

**AGENDA**  
1072<sup>nd</sup> MEETING OF THE BOARD OF TRUSTEES  
OF THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT  
SEPTEMBER 11TH, 2019

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TIME: 5:00 P.M.  
PLACE: Office of the District, 23187 Connecticut Street, Hayward  
TRUSTEES: Eric Hentschke, President, City of Newark  
Wendi Poulson, Vice-President, City of Alameda  
P. Robert Beatty, Secretary, City of Berkeley  
Cathy Roache, County-at-Large  
Alan Brown, City of Dublin  
Betsy Cooley, City of Emeryville  
George Young, City of Fremont  
Elisa Marquez, City of Hayward  
James N. Doggett, City of Livermore  
Jan O. Washburn, City of Oakland  
Robert Dickinson, City of Piedmont  
Kathy Narum, City of Pleasanton  
Victor Aguilar, City of San Leandro  
Subru Bhat, City of Union City

1. Call to order.
2. Roll call.
3. President Hentschke invites any member of the public to speak at this time on any issue relevant to the District. (Each individual is limited to three minutes).
4. Approval of the minutes of the 1071<sup>st</sup> meeting held August 14<sup>th</sup>, 2019 (**Board action required**).
5. Post-Retirement Health Benefits trust account (OPEB Trust).
  - a. Update on the OPEB trust investments by Joseph Federico, PFM (Information only)
6. Review of quotes and awarding of contract to Adapco for the purchase of an A1 Commercial Super Duty Mist Sprayer 100-gallon w/ Rotary Atomizer (**Board action required**).
  - a. Staff Report
  - b. Quotes from three vendors
7. Financial Reports as of August 31<sup>st</sup>, 2019: (Information only).
  - a. Check Register
  - b. Income Statement
  - c. Investments, reserves, and cash report
  - d. Balance Sheet
8. Presentation of the Monthly Staff Report for September 2019 (Information only).
9. Presentation of the Manager's Report for September 2019 (Information only).

- a. Staff Anniversaries
  - b. LAFCo annexation application update
  - c. Journal of American Mosquito Control Association publication: *Assessing Mosquito Breeding Sites and Abundance Using an Unmanned Aircraft*
  - d. Marsh circulation ditch work beginning in September
  - e. Trustee training due: AB 1825 & AB1234: Narum
  - f. Regional invasive Aedes meeting in San Mateo on 8/20/19.
  - g. ACMAD sponsorship of the Special District Climate Adaption Roundtable on 11/6/19 in Berkeley.
  - h. General Manager reelected to the CSDA Board of Directors for