective date of the COLA; or
- (ii) retirees (and their beneficiaries) retired on or after the effective date of the COLA.

The amount of the annual increase may be either:

- (i) a percentage of the original (base) retirement benefit (non-compounded COLA); or
- (ii) a percentage of the present retirement benefit (compounded COLA); or
- (iii) a fixed dollar amount.

Such increases are further limited to increases in the Consumer Price Index (CPI) if the COLA was adopted before January 1, 1999. For all adoptions or readoptions after that date, the increase is not limited by the CPI increase.

Death-After-Retirement Surviving Spouse Benefit

A retiring member electing the Straight Life (highest) form of retirement payment is normally paid a lifetime retirement allowance, with payments terminating at death. The retiring member could provide benefits to a surviving spouse or another named beneficiary by electing Option II (100% continuation to beneficiary) or Option II-A (75% continuation to beneficiary) or Option III (50% continuation to beneficiary). A surviving spouse is automatically the beneficiary to an Option II, IIA or III allowance unless the spouse, in writing, relinquishes the benefit to the member electing a Straight Life allowance or to another named beneficiary. Electing these alternate forms of payment would lower the retiring member's retirement allowance.

If Benefit Program RS50% is adopted, a member retiring on or after the effective date of Benefit RS50% may elect the Straight Life form of retirement payment and still provide a 50% survivor benefit to their spouse. To be eligible for a surviving spouse benefit, the retiring member and spouse must have been married to each other both at the time of death and during the full one-year period just before retirement.

Delayed Retirement Option Partial Lump Sum (DROP+)

Any member who is eligible to retire with full, immediate retirement benefits has the option to:

- (i) Retire immediately and receive a monthly benefit payable immediately; or
- (ii) Delay their retirement date and continue to work.

If the member is covered by DROP+ and they retire at least 12 months after first becoming eligible for unreduced benefits, at actual retirement the member *has the option* to receive a partial lump sum and a reduced monthly benefit:

- (i) The member can elect a lump sum equal to 12, 24, 36, 48, or 60 times the their monthly accrued benefit (if they have delayed retirement at least that many months).
- (ii) For each 12 months included in the lump sum, the member's lifetime benefit is reduced by the DROP+ percentage adopted by the employer. The employer can adopt any of the following DROP+ reduction percentages: 6%, 7%, 8%, 9% or 10%.

DROP+ may not be adopted after June 30, 2013.

Non-Standard Benefit Provisions

Some municipalities have collectively bargained benefit provisions that differ from the benefit provisions described in this section. Such benefit provisions, if any, are listed in Table 2 of a municipality's annual actuarial valuation report, or are reflected in the actuarial assumptions that are specific to a municipality and are listed on the last page of a municipality's annual actuarial valuation report.

Summary of Plan Provisions – Hybrid Plan¹

The benefits summarized in this section are intended only as general information regarding the Municipal Employees' Retirement System of Michigan. They are not a substitute for Act. No. 220 of the Public Acts of 1996, and the MERS Plan Document as revised. If any conflict occurs between the information in this summary and Act. No. 220 of the Public Acts of 1996 (as amended), or the MERS Plan Document (as revised), the provisions of Act. No. 220 and the MERS Plan Document govern.

Hybrid Plan Part I — Defined Benefit Portion

Eligibility for Retirement

Members are eligible to retire at age 60 with 6 or more years of service.

Optional Retirement Programs (Unreduced Benefits)

Age 55 with a required period of credited service of 25 years.

Mandatory Retirement

None

Deferred Retirement (Vesting)

Retirement can be deferred if membership is terminated before age 60 other than by retirement or death, after becoming vested (6 years of credited service is required for vesting). The retirement allowance begins when the application is filed with MERS and eligibility requirements for retirement are met. The deferred retirement allowance is computed in the same manner as a service retirement allowance, based on the final average compensation and years of service at termination of membership.

Final Average Compensation (FAC)

Benefits are based on a member's FAC, subject to the dollar compensation limits under Section 401(a)(17) of the Internal Revenue Code. For this purpose, FAC means one-third of the aggregate amount of compensation paid to a member and earned during the period of 3 consecutive years of the member's credited service in which the aggregate compensation paid is highest.

¹ Please see the description of the Defined Benefit Plan beginning on page 3.

Service Retirement Allowance

Credited service at time of termination of membership is multiplied by one of the following options:

Hybrid 1.0%	1.0% of a member's FAC
Hybrid 1.25%	1.25% of FAC
Hybrid 1.5%	1.5% of FAC
Hybrid 1.75% ¹	1.75% of FAC
Hybrid 2.0% ¹	2.0% of FAC

¹ Available to those without social security coverage.

Maximum Benefit Payable by MERS

The maximum benefit that may be paid by MERS is governed by Section 415 of the Internal Revenue Code. Benefits in excess of the maximum benefit will be paid by the MERS Excess Benefit Plan.

Act 88 (Reciprocal Retirement Act, 1961 P.A. 88)

If the municipality has elected to come under the provision of Act 88 (see Table 2 in your municipality's actuarial report), service with former and future public employers in Michigan may be used to satisfy the service eligibility conditions of MERS. MERS maintains a statewide Act 88 adoption list:

https://employerportal.mersofmich.com/SharepointFormsService/Default.aspx?FormName=form_77.pdf

Disability Retirement Allowance

Benefits are the same as under the Defined Benefit Plan, except that optional Benefit Program D-2 does not apply.

Non-Duty Death Allowance

Benefits are the same as under the Defined Benefit Plan.

Duty-Connected Death Allowance

Benefits are the same as under the Defined Benefit Plan, except that optional Benefit Program D-2 does not apply.

Member Contributions

None, unless required to comply with a state statute that places restrictions on employer contributions to retirement plans. Each municipality's actuarial valuation reflects the member contribution provisions reported by MERS.

Post-Retirement Adjustments

Not available.

Death-After-Retirement Surviving Spouse Benefit

The same optional forms of payment are available as under the Defined Benefit Plan, except that the optional Benefit Program RS50% does not apply.

Delayed Retirement Option Partial Lump Sum (DROP+)

Not available.

Hybrid Plan Part II - Defined Contribution Portion

Employer Contributions and Vesting

The employer contribution amount is any percentage of compensation allowed by federal law.

The vesting schedule for employer contributions is one of the following schedules, as adopted by the employer:

- (i) Immediate vesting upon participation; or
- (ii) 100% vesting after stated years (participant is 100% vested after not to exceed maximum 5 years of service ("cliff" vesting)); or
- (iii) Graded vesting percentages per year of service, not to exceed maximum 6 years of service for 100% vesting, nor be less than certain stated minimums.

Member Contributions and Vesting

The member contribution amount is any amount allowed by federal law and subject to procedures established by the Retirement Board.

The vesting schedule for member contributions is 100% immediate vesting.

Note: The Annual Actuarial Valuation addresses assets and liabilities for participation under the MERS Defined Benefit Plan and the Defined Benefit portion of the Hybrid Plan. The Defined Contribution portion of the Hybrid Plan is not addressed in the valuation results.

Municipal Employees' Retirement System of Michigan IRC Section 415(b)(1)(A) Benefit Dollar Limits — 2015

The limits are based on the retiree's age at retirement. The limit at ages 62-65 is indexed with inflation, in \$5,000 increments. The limits at earlier ages are then increased proportionately. The limit applies to the retiree's or beneficiary's employer-financed straight life benefit, except in the case of an Option II, IIA, or III election with the retiree's spouse as named beneficiary, in which case the limit applies to the employer-financed portion of the reduced joint and survivor benefit.

Age at Retirement	General Employees	Police and Fire Members ¹
35	\$ 38,506	\$210,000
36	40,687	210,000
37	43,005	210,000
38	45,471	210,000
39	48,096	210,000
40	50,892	210,000
41	53,873	210,000
42	57,054	210,000
43	60,451	210,000
44	64,082	210,000
45	67,967	210,000
46	72,128	210,000
47	76,590	210,000
48	81,380	210,000
49	86,528	210,000
50	92,070	210,000
51	98,043	210,000
52	104,492	210,000
53	111,465	210,000
54	119,017	210,000
55	127,213	210,000
56	136,122	210,000
57	145,825	210,000
58	156,414	210,000
59	167,995	210,000
60	180,688	210,000
61	194,636	210,000
62	210,000	210,000
63	210,000	210,000
64	210,000	210,000
65 & older	210,000	210,000

¹ Requires that the member have at least 15 years of police, fire, and/or armed forces service as defined in IRC regulations. Otherwise use the limits for general members.

IRC Section 401(a)(17) Compensation Limit — 2015

For 2015 the IRC Section 401(a)(17) limit is \$265,000. This limit is indexed with inflation in \$5,000 increments.

Actuarial Assumptions

To calculate MERS contribution requirements, assumptions are made about future events that could affect the amount and timing of benefits to be paid and the assets to be accumulated. The economic and demographic assumptions include:

- An assumed rate of investment return that is used to discount liabilities and project what plan assets will earn.
- A mortality table projecting the number of members who will die before retirement and the duration of benefit payments after retirement.
- Assumed retirement rates projecting when members will retire and commence receiving retirement benefits.
- A set of withdrawal and disability rates to estimate the number of members who will leave the work force before retirement.
- Assumed rates of pay increase to project member compensation in future years.

The actuarial assumptions used in connection with this December 31, 2014 Actuarial Valuation are unchanged from the December 31, 2013 valuation assumptions. The actuarial assumptions currently used are summarized below and on the following pages.

Interest Rate

Funding plan benefits involves the accumulation of assets to pay benefits in the future. These assets are invested and the net rate of investment earnings is a significant factor in determining the contributions required to support the ultimate cost of benefits. For the 2014 actuarial valuation, the long-term investment yield is assumed to be 8% annually, net of administrative and investment expenses. This assumption was first used for the December 31, 1981 actuarial valuations.

Please note that, given that the actuarial value of assets is currently 6% higher than the market value, meeting the actuarial assumption in the next few years will require average annual market returns that exceed the 8% investment return assumption.

Please see the Comments on the Investment Markets in your municipality's Annual Actuarial Valuation Report.

Pay Increases

Because benefits are based on a member's final average compensation (FAC), it is necessary to make an assumption with respect to each member's estimated pay progression. The pay increase assumption used in the actuarial valuation projects annual pay increases of 4.5% in the long term (2% and 3% for calendar years 2015 and 2016, respectively) plus a percentage based on an age-related scale to reflect merit, longevity and promotional pay increases.

The pay increase assumption for selected ages is shown below. The 4.5% long-term wage inflation assumption was first used for the December 31, 1997 actuarial valuations. The merit and longevity pay increase assumption was first used for the December 31, 2011 actuarial valuations.

Age	Base (Wage Inflation) ¹	Merit and Longevity	Total Percentage Increase in Pay
20	4.50%	13.00%	17.50%
25	4.50	6.80	11.30
30	4.50	3.26	7.76
35	4.50	2.05	6.55
40	4.50	1.30	5.80
45	4.50	0.81	5.31
50	4.50	0.52	5.02
55	4.50	0.30	4.80
60	4.50	0.00	4.50

¹ For calendar years 2015 and 2016 the wage inflation assumption is 2% and 3%, respectively, instead of 4.5%. This assumption was first used for the December 31, 2012 actuarial valuations.

Inflation

Although no specific price inflation assumption is needed for this valuation, the 4.5% long-term wage inflation assumption would be consistent with a price inflation of 3% - 4%.

Payroll Growth

For divisions that are open to new hires, the number of active members is projected to remain constant, and the total payroll is projected to increase 4.5% annually in the long term (2% and 3% annually for calendar years 2015 and 2016, respectively). This assumption was first used for the December 31, 1997 actuarial valuations.

Increase in Final Average Compensation (FAC)

The 1999-2003 and 2004-2008 experience studies determined that for some retirees of some municipalities, the actual FAC at retirement was larger than would be expected based on reported annual pays and FAC's for the years just before retirement. Some possible sources for the differences are:

- Lump sum payments for unused paid time off. Unused sick leave payouts have been excluded from FAC since the mid 1970s. However, since that time it has become popular to combine sick and vacation time into paid time off, which is included in the FAC. Consequently, the lump sums that are includible in FAC have grown over the years.
- Extra overtime pay during the final year of employment. Our studies only reflect any increase in overtime during the final year, not any increase that occurs during the full 3 or more year averaging period.

We analyzed the variation among municipalities. The amount of unexpected FAC increase varies quite a bit between municipalities. Some municipalities show no sign of FAC loading, while other municipalities show increases above the average increase. This is presumably the result of different personnel policies among municipalities.

The Retirement Board adopted new FAC assumptions that were first used for the December 31, 2011 annual actuarial valuations. These assumptions reflect an FAC load of 0% to 8% for each municipality, based on the municipality's experience. The FAC increase assumption(s) for your municipality are shown in your annual actuarial valuation report. Note that for divisions that adopted Sick Leave in FAC (SLIF), the assumption is developed individually for each division, based on the specific SLIF provision and/or past experience.

Withdrawal Rates

The withdrawal rates are used to estimate the number of employees at each age that are expected to terminate employment before qualifying for retirement benefits. The withdrawal rates do not apply to members eligible to retire, and do not include separation on account of death or disability. The assumed rates of withdrawal applied in the current valuation are based on years of service, and scaled up or down according to each division's experience.

Sample rates of withdrawal from active employment, before application of the scaling factor, are shown below. These rates were first used for the December 31, 2008 actuarial valuations.

The base withdrawal rates (see the table below) are multiplied by the scaling factor to obtain the assumed withdrawal rates. The scaling factor for each division is shown in your actuarial valuation report.

Sample Years of Service	% of Active Members Withdrawing Within the Next Year
0	20.00%
1	17.00
2	14.00
3	11.00
4	9.00
5	6.50
10	5.00
15	3.70
20	3.00
25	2.70
30	2.60
34 and over	2.40

Retirement Rates

A schedule of retirement rates is used to measure the probability of eligible members retiring during the next year. The retirement rates for Normal Retirement are determined by each member's replacement index at the time of retirement. The replacement index is defined as the approximate percentage of the member's pay (after reducing for their member contributions) that will be replaced by the member's benefit at retirement. The index is calculated as:

$$\text{Replacement Index} = 100 \times \text{Accrued Benefit} \text{ divided by } [\text{Pay less Member Contributions}]$$

The assumed retirement percentage is 100% at the later of age 70 or a member's age on the valuation date.

Retirement rates for Early (reduced) Retirement are determined by the member's age at early retirement.

The Normal Retirement rates below were first used for the December 31, 2009 actuarial valuations. The Early Retirement rates were first used for the December 31, 2011 actuarial valuations.

Normal Retirement

Sample Replacement Index	Percent of Eligible Active Members Retiring Within the Next Year
5	5%
10	11
15	16
20	19
25	20
30	20
35	20
40	20
45	20
50	20
55	21
60	22
65	24
70	24
75	28
80	32
85	38
90	45
95	48
100+	50

Early Retirement – Reduced Benefit

Age	Percent of Eligible Active Members Retiring Within the Next Year
50	1.60%
51	1.60
52	2.30
53	3.30
54	4.50
55	3.50
56	3.25
57	3.00
58	4.50
59	5.75

Disability Rates

Disability rates are used in the valuation to estimate the incidence of member disability in future years.

The assumed rates of disablement at various ages are shown below. These rates were first used for the December 31, 2011 actuarial valuations.

Sample Ages	Percent Becoming Disabled Within the Next Year
20	0.02%
25	0.02
30	0.02
35	0.06
40	0.06
45	0.11
50	0.24
55	0.60
60	0.60
65	0.60

Eighty-five percent (85%) of the disabilities are assumed to be non-duty and 15% of the disabilities are assumed to be duty related. For those plans which have adopted disability provision D-2, 55% of the disabilities are assumed to be non-duty and 45% are assumed to be duty related.

Mortality Table

In estimating the amount of the reserves required at the time of retirement to pay a member's benefit for the remainder of their lifetime, it is necessary to make an assumption with respect to the probability of surviving to retirement and the life expectancy after retirement.

The mortality table used to project the mortality experience of plan members is a 50% Male - 50% Female blend of the 1994 Group Annuity Mortality Table. For disabled retirees, the regular mortality table is used with a 10-year set forward in ages to reflect the higher expected mortality rates of disabled members. These mortality tables were first used for the December 31, 2004 actuarial valuations.

Ninety percent (90%) of active member deaths are assumed to be non-duty deaths and 10% of the deaths are assumed to be duty related.

Possible future mortality improvements are reflected in the mortality assumption. The results of the 2004-2008 Experience Study showed that retirees were not living as long as projected by the current mortality table. Actual deaths during the period exceeded expected deaths by 12%.

The life expectancies and mortality rates projected for **non-disabled** members are shown below for selected ages:

Age	Expected Years of Life Remaining	Mortality Rates
20	61.55	0.04%
25	56.68	0.05
30	51.82	0.06
35	46.97	0.07
40	42.13	0.09
45	37.34	0.13
50	32.60	0.20
55	27.98	0.34
60	23.53	0.62
65	19.40	1.16
70	15.66	1.87
75	12.24	2.99
80	9.25	5.07

The life expectancies and mortality rates projected for **disabled** members are shown below for selected ages:

Age	Expected Years of Life Remaining	Mortality Rates
20	51.82	0.06%
25	46.97	0.07
30	42.13	0.09
35	37.34	0.13
40	32.60	0.20
45	27.98	0.34
50	23.53	0.62
55	19.40	1.16
60	15.66	1.87
65	12.24	2.99
70	9.25	5.07
75	6.81	8.25
80	4.85	13.46

Miscellaneous and Technical Assumptions

- | | |
|----------------------------|---|
| Loads | - Vesting liabilities are increased by 2% to reflect the value of the potential survivor benefit payable in case of death during the benefit deferral period. |
| Marriage Assumptions | - Seventy percent (70%) of males and 70% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses. |
| Pay Increase Timing | - Beginning of valuation year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date. |
| Pay Adjustment | - None. |
| Decrement Timing | - Decrements of all types are assumed to occur mid-year. |
| Future Service | - Members are assumed to earn 1.0 years of service in each future year. |
| Eligibility Testing | - Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur. |
| Benefit Service | - Exact fractional service is used to determine the amount of benefit payable. Benefit service is the service used in the benefit formula. |
| Eligibility Service | - The larger of reported Eligibility Service and reported Vesting Service was used as eligibility service in the valuation. Eligibility service is the service used to meet the conditions for retirement, and is generally equal to or larger than benefit service. |
| Decrement Relativity | - Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects. |
| Decrement Operation | - Disability and withdrawal do not operate during retirement eligibility. |
| Normal Form of Payment | - Future retiring members are assumed to elect the Straight Life form of payment (see page 7 regarding death-after-retirement benefits). |
| Incidence of Contributions | - Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits. |

- Maximum Compensation - The dollar compensation limits under Section 401(a)(17) of the Internal Revenue Code are projected to increase 4.5% annually. No member or employer contributions are projected to be made on the portion of any member's annual compensation in excess of the IRC Section 401(a)(17) limit for the year.
- Maximum Benefit - The dollar benefit limitations under Section 415 of the Internal Revenue Code are projected to increase 4.5% annually. Employee divisions 02, 20-29 (Police), 05 and 50-59 (Fire) are presumed eligible for the public safety benefit limits. No benefits in excess of the IRC 415 limits are projected to be paid, except as provided under the Qualified Excess Benefit Arrangement.
- Member Contribution Interest - The interest rate credited on member contributions is the one-year Treasury Bill rate as of December 31, determined annually. The long-term rate assumed in the valuation is 4%, which is consistent with the 3% to 4% price inflation assumption.
- DROP+ Assumptions - Each eligible member is assumed to make the DROP+ election with the most valuable combination of lump sum and reduced monthly benefit.
- The retirement probabilities shown earlier are used for members who are *not* covered by Benefit Program DROP+. For those covered by Benefit Program DROP+, it is assumed that retirement will be delayed long enough to become eligible for at least 4 years' worth of DROP+ lump sum.
- Data Adjustments - The gender was not reported for a small number of active members. These active members were assumed to be male.

Actuarial Funding Method

The Retirement Board has adopted funding methodology for the Retirement System to achieve the following major objectives:

- Develop level required contribution rates as a percentage of payroll (for divisions that are open to new hires);
- Finance benefits earned by present employees on a current basis;
- Accumulate assets to enhance members' benefit security;
- Produce investment earnings on accumulated assets to help meet future benefit costs;
- Make it possible to estimate the long-term actuarial cost of proposed amendments to System provisions; and
- Assist in maintaining the Retirement System's long-term financial viability.

The basic funding objective is a level pattern of cost as a percentage of pay throughout each member's working lifetime. The funding method used in this actuarial valuation – the entry age normal cost method – was first used for the December 31, 1993 actuarial valuations and is intended to:

- (i) Meet this funding objective; and
- (ii) Result in a relatively level long-term contribution requirement as a percentage of pay.

Under the entry age normal cost method, the total actuarially-determined contribution requirement is equal to the sum of the normal cost plus the payment required to fund the unfunded actuarial accrued liability over a period of years. Funding or amortizing the unfunded actuarial accrued liability includes a payment toward the liability (principal) plus a payment to reflect the time value of money (interest).

Normal Cost

In general terms, the normal cost is the cost of benefit rights accruing on the basis of current service. Technically, the normal cost rate is the level percentage-of-pay contribution required each year, with respect to each member, to accumulate over their projected working lifetime the reserves needed to meet the cost of earned benefits. The normal cost represents the ultimate cost of the Retirement System, if the unfunded liability is paid up and the actual experience of the System conforms to the assumptions.

Actuarial Accrued Liability

The total actuarial present value of future benefits is computed using the valuation's actuarial assumptions. Subtracting the present value of future normal costs results in the actuarial accrued liability.

The total actuarial accrued liability essentially represents the amount that would have been accumulated as of December 31, 2014, if:

- (i) Contributions sufficient to meet the normal costs of the Retirement System had been made each year in the past;
- (ii) Benefit provisions had always been the same as current benefit provisions; and
- (iii) Actual past experience had always conformed to current actuarial assumptions.

If assets equaled the total accrued liability, there would be no unfunded liability and future contribution requirements would consist solely of the calculated normal cost rates.

Amortization of Unfunded Actuarial Accrued Liability

The unfunded accrued liability as of December 31, 2014 (see Table 6 of your municipality's annual actuarial valuation report) is projected to the beginning of the fiscal year for which employer contributions are being calculated (fiscal year beginning in 2016). This allows the 2014 valuation to take into account the expected future contributions that are based on past valuations. This projection process will result in more stable computed contribution rates, and was first used for the December 31, 2004 actuarial valuations.

The projected unfunded accrued liability is then amortized over the appropriate period for each division (see Table 1 of your municipality's annual actuarial valuation report) to determine the amortization payment. For divisions that will have no new hires this is the dollar amortization payment. For divisions that are open to new hires this payment is divided by the projected fiscal year payroll to determine the amortization payment as a percentage of active member payroll. The resulting amortization contributions are displayed in Table 1 for each division. For purposes of determining the amortization payment, payments are projected to increase 4.5% a year.

The standard amortization period to fund the unfunded liability is 24 years for positive unfunded liabilities in the 2014 valuation. This period will be reduced by one year in each successive annual valuation, until the unfunded liability is paid off. Section 20m of Act No. 314 of the Public Acts of 1965 as amended (MCL 38.1140m) requires that the amortization period not exceed 30 years.

The standard amortization period for negative unfunded liabilities is 10 years, with the 10 year period reestablished with each annual actuarial valuation.

For divisions that are closed to new hires, and the new hires are not covered by MERS Defined Benefit Plan or Hybrid Plan provisions (in a linked division), the amortization period is shortened in order to ensure adequate funding of the closed division. The employer has two amortization options. Under Amortization Option A, the otherwise applicable MERS-wide standard amortization period for positive unfunded liabilities in effect in the valuation year in which the division is closed is decreased annually by 2 years until the period reaches 6 or 5 years. Each year thereafter the amortization period decreases one year each valuation year until the unfunded liability is paid off. Under Amortization Option B, the amortization period is decreased annually by 2 years until the period reaches 16 or 15 years. Each year thereafter the amortization period decreases one year each valuation year until the unfunded liability is paid off. In addition, the minimum contribution requirement for a closed division is equal to the excess of three years of annual retiree benefit payments over the current market value of assets. An employer that elected Amortization Option A may later change to Amortization Option B.

Amortization periods that are shorter than the above standard periods may be elected by a municipality (but not shorter than 5 years for negative unfunded liabilities), and some municipalities have done so.

Open Divisions and Closed Divisions

Open divisions will include the future new hires within an employee classification (bargaining unit). Rehired members will also become members of the open division. Members transferred to the employee classification will also become members of the open division, unless the Alternate Transfer Provision is adopted by the municipality. In the latter case, each transferring member is given a choice of entering the open division or a closed division within the employee classification (if there are still active members in the closed division, and the closed division is of the same type - defined benefit, hybrid, or defined contribution - as the division from which the member transferred).

There may also be one or more divisions within the employee classification that no longer accept new hires. These are generally referred to as closed divisions, but in some situations are linked to the open division with the new hires (for actuarial valuation purposes - see Linked Divisions below). Note that a division is also treated like a closed division if the division has no active members reported as of the valuation date.

Linked Divisions

The closed division funding policy was adopted by the Retirement Board (Amended Amortization Policy for Closed Divisions Within Open Municipalities, as revised by the Retirement Board on November 13, 2014). The purpose is to ensure that a defined benefit division that is closed to new hires does not run out of money. Funding the unfunded liabilities over the MERS standard amortization period will often deplete a closed division's assets before the death of the last participant in the division. Assets cannot be shared between the closed defined benefit division and a defined contribution plan covering the new hires, or a non-MERS defined benefit plan covering the new hires, even if the employees are part of the same employee classification (bargaining unit).

However, if the new hires, transfers and rehires are covered by a new tier of benefits in the MERS Defined Benefit Plan (including the defined benefit portion of the MERS Hybrid Plan), there can be a sharing of employer assets between the defined benefit division with no new hires (with the old benefit structure) and the defined benefit or hybrid division covering the new hires within the same employee classification. The employer can avoid the required more rapid amortization of the unfunded liabilities by putting new hires into a MERS Defined Benefit Plan or MERS Hybrid Plan division, instead of a defined contribution plan or non-MERS defined benefit plan.

If a division with no new hires is "linked" to an open MERS Defined Benefit Plan or MERS Hybrid Plan division, this is indicated in Table 2 of your municipality's annual actuarial valuation report. Both of the linked divisions will use the standard open division funding policy.

Asset Valuation Method

The actuarial value of assets is determined on the basis of a method that calculates expected investment income at the valuation rate of return and adds a portion of the difference between the expected investment income and actual investment income earned on a market value basis. The difference in investment income between expected return and market return is recognized over a 10-year period at the rate of 10% per year. This asset valuation method was first adopted for the December 31, 2005 valuation, and is applied as follows:

Actuarial Value equals:

- (i) Actuarial value of assets from the previous actuarial valuation; plus
- (ii) Aggregate employer and member contributions since the last valuation; minus
- (iii) Benefit payments and refunds of member contributions since the last valuation; plus
- (iv) Estimated investment income at the 8% valuation interest rate; plus
- (v) Portion of gain (loss) recognized in the current valuation.

For the above purpose, gain (loss) is defined as the excess during the period of the investment return on the market value of assets over the expected investment income. The portion recognized in the valuation is 10% of the current year's gain (loss) plus 10% of the gain (loss) from each of the 9 preceding years. The cumulative difference between the market value and valuation assets as of December 31, 2005 is recognized over 9 years.

During 2014, the approximate net investment return on average total assets at actuarial value (determined as the actuarial value of investment income divided by the average actuarial value of assets during the year) was 5.90%. The corresponding amounts for 2013, 2012, 2011 and 2010 were 6.04%, 5.42%, 5.19% and 5.74%, respectively.

For the December 31, 2014 valuation, the actuarial value of assets is equal to 105.99% of market value (compared to 106.18%, 114.36%, 120.58% and 116.29% in 2013, 2012, 2011 and 2010, respectively). This percentage is applied to each division's reported market value of assets to estimate the actuarial value of assets for the division. The chart on the following pages provides the details of the derivation of the actuarial value of assets for the retirement system in the aggregate.

Note that, given that the actuarial value of assets is currently 6% higher than the market value, meeting the actuarial assumption in the next few years will require average annual market returns that exceed the 8% investment return assumption.

Please see the Comments on the Investment Markets in your municipality's annual actuarial valuation report.

Municipal Employees' Retirement System of Michigan
Derivation of Actuarial Value of Assets

Valuation Date December 31	2001	2002	2003	2004	2005
1. Beginning of Year Assets					
a) Market Value	\$3,788,886,471	\$3,647,820,869	\$3,285,304,333	\$4,071,997,180	\$4,619,201,287
b) Valuation Assets	3,791,423,339	4,034,377,419	4,134,404,645	4,459,492,020	4,732,208,229
2. End of Year Market Value Assets	3,647,820,869	3,285,304,333	4,071,997,180	4,619,201,287	4,906,288,690
3. Net Additions to Market Value					
a) Net Contributions	154,103,475	167,427,558	223,450,393	223,057,268	277,589,524
b) Net Investment Income = (3d) - (3a) - (3c)	(93,269,286)	(324,926,459)	792,139,959	577,562,751	288,223,418
c) Benefit Payments	(201,899,791)	(205,017,635)	(228,897,505)	(253,415,912)	(278,725,539)
d) Total Additions to Market Value = (2) - (1a)	(141,065,602)	(362,516,536)	786,692,847	547,204,107	287,087,403
4. Average Valuation Assets = (1b) + .5x[(3a)+(3c)]	3,767,525,181	4,015,582,381	4,131,681,089	4,444,312,698	4,731,640,222
5. Expected Income at Valuation Rate = 8% x (4)	301,402,014	321,246,590	330,534,487	355,545,016	378,531,218
6. Gain (Loss) = (3b) - (5)	(394,671,300)	(646,173,049)	461,605,472	222,017,735	(90,307,800)
7. Phased-In Recognition of Investment Return					
a) Current Year: 0.2 x (6)	(78,934,260)	(129,234,610)		44,403,547	(18,061,560)
b) First Prior Year	(79,670,266)	(78,934,260)			44,403,547
c) Second Prior Year	63,981,441	(79,670,266)			
d) Third Prior Year	40,228,410	63,981,441			
e) Fourth Prior Year	43,743,057	40,228,408			
f) 1999-2003 Years Combined	N/A	N/A	0	(96,873,710)	(96,873,710)
g) Total Recognized Investment Gain (Loss)	(10,651,618)	(183,629,287)	0	(52,470,163)	(70,531,723)
8. Change in Valuation Assets (3a) + (3c) + (5) + (7g)	242,954,080	100,027,226	325,087,375	272,716,209	306,863,480
9. End of Year Assets					
a) Market Value = (2)	3,647,820,869	3,285,304,333	4,071,997,180	4,619,201,287	4,906,288,690
b) Valuation Assets = (1b) + (8)	4,034,377,419	4,134,404,645	4,459,492,020	4,732,208,229	5,039,071,709
c) Difference Between Market & Valuation Assets	(386,556,550)	(849,100,312)	(387,494,840)	(113,006,942)	(132,783,019)
10. Recognized Rate of Return = [(5) + (7g)] / (4)	7.72%	3.43%	8.00%	6.82%	6.51%
11. Market Rate of Return	(2.48%)	(8.95%)	24.13%	14.24%	6.24%
12. Valuation Asset Adjustment Factor = (9b) / (9a)	1.105969	1.258454	1.095161	1.024465	1.027064

Municipal Employees' Retirement System of Michigan

Derivation of Actuarial Value of Assets (Cont.)

Valuation Date December 31	2006	2007	2008	2009	2010
1. Beginning of Year Assets					
a) Market Value	\$4,906,288,690	\$5,590,042,317	\$6,071,046,914	\$4,512,260,955	\$5,276,645,338
b) Valuation Assets	5,039,071,709	5,512,924,466	6,001,040,078	6,278,731,673	6,604,608,397
2. End of Year Market Value Assets	5,590,042,317	6,071,046,914	4,512,260,955	5,276,645,338	5,971,593,444
3. Net Additions to Market Value					
a) Net Contributions	371,505,157	386,942,952	374,214,134	413,354,720	423,489,032
b) Net Investment Income = (3d) - (3a) - (3c)	622,409,716	442,377,206	(1,553,001,917)	771,066,207	733,059,352
c) Benefit Payments	(310,161,246)	(348,315,561)	(379,998,176)	(420,036,544)	(461,600,278)
d) Total Additions to Market Value = (2) - (1a)	683,753,627	481,004,597	(1,558,785,959)	764,384,383	694,948,106
4. Average Valuation Assets = (1b) + .5x[(3a)+(3c)]	5,069,743,665	5,532,238,162	5,998,148,057	6,275,390,761	6,585,552,774
5. Expected Income at Valuation Rate = 8% x (4)	405,579,493	442,579,053	479,851,845	502,031,261	526,844,222
6. Gain (Loss) = (3b) - (5)	216,830,223	(201,847)	(2,032,853,762)	269,034,946	206,215,130
7. Phased-In Recognition of Investment Return					
a) Current Year: 0.1 x (6)	21,683,022	(20,185)	(203,285,376)	26,903,495	20,621,513
b) First Prior Year	(14,753,669)	21,683,022	(20,185)	(203,285,376)	26,903,495
c) Second Prior Year		(14,753,669)	21,683,022	(20,185)	(203,285,376)
d) Third Prior Year			(14,753,669)	21,683,022	(20,185)
e) Fourth Prior Year				(14,753,669)	21,683,022
f) Fifth Prior Year					(14,753,669)
g) Sixth Prior Year					
h) Seventh Prior Year					
i) Eighth Prior Year					
j) Ninth Prior Year					
k) Total Recognized Investment Gain (Loss)	6,929,353	6,909,168	(196,376,208)	(169,472,713)	(148,851,200)
8. Change in Valuation Assets (3a) + (3c) + (5) + (7k)	473,852,757	488,115,612	277,691,595	325,876,724	339,881,776
9. End of Year Assets					
a) Market Value = (2)	5,590,042,317	6,071,046,914	4,512,260,955	5,276,645,338	5,971,593,444
b) Valuation Assets = (1b) + (8)	5,512,924,466	6,001,040,078	6,278,731,673	6,604,608,397	6,944,490,173
c) Difference Between Market & Valuation Assets	77,117,851	70,006,836	(1,766,470,718)	(1,327,963,059)	(972,896,729)
10. Recognized Rate of Return = [(5) + (7k)] / (4)	8.14%	8.12%	4.73%	5.30%	5.74%
11. Market Rate of Return	12.61%	7.89%	(25.59%)	17.10%	13.94%
12. Valuation Asset Adjustment Factor = (9b) / (9a)	0.986204	0.988469	1.391482	1.251668	1.162921

Municipal Employees' Retirement System of Michigan

Derivation of Actuarial Value of Assets (Cont.)

Valuation Date December 31	2011	2012	2013	2014	2015
1. Beginning of Year Assets					
a) Market Value	\$5,971,593,444	\$5,935,528,263	\$6,858,525,416	\$7,651,705,376	
b) Valuation Assets	6,944,490,173	7,157,148,344	7,843,152,666	8,124,887,439	
2. End of Year Market Value Assets	5,935,528,263	6,858,525,416	7,651,705,376	8,063,083,723	
3. Net Additions to Market Value					
a) Net Contributions	362,710,568	856,171,348	476,725,412	651,265,712	
b) Net Investment Income = (3d) - (3a) - (3c)	108,045,293	633,022,713	979,236,854	467,398,803	
c) Benefit Payments	(506,821,042)	(566,196,908)	(662,782,306)	(707,286,168)	
d) Total Additions to Market Value = (2) - (1a)	(36,065,181)	922,997,153	793,179,960	411,378,347	
4. Average Valuation Assets = (1b) + .5x[(3a)+(3c)]	6,872,434,936	7,302,135,564	7,750,124,219	8,096,877,211	
5. Expected Income at Valuation Rate = 8% x (4)	549,794,795	584,170,845	620,009,938	647,750,177	
6. Gain (Loss) = (3b) - (5)	(441,749,502)	48,851,868	359,226,916	(180,351,374)	
7. Phased-In Recognition of Investment Return					
a) Current Year: 0.1 x (6)	(44,174,950)	4,885,187	35,922,692	(18,035,137)	
b) First Prior Year	20,621,513	(44,174,950)	4,885,187	35,922,692	(18,035,137)
c) Second Prior Year	26,903,495	20,621,513	(44,174,950)	4,885,187	35,922,692
d) Third Prior Year	(203,285,376)	26,903,495	20,621,513	(44,174,950)	4,885,187
e) Fourth Prior Year	(20,185)	(203,285,376)	26,903,495	20,621,513	(44,174,950)
f) Fifth Prior Year	21,683,022	(20,185)	(203,285,376)	26,903,495	20,621,513
g) Sixth Prior Year	(14,753,669)	21,683,022	(20,185)	(203,285,376)	26,903,495
h) Seventh Prior Year		(14,753,669)	21,683,022	(20,185)	(203,285,376)
i) Eighth Prior Year			(14,753,669)	21,683,022	(20,185)
j) Ninth Prior Year				(14,753,667)	21,683,025
k) Total Recognized Investment Gain (Loss)	(193,026,150)	(188,140,963)	(152,218,271)	(170,253,406)	(155,499,736)
8. Change in Valuation Assets (3a) + (3c) + (5) + (7k)	212,658,171	686,004,322	281,734,773	421,476,315	
9. End of Year Assets					
a) Market Value = (2)	5,935,528,263	6,858,525,416	7,651,705,376	8,063,083,723	
b) Valuation Assets = (1b) + (8)	7,157,148,344	7,843,152,666	8,124,887,439	8,546,363,754	
c) Difference Between Market & Valuation Assets	(1,221,620,081)	(984,627,250)	(473,182,063)	(483,280,031)	
10. Recognized Rate of Return = [(5) + (7k)] / (4)	5.19%	5.42%	6.04%	5.90%	
11. Market Rate of Return	1.83%	10.41%	14.47%	6.13%	
12. Valuation Asset Adjustment Factor = (9b) / (9a)	1.205815	1.143563	1.061840	1.059937	

Municipal Employees' Retirement System of Michigan

Derivation of Actuarial Value of Assets (Cont.)

Valuation Date December 31	2016	2017	2018	2019	2020
1. Beginning of Year Assets					
a) Market Value					
b) Valuation Assets					
2. End of Year Market Value Assets					
3. Net Additions to Market Value					
a) Net Contributions					
b) Net Investment Income = (3d) - (3a) - (3c)					
c) Benefit Payments					
d) Total Additions to Market Value = (2) - (1a)					
4. Average Valuation Assets = (1b) + .5x[(3a)+(3c)]					
5. Expected Income at Valuation Rate = 8% x (4)					
6. Gain (Loss) = (3b) - (5)					
7. Phased-In Recognition of Investment Return					
a) Current Year: 0.1 x (6)					
b) First Prior Year					
c) Second Prior Year	(18,035,137)				
d) Third Prior Year	35,922,692	(18,035,137)			
e) Fourth Prior Year	4,885,187	35,922,692	(18,035,137)		
f) Fifth Prior Year	(44,174,950)	4,885,187	35,922,692	(18,035,137)	
g) Sixth Prior Year	20,621,513	(44,174,950)	4,885,187	35,922,692	(18,035,137)
h) Seventh Prior Year	26,903,495	20,621,513	(44,174,950)	4,885,187	35,922,692
i) Eighth Prior Year	(203,285,376)	26,903,495	20,621,513	(44,174,950)	4,885,187
j) Ninth Prior Year	(20,182)	(203,285,378)	26,903,491	20,621,513	(44,174,952)
k) Total Recognized Investment Gain (Loss)	(177,182,758)	(177,162,578)	26,122,796	(780,695)	(21,402,210)
8. Change in Valuation Assets (3a) + (3c) + (5) + (7k)					
9. End of Year Assets					
a) Market Value = (2)					
b) Valuation Assets = (1b) + (8)					
c) Difference Between Market & Valuation Assets					
10. Recognized Rate of Return = [(5) + (7k)] / (4)					
11. Market Rate of Return					
12. Valuation Asset Adjustment Factor = (9b) / (9a)					



**TRAVERSE CITY
LIGHT & POWER**

To: Light & Power Board
From: Kelli Schroeder, Manager of HR & Communications
Date: September 16, 2015
Subject: Interim Director Placement Services

A handwritten signature in black ink, appearing to be "Kelli Schroeder", is written over the "From:" line of the memo.

At the September 2, 2015 Special Meeting, the Board directed staff to research utilizing the recruitment firm of Mycoff, Fry & Prouse, LLC for the placement of an Interim Executive Director during Tim Arends' leave of absence. Included with this memo is email correspondence from Lanie Prouse summarizing the process, along with a general description of the fee structure. In short, the time needed to find and place an Interim Executive Director could take 2-4 weeks, with costs based on the hourly rate charged by the potential candidate plus a 35% markup.

Kelli Schroeder

From: Lanie Prouse <lprouse@mfpllc.us>
Sent: Wednesday, September 09, 2015 10:15 AM
To: Kelli Schroeder
Subject: RE: Traverse City Light & Power - Interim Placement Services
Attachments: Stassi_Ronald_2015_resume.docx

Hello Kelli,

We typically add 35% over the individual's hourly rate; however, this number is a little dependent on the worker's compensation quote that we receive for each individual. Out of this 35% we cover Social Security and Medicare withholdings, worker's compensation insurance, liability insurance, and auto insurance. We find many potential interim Utility Director candidates do not carry these sorts of insurances on their own. The 35% also allows for a small profit margin on our end.

I took the liberty of attaching another resume to illustrate the sort of interim Utility Director candidates we can provide.

Please let me know if I can answer any additional questions.

Lanie
(720) 201-1825
lprouse@mfpllc.us

From: Kelli Schroeder [mailto:kschroeder@tclp.org]
Sent: Wednesday, September 9, 2015 6:06 AM
To: Lanie Prouse <lprouse@mfpllc.us>
Subject: RE: Traverse City Light & Power - Interim Placement Services

Morning Ms. Prouse,

Thank you for providing the information below. Our Board will need to review to determine if they would like to proceed. Does your company charge a percent or flat fee above the Interim Director's hourly rate and if so what is that?

Thank you,

*Kelli Schroeder, PHR
Manager of Human Resources & Communications
Traverse City Light & Power
1131 Hastings Street
Traverse City, MI 49686
(p) 231.932.4545
(f) 231-922-4638*

CONFIDENTIALITY NOTICE:

Confidentiality Notice: Information contained in this email and/or attachments to it may be confidential and legally privileged. This information is intended only for the use of the individual to whom this email is addressed. If you are not that person, you are hereby notified that any use, disclosure, printing, or

distribution of any of the information contained herein is strictly PROHIBITED. If you have received this email in error, please notify the sender and delete this email and any attachments immediately.

From: Lanie Prouse [<mailto:lprouse@mfpllc.us>]
Sent: Thursday, September 03, 2015 5:56 PM
To: Kelli Schroeder
Subject: RE: Traverse City Light & Power - Interim Placement Services

Hello Ms. Schroeder,

Thank you for keeping us in mind. We do handle placement of Interim Executive Director candidates. The exact fee for such an individual is hard to estimate as each potential candidate will typically have their own hourly and per diem rate.

Our typical process would be to visit with you to get a better sense of the ideal expertise and background. We then research our database to find applicable prospects and would present you with resumes of interested candidates. We also facilitate phone discussions with interested prospects so you can further investigate fit, and select the best candidate for Traverse City.

The timeframe that Traverse City intends to utilize an Interim Executive Director can be dictated by Traverse City and included in the negotiated contract/agreement once an individual is selected. The selected individual will work under Traverse City's direction. We facilitate billing Traverse City per the agreed to rate and we also carry all required insurances for the interim employee (i.e. worker's compensation, liability, etc.).

I anticipate it will take approximately two weeks to canvass the market and present resumes.

The attached resume is an example of the sort of interim candidate we would be able to provide. Joe Pandy is pretty well known in Michigan and I believe he is already aware of Traverse City's potential need for an Interim Executive Director. Joe recently retired from Mountain Parks Electric and is living with his family one hour outside of Traverse City. If you find Joe's credentials appealing, I can ask him what sort of hourly fee and travel expenses he would charge to serve in an interim capacity.

Please let me know if you would like to discuss our services in greater detail.

I hope we can be of service.

Sincerely,

Lanie Prouse
Mycoff, Fry & Prouse
(720) 201-1825
lprouse@mfpllc.us

From: Kelli Schroeder [<mailto:kschroeder@tclp.org>]
Sent: Thursday, September 3, 2015 10:38 AM
To: lprouse@mfpllc.us
Subject: Traverse City Light & Power - Interim Placement Services

Good Afternoon Ms. Prouse,

A few weeks back we had corresponded regarding our vacant Manager of Operations & Engineering position. I appreciated your honest feedback about the difficulty of this particular search. We now, however, are inquiring about your interim placement services, specifically for our Executive Director position. Our ED recently took a leave of absence and we are wanting information on the process, timeframe of placement, cost etc.

I look forward to hearing from you.

Sincerely,


*Kelli Schroeder, PHR
Manager of Human Resources & Communications
Traverse City Light & Power
1131 Hastings Street
Traverse City, MI 49686
(p) 231.932.4545
(f) 231-922-4638*

CONFIDENTIALITY NOTICE:

Confidentiality Notice: Information contained in this email and/or attachments to it may be confidential and legally privileged. This information is intended only for the use of the individual to whom this email is addressed. If you are not that person, you are hereby notified that any use, disclosure, printing, or distribution of any of the information contained herein is strictly PROHIBITED. If you have received this email in error, please notify the sender and delete this email and any attachments immediately.



TRAVERSE CITY
LIGHT & POWER

To: Light & Power Board
From: Jessica Wheaton, Manager of Energy Services & Key Accounts 
Date: September 15, 2015
Subject: 2014 Annual Summary for the Energy Optimization and Renewable Energy Plan

In 2008, Public Act 295, also known as the "Clean, Renewable and Efficient Energy Act," was passed. This mandate requires all Michigan utilities to assist their customers in improving electric energy efficiency through Energy Optimization programs and increase the amount of renewable energy in the utility's generation portfolio. Below is a summary of achievements for TCL&P's Energy Optimization and renewable energy programs.

Energy Optimization

In 2014, TCL&P saved over 3.4 million kilowatt hours of electricity through the TC Light & Power Energy Smart Program, exceeding the state-mandated goal by 22% and saving enough electricity to power approximately 526 Traverse City area homes for an entire year. The program offered many opportunities for customers to save energy and money.

Those opportunities included:

- Free LED light bulbs and coupons for discounted LED holiday light sets
- Incentives for purchasing ENERGY STAR® appliances and high efficiency HVAC systems
- Incentives for recycling old, inefficient refrigerators, freezers, room air conditioners and dehumidifiers
- Business customers were offered incentives for upgrading to equipment with greater energy efficiency, including lighting, motors, air systems, refrigeration, HVAC units and building management systems

TCL&P was also a proud partner in the Habitat for Humanity net-zero Depot Housing Project and provided LED lighting and rebates for the high efficiency appliances, HVAC systems and solar generation systems in all three homes.

Renewable Energy

Public Act 295 also requires Michigan utilities to acquire 10% renewable energy by 2015. For the 2014 reporting period, TCL&P acquired 35,147,151 kilowatt hours of renewable energy, which equates to 11% of the utility's total electric sales. TCL&P anticipates this percentage to continue to rise with the increase in landfill gas energy production.

TCL&P is currently acquiring its renewable energy from the following sources:

- Heritage Stoney Corners Wind Farm: In 2014, the energy produced from this long-term wind agreement was equivalent to powering approximately 4,003 Traverse City area homes for an entire year.
- Granger Landfill Gas Facility and North American Natural Resources: In 2014, the energy produced from these long-term landfill gas agreements was equivalent to powering approximately 1,371 Traverse City area homes for an entire year.

Cost to Customers


TCL&P currently does not apply a separate monthly charge to its customers for either the Energy Optimization or Renewable Energy program expenses as allowed by Public Act 295.

- The 2014 itemized monthly charge to a residential customer for implementing the Energy Optimization program requirements was \$0.00 per month.
- The average electric residential customer is expected to save \$3.61 each month of the Energy Optimization program life.
- The 2014 itemized monthly charge to a residential customer for implementing the Renewable Energy program requirements was \$0.00 per month.
- For the average Michigan residential customer, renewable energy is estimated to avoid \$3.08 per month of new coal fired generation costs.

The Michigan Public Service Commission's annual reports on energy optimization and renewable energy can be viewed at the following website: michigan.gov/mpsc.



TRAVERSE CITY
LIGHT & POWER

To: Light & Power Board
From: Kelli Schroeder, Manager of HR & Communications 
Date: September 16, 2015
Subject: Consultant Selection - Market Research Customer Survey

Maintaining a customer satisfaction rating above 95% and determining the appropriate utility contributions for City projects above the Charter required annual contribution through a Board approved policy are two business goals identified in the Strategic Plan under Customer Satisfaction and Financial Stability respectively. Both of these strategic issues warrant customer feedback in order to ascertain expectations and ensure TCL&P is moving in the right direction.

With Board direction given during the May 26, 2015 Regular Meeting, TCL&P released a Market Research - Customer Survey Request for Proposal (RFP) on July 17, 2015 with the ultimate goal being to determine customer satisfaction with services along with customer expectations surrounding project and program funding. The selected consultant was to provide the following:

- Research and propose the most effective survey method, provide the reasoning for such an approach and present this to the TCL&P Board for approval.
- Facilitate a discussion with the Survey Ad Hoc Committee comprised of TCL&P Board members to assist in the development of the survey questionnaire.
- Conduct a statistically significant survey to include a proportionate sampling of customers from each class and log results.
- At the conclusion of the survey provide the results along with an analysis of the data findings in both paper and electronic format as well as present this information to the TCL&P Board.
- Present to the TCL&P Board throughout the process.

The RFP was posted on TCL&P's website along with an ad placement in the Record Eagle. Four proposals were received by the August 7, 2015 deadline from the following consultants:

CMS Research	\$19,500 year 1; \$17,000 year 2&3
CS Research & Consulting, LLC	\$23,125 +/- 5%
Hometown Connections	\$25,500 or \$40,700 (focus groups)
BBC Research & Consulting	\$51,620

(CONTINUED ON FOLLOWING PAGE)

FOR THE LIGHT & POWER BOARD MEETING OF SEPTEMBER 22, 2015

Staff reviewed each of the proposals using the attached matrix to assist with the comparison and has selected CS Research & Consulting, LLC. Dr. Cathlyn Sommerfield is locally based, with a great deal of experience working throughout the region assisting multiple public and private agencies. In addition, she also worked with TCL&P on previous surveys within her role at Northwestern Michigan College.

As we proceed with this process, staff will work with the members of the Survey Ad Hoc Committee to schedule meeting times with the selected consultant.

2015 Market Research - Customer Survey RFP
Summary of Proposals

	CMS Research	CS Research & Consulting	Hometown Connections	BBC Research & Consulting
Cost	\$19,500 year 1; \$17,000 year 2&3	\$23,125 +/- 5%	\$40,700 (w/focus group) / Telephone only \$25,500 (travel expenses billed at cost under both options)	\$51,620 (Includes all travel costs); with customer segmentation analysis \$63,180
Methodology	Billing Inserts with web access info or 800# (12 minutes) - Inserts to be created by TCL&P	Telephone (10 Minute Survey)	Telephone plus (2) Focus groups specific to Commercial/Industrial	Telephone Survey
Data Collection	Inserts in all customer bills; inserts in 6,000 residential, none for industrial (not adequate base size)	Random Sample of 369 Residential and 342 Commercial/Industrial (95% confidence level, +/- 5% margin of error by class)	600 completed surveys for residential; 150 surveys for commercial & industrial plus the (2) focus groups	Random Sample 400 residential; 300 commercial/industrial (statistical significance at 95% or 90% confidence level); CATI System (Computer Assisted Telephone Interview system)
Analysis	NeedGap (importance vs satisfaction with services); Bradley Terry questions (future project funding); 1-2 open ended questions to get at "why" for current/future funding	SPSS (Standard Statistical Analysis Package) to include frequencies, cross-tabulations, significance testing and gap analysis.	Utilizes data analytics software integrated with computer-aided interviewing platform	STATA
Time-Table	Approx. 9 weeks	13-14 Weeks	5 weeks	16 weeks
Location	Toledo, Ohio	Traverse City, Michigan	Lakewood, Colorado	Denver, Colorado
Project Lead	Jeff Cummins	Dr. Cathlyn Sommerfield	Steve VanderMeer	Dr. Sameer Bawa
References	Marriott International; UofM; NiSource.	Matt McCauley, Strategic Initiatives Networks NW; Munson Healthcare; Great Lakes Energy; plus 7 additional relevant experiences listed. Performed TCL&P's 2012 Survey with NMC. (Highly recommended by Woody Smith, Avenue ISR (883-2835) who did not submit a proposal (Mary Grover's recommendation)	Rochester Public Utilities; Connecticut Water Company; Northeast Gas Association; plus 9 additional relevant experience listed.	City of Fort Collins Utilities; City of phoenix Water Services Dept.; Denver Regional Transportation District.



TRAVERSE CITY
LIGHT & POWER

To: Light and Power Board
From: Karla Myers-Beman, Controller *KMB*
Date: September 15, 2015
Subject: Emergency Purchase Report to Board – PennLine

Due to the emergency created by the wind storm of August 3-7, 2015, TCL&P called-in additional tree trimming crews from PennLine, TCL&P's current tree trimming contractor that assisted with the cleanup work to maintain safety within the system and prevent any further outages to TCL&P customers.

The charges from PennLine were \$78,300.30 which is beyond the monetary spending limit set by the Board for the Executive Director. The Board approved Purchasing Policy does allow for emergency purchases by the Executive Director beyond the monetary spending authority, with conditions.

A portion of this invoice will be reimbursed by the City, because crews were designated to provide clean-up services that were non-utility related.

This communication to the Board is made to comply with the reporting requirement as identified in the Purchasing Policy (relevant section attached).

INVOICE



300 SCOTTDAL E AVE.
 SCOTTDAL E, PENNSYLVANIA 15683-0462
 PHONE (724) 887-9110
 FAX (724) 887-0545

INVOICE NO.
 1-264144

FI #25-1000923

Traverse City Light and Power
 1131 Hastings Street
 Traverse City, MI 49686

PLEASE REMIT TO:
 PENN LINE SERVICE
 P.O. BOX 280
 INDIANA, PA 15701-0280

PURCHASE ORDER NO.	FOREMAN 36179215	CUST.# 3427	JOB NO.	INVOICE DATE 8-9-15
--------------------	---------------------	----------------	---------	------------------------

SERVICE					UNIT COST	TOTAL
Week Ending 8-16-15						
KEN MATHEWS TIMESHEETS						
2	FOREMAN	KEN MATHEWS	ST	40.00	37.05	1,482.00
4	GROUNDHAND	TYLER BLOOM	ST	40.00	29.83	1,193.20
9	PICK UP TRUCK	802-147	ST	40.00	11.13	445.20
7	55/60 FOOT BUCKET	115-739	ST	40.00	17.93	717.20
8	CHIPPER	215-288	ST	40.00	4.04	161.60
10	CHAIN SAWS	(2)	ST	80.00	1.10	88.00
2	FOREMAN	KEN MATHEWS	OT	30.00	52.82	1,584.60
4	GROUNDHAND	TYLER BLOOM	OT	30.00	42.51	1,275.30
9	PICK UP TRUCK	802-147	ST	30.00	11.13	333.90
7	55/60 FOOT BUCKET	115-739	ST	30.00	17.93	537.90
8	CHIPPER	215-288	ST	30.00	4.04	121.20
10	CHAIN SAWS	(2)	ST	16.00	1.10	17.60
5	PER CREW MEMBER	2 MEN - 5 DAYS	ST	10.00	58.00	580.00
SUB TOTAL BY CREW						8,537.70
TOTAL AMOUNT DUE THIS INVOICE						\$73,943.26

ANY QUESTIONS REGARDING INVOICES - PLEASE CONTACT
 DEBBIE @ 1-800-448-9110 EXT. 139

THIS IS YOUR ONLY BILL - PLEASE PAY FROM THIS INVOICE

PENN LINE SERVICE INC. is an Equal Employment Opportunity Employer

INVOICE



300 SCOTSDALE AVE.
 SCOTSDALE, PENNSYLVANIA 15683-0462
 PHONE (724) 887-9110
 FAX (724) 887-0545

INVOICE NO.
 1-264144

FI #25-1000923

Traverse City Light and Power
 1131 Hastings Street
 Traverse City, MI 49686

PLEASE REMIT TO:
 PENN LINE SERVICE
 P.O. BOX 280
 INDIANA, PA 15701-0280

PURCHASE ORDER NO.	FOREMAN 36179215	CUST. # 3427	JOB NO.	INVOICE DATE 8-9-15
--------------------	---------------------	-----------------	---------	------------------------

SERVICE	UNIT COST	TOTAL
CLAYTON LANSBERRY T/S 8-8-15		
1 LEAD FOREMAN CLAYTON LANSBERRY ST 7.00	41.21	288.47
3 OPERATOR/CLIMBER PAUL JOHNSON ST 7.00	34.15	239.05
4 GROUNDHAND JAYSON MYER ST 7.00	29.83	208.81
9 PICK UP TRUCK 802-473 ST 7.00	11.13	77.91
6 70 FOOT BUCKET 115*-619 ST 7.00	25.58	179.06
8 CHIPPER 215-241 ST 7.00	4.04	28.28
1 LEAD FOREMAN CLAYTON LANSBERRY OT 14.00	58.91	824.74
3 OPERATOR/CLIMBER PAUL JOHNSON OT 14.00	48.70	681.80
4 GROUNDHAND JAYSON MYER OT 14.00	42.51	595.14
9 PICK UP TRUCK 802-473 ST 14.00	11.13	155.82
6 70 FOOT BUCKET 115-619 ST 14.00	25.58	358.12
8 CHIPPER 215-241 ST 14.00	4.04	56.56
1 LEAD FOREMAN CLAYTON LANSBERRY OT 20.00	58.91	1,178.20
3 OPERATOR/CLIMBER PAUL JOHNSON OT 20.00	48.70	974.00
4 GROUNDHAND JAYSON MYER OT 20.00	42.51	850.20
9 PICK UP TRUCK 802-473 ST 20.00	11.13	222.60
6 70 FOOT BUCKET 115-619 ST 20.00	25.58	511.60
8 CHIPPER 215-241 ST 20.00	4.04	80.80
10 CHAIN SAWS (3) ST 60.00	1.10	66.00
5 PER CREW MEMBER 3 MEN (3 DAYS) ST 9.00	58.00	522.00
SUB TOTAL		8,099.16

THIS IS YOUR ONLY BILL - PLEASE PAY FROM THIS INVOICE

PENN LINE SERVICE INC. is an Equal Employment Opportunity Employer

INVOICE



300 SCOTSDALE AVE.
 SCOTSDALE, PENNSYLVANIA 15683-0462
 PHONE (724) 887-9110
 FAX (724) 887-0545

INVOICE NO.
 1-264144

FI #25-1000923

Traverse City Light and Power
 1131 Hastings Street
 Traverse City, MI 49686

PLEASE REMIT TO:
 PENN LINE SERVICE
 P.O. BOX 280
 INDIANA, PA 15701-0280

PURCHASE ORDER NO.	FOREMAN 36179215	CUST. # 3427	JOB NO.	INVOICE DATE 8-9-15
--------------------	---------------------	-----------------	---------	------------------------

SERVICE	UNIT COST	TOTAL
CLAYTON LANSBERRY T/S 8-16-15		
1 LEAD FOREMAN CLAYTON LANSBERRY ST 40.00	41.21	1,648.40
3 OPERATOR/CLIMBER PAUL JOHNSON ST 40.00	34.15	1,366.00
4 GROUNDHAND JAYSON MYER ST 40.00	29.83	1,103.20
9 PICK UP TRUCK 802-473 ST 40.00	11.13	445.20
8 70 FOOT BUCKET 115*-619 ST 40.00	25.58	1,023.20
8 CHIPPER 215-241 ST 40.00	4.04	161.60
10 CHAIN SAWS (2) ST 80.00	1.10	88.00
1 LEAD FOREMAN CLAYTON LANSBERRY OT 30.00	58.91	1,767.30
3 OPERATOR/CLIMBER PAUL JOHNSON OT 30.00	48.70	1,461.00
4 GROUNDHAND JAYSON MYER OT 30.00	42.51	1,275.30
9 PICK UP TRUCK 802-473 ST 30.00	11.13	333.90
8 70 FOOT BUCKET 115-619 ST 30.00	25.58	767.40
8 CHIPPER 215-241 ST 30.00	4.04	121.20
10 CHAIN SAWS (2) ST 16.00	1.10	17.60
6 PER CREW MEMBER 3 MEN - 6 DAYS ST 15.00	58.00	870.00
SUB TOTAL		12,530.30

THIS IS YOUR ONLY BILL - PLEASE PAY FROM THIS INVOICE

PENN LINE SERVICE INC. is an Equal Employment Opportunity Employer

INVOICE



300 SCOTTDAL AVE.
 SCOTTDAL E, PENNSYLVANIA 15683-0462
 PHONE (724) 887-9110
 FAX (724) 887-0545

INVOICE NO.
 1-264144

FI #25-1000923

Traverse City Light and Power
 1131 Hastings Street
 Traverse City, MI 49686

PLEASE REMIT TO:
 PENN LINE SERVICE
 P.O. BOX 280
 INDIANA, PA 15701-0280

PURCHASE ORDER NO.	FOREMAN 36179215	CUST. # 3427	JOB NO.	INVOICE DATE 8-9-15
--------------------	---------------------	-----------------	---------	------------------------

SERVICE	UNIT COST	TOTAL
Week Ending 8-8-15 -		
KEN MATHEWS TIMESHEETS FOR THE WEEK		
2 FOREMAN KEN MATHEWS ST 7.00	37.05	259.35
4 GROUNDHAND TYLER BLOOM ST 7.00	29.83	208.81
9 PICK UP TRUCK 802-147 ST 7.00	11.13	77.91
7 55/60 FOOT BUCKET 115-739 ST 7.00	17.93	125.51
8 CHIPPER 215-288 ST 7.00	4.04	28.28
2 FOREMAN KEN MATHEWS OT 14.00	52.82	739.48
4 GROUNDHAND TYLER BLOOM OT 14.00	42.51	595.14
9 PICK UP TRUCK 802-147 ST 14.00	11.13	155.82
7 55/60 FOOT BUCKET 115-739 ST 14.00	17.93	251.02
8 CHIPPER 215-288 ST 14.00	4.04	56.56
2 FOREMAN KEN MATHEWS OT 20.00	52.82	1,056.40
4 GROUNDHAND TYLER BLOOM OT 20.00	42.51	850.20
9 PICK UP TRUCK 802-147 ST 20.00	11.13	222.60
7 55/60 FOOT BUCKET 115-739 ST 20.00	17.93	358.60
8 CHIPPER 215-288 ST 20.00	4.04	80.80
10 CHAIN SAWS (2) ST 40.00	1.10	44.00
5 PER CREW MEMBER 2 MEN - 3 DAYS ST 6.00	58.00	348.00
SUB TOTAL BY CREW		5,458.48
THIS IS YOUR ONLY BILL - PLEASE PAY FROM THIS INVOICE		

PENN LINE SERVICE INC. is an Equal Employment Opportunity Employer

INVOICE



300 SCOTTDAL AVE.
 SCOTTDAL E, PENNSYLVANIA 15683-0462
 PHONE (724) 887-9110
 FAX (724) 887-0545

INVOICE NO.
 1-264144

FI #25-1000923

Traverse City Light and Power
 1131 Hastings Street
 Traverse City, MI 49686

PLEASE REMIT TO:
 PENN LINE SERVICE
 P.O. BOX 280
 INDIANA, PA 15701-0280

PURCHASE ORDER NO.	FOREMAN 36179215	CUST. # 3427	JOB NO.	INVOICE DATE 8-9-15
--------------------	---------------------	-----------------	---------	------------------------

SERVICE	UNIT COST	TOTAL
Week Ending 8-8-15 -		
DARYL FOSTER CREW FOR THE WEEK		
2 FOREMAN DARYL FOSTER ST 7.00	37.05	259.35
3 OPERATOR/CLIMBER ANDREW MITCHELL ST 7.00	34.15	239.05
3 OPERATOR/CLIMBER ROBERT HUGHES ST 7.00	34.15	239.05
4 GROUNDHAND TROY MILLER ST 7.00	29.83	208.81
7 55/60 FOOT BUCKET 115-710 ST 7.00	17.93	125.51
7 55/60 FOOT BUCKET 115-621 ST 7.00	17.93	125.51
8 CHIPPER 215-367 ST 7.00	4.04	28.28
8 CHIPPER 215-303 ST 7.00	4.04	28.28
2 FOREMAN DARYL FOSTER OT 14.00	52.82	739.48
3 OPERATOR/CLIMBER ANDREW MITCHELL OT 14.00	48.70	681.80
3 OPERATOR/CLIMBER ROBERT HUGHES OT 14.00	48.70	681.80
4 GROUNDHAND TROY MILLER OT 14.00	42.51	595.14
7 55/60 FOOT BUCKET 115-710 ST 14.00	17.93	251.02
7 55/60 FOOT BUCKET 115-621 ST 14.00	17.93	251.02
8 CHIPPER 215-367 ST 14.00	4.04	56.56
8 CHIPPER 215-303 ST 14.00	4.04	56.56
2 FOREMAN DARYL FOSTER OT 20.00	52.82	1,056.40
3 OPERATOR/CLIMBER ANDREW MITCHELL OT 20.00	48.70	974.00
3 OPERATOR/CLIMBER ROBERT HUGHES OT 20.00	48.70	974.00
4 GROUNDHAND TROY MILLER OT 20.00	42.51	850.20
7 55/60 FOOT BUCKET 115-710 ST 20.00	17.93	358.60
7 55/60 FOOT BUCKET 215-367 ST 20.00	17.93	358.60
8 CHIPPER 115-621 ST 20.00	4.04	80.80
8 CHIPPER 215-303 ST 20.00	4.04	80.80
10 CHAIN SAWS (3) ST 60.00	1.10	66.00
5 PER CREW MEMBER 4 MEN - 3 DAYS ST 12.00	58.00	696.00
SUB TOTAL BY CREWS		10,062.62

THIS IS YOUR ONLY BILL - PLEASE PAY FROM THIS INVOICE

PENN LINE SERVICE INC. is an Equal Employment Opportunity Employer

INVOICE



300 SCOTSDALE AVE.
 SCOTSDALE, PENNSYLVANIA 15683-0462
 PHONE (724) 887-9110
 FAX (724) 887-0545

INVOICE NO.
 1-264144

FI #25-1000923

Traverse City Light and Power
 1131 Hastings Street
 Traverse City, MI 49686

PLEASE REMIT TO:
 PENN LINE SERVICE
 P.O. BOX 280
 INDIANA, PA 15701-0280

PURCHASE ORDER NO.	FOREMAN 36179215	CUST.# 3427	JOB NO.	INVOICE DATE 8-9-15
--------------------	---------------------	----------------	---------	------------------------

SERVICE	UNIT COST	TOTAL
Week Ending 8-16-15		
DARYLE FOSTER CREW FOR THE WEEK		
2 FOREMAN DARYL FOSTER ST 40.00	37.05	1,482.00
3 OPERATOR/CLIMBER ANDREW MITCHELL ST 40.00	34.15	1,366.00
3 OPERATOR/CLIMBER ROBERT HUGHES ST 40.00	34.15	1,366.00
4 GROUNDHAND TROY MILLER ST 40.00	29.83	1,193.20
7 55/80 FOOT BUCKET 115-710 ST 40.00	17.93	717.20
7 55/80 FOOT BUCKET 115-821 ST 40.00	17.93	717.20
8 CHIPPER 215-367 ST 40.00	4.04	161.60
8 CHIPPER 215-303 ST 40.00	4.04	161.60
10 CHAIN SAWS (4) ST 160.00	1.10	176.00
2 FOREMAN DARYL FOSTER OT 30.00	52.82	1,584.60
3 OPERATOR/CLIMBER ANDREW MITCHELL OT 30.00	48.70	1,461.00
3 OPERATOR/CLIMBER ROBERT HUGHES OT 30.00	48.70	1,461.00
4 GROUNDHAND TROY MILLER OT 30.00	42.51	1,275.30
7 55/80 FOOT BUCKET 115-710 ST 30.00	17.93	537.90
7 55/80 FOOT BUCKET 115-821 ST 30.00	17.93	537.90
8 CHIPPER 215-367 ST 30.00	4.04	121.20
8 CHIPPER 215-303 ST 30.00	4.04	121.20
10 CHAIN SAWS (4) ST 32.00	1.10	35.20
5 PER CREW MEMBER 4 MEN - 5 DAYS ST 20.00	58.00	1,160.00
SUB TOTAL		15,636.10

THIS IS YOUR ONLY BILL - PLEASE PAY FROM THIS INVOICE

PENN LINE SERVICE INC. is an Equal Employment Opportunity Employer

INVOICE



300 SCOTSDALE AVE.
 SCOTSDALE, PENNSYLVANIA 15683-0462
 PHONE (724) 887-9110
 FAX (724) 887-0545

INVOICE NO.
 1-264144

FI #25-1000923

Traverse City Light and Power
 1131 Hastings Street
 Traverse City, MI 49686

PLEASE REMIT TO:
 PENN LINE SERVICE
 P.O. BOX 280
 INDIANA, PA 15701-0280

PURCHASE ORDER NO.	FOREMAN	CUST. # 3427	JOB NO. 36179215	INVOICE DATE 8-9-15
--------------------	---------	-----------------	---------------------	------------------------

	SERVICE		UNIT COST	TOTAL
JON SHIMELS T/S 8-9-15				
2	FOREMAN	JON SHIMEL	ST 7.00	37.05 259.35
4	GROUNDHAND	TIMOTHY SMITH	ST 7.00	29.83 208.81
6	70 FOOT BUCKET	115-776	ST 7.00	25.58 179.06
8	CHIPPER	215-407	ST 7.00	4.04 28.28
2	FOREMAN	JON SHIMEL	OT 14.00	52.82 739.48
4	GROUNDHAND	TIMOTHY SMITH	OT 14.00	42.51 595.14
6	70 FOOT BUCKET	115-776	ST 14.00	25.58 358.12
8	CHIPPER	215-407	ST 14.00	4.04 56.56
2	FOREMAN	JON SHIMEL	OT 20.00	52.82 1,056.40
4	GROUNDHAND	TIMOTHY SMITH	OT 20.00	42.51 850.20
6	70 FOOT BUCKET	115-776	ST 20.00	25.58 511.60
8	CHIPPER	215-407	ST 20.00	4.04 80.80
10	CHAIN SAWS	(2)	ST 40.00	1.10 44.00
5	PER CREW MEMBER	2 - MEN - 3 DAYS	ST 6.00	58.00 348.00
	SUB TOTAL			5,315.80
JON SHIMELS T/S 8-16-16				
2	FOREMAN	JON SHIMEL	ST 40.00	37.05 1,482.00
4	GROUNDHAND	TIMOTHY SMITH	ST 40.00	29.83 1,193.20
6	70 FOOT BUCKET	115-776	ST 40.00	25.58 1,023.20
8	CHIPPER	215-407	ST 40.00	4.04 161.60
10	CHAIN SAWS	(2)	ST 80.00	1.10 88.00
2	FOREMAN	JON SHIMEL	OT 30.00	52.82 1,584.60
4	GROUNDHAND	TIMOTHY SMITH	OT 30.00	42.51 1,275.30
6	70 FOOT BUCKET	115-776	ST 30.00	25.58 767.40
8	CHIPPER	215-407	ST 30.00	4.04 121.20
10	CHAIN SAWS	(2)	ST 16.00	1.10 17.60
5	PER CREW MEMBER	2 - MEN - 5 DAYS	ST 10.00	58.00 580.00
	SUB TOTAL			8,294.10
THIS IS YOUR ONLY BILL - PLEASE PAY FROM THIS INVOICE				

PENN LINE SERVICE INC. is an Equal Employment Opportunity Employer

INVOICE



300 SCOTTDAL AVE.
 SCOTTDAL E, PENNSYLVANIA 15683-0462
 PHONE (724) 887-9110
 FAX (724) 887-0545

INVOICE NO.
 1-264395

FI #25-1000923

Traverse City Light and Power
 1131 Hastings Street
 Traverse City, MI 49686

PLEASE REMIT TO:
PENN LINE SERVICE
P.O. BOX 280
INDIANA, PA 15701-0280

PURCHASE ORDER NO.	FOREMAN	CUST. #	JOB NO.	INVOICE DATE	
		3427	36179215	8-16-15	
SERVICE				UNIT COST	TOTAL
MOTELS - ALL RECEIPTS ATTACHED					3,102.62
Mark 5%					155.13
TOTAL FOR MOTELS					3,257.75
MEALS - ALL RECEIPTS ATTACHED					1,046.94
Mark 5%					52.35
TOTAL FOR MOTELS					1,099.29
TOTAL AMOUNT DUE THIS INVOICE					4,357.04

THIS IS YOUR ONLY BILL - PLEASE PAY FROM THIS INVOICE

PENN LINE SERVICE INC. is an Equal Employment Opportunity Employer

C. EMERGENCIES

1. **Emergency Defined.** Emergency is defined as a threat to the public safety or welfare, or where timely action is required to restore electric service or avoid reduction of electric service or an anticipated outage.
2. **Executive Director Authority.** The Executive Director is authorized to enter into such contracts, purchase orders and service orders without Board approval in the amount necessary to alleviate or avoid an emergency. The Executive Director may delegate in writing to a Department Head authority to authorize that Department Head to exercise his or her emergency authority.
3. **Reporting.** When the Executive Director engages in an emergency transaction beyond the monetary spending limit of the Executive Director, he shall report such activity as soon as possible to the Board members and place the matter on the agenda of the next regular or special TCL&P Board Meeting for the information of the Board.

Edward E. Rice

Edward E. Rice
Secretary
Traverse City Light & Power Board



TRAVERSE CITY
LIGHT & POWER

To: Light & Power Board
From: Karla Myers-Beman, Controller *KMB*
Date: September 16, 2015
Subject: Employee Recognition Luncheon

In appreciation of the hard work and dedication of employees during the summer construction season, TCL&P will be holding a steak luncheon in conjunction with an all employee quarterly meeting on Wednesday, September 30, 2015.

TCL&P has hosted end of season luncheons on and off since 2010 for all employees as an opportunity to say thank you for working diligently to complete projects throughout the spring and summer.



**TRAVERSE CITY
LIGHT & POWER**

To: Light & Power Board
From: Kelli Schroeder, Manager of HR & Communications
Date: September 16, 2015
Subject: 2015 TCL&P Open House



TCL&P will hold an Energy Smart Open House on Saturday, October 3rd from 11 a.m. - 3 p.m. at the Hastings Street Service Center. The Open House will kick-off Public Power Week which is a country-wide program through the American Public Power Association (APPA) that celebrates the importance of public power to local citizens. The community is invited to attend and observe TCL&P's operations that show how their local electric utility provides safe, low cost, reliable service. Activities will include free food and beverages, free "hard hats" to the first 200 kids, prize drawings and giveaways along with live demonstrations such as pole climbing, bucket truck operation, electrical safety and the Peddle-A-Watt Bike demo.

The last Open House was on October 8, 2011.

Memorandum

The City of Traverse City



TO: TRVERSE CITY LIGHT & POWER BOARD
FROM: ^{MAC} MARTY COLBURN, INTERIM DIRECTOR
DATE: SEPTEMBER 17, 2015
SUBJECT: INFORMATIONAL UPDATE

Over the past 2 weeks, I've been interacting with the senior staff of TCL&P. During that time period, I have discussed projects, personnel issues, and financial issues particularly addressing questions within the annual audit. Overall operations and projects appear to be moving forward in a timely manner.

We've discussed a number of upcoming projects, as well as having signed contracts including Severance Electric Company, Inc. for the Union Street conduit installation, which is part of the Pine Street project, and also the Settlement Agreement with GRP Engineering. I've also had discussions with Light & Power's attorney regarding Consumers/Munson properties and the coal dock issue. We've had a telephonic meeting with the Chair and Vice Chair with regards to this agenda's pertinent matters. Overall, operations are running smoothly and Ms. Myers-Beman is extremely helpful and supportive, ensuring that the day to day operations run smoothly, and I'm appreciative of her expertise and attention to matters.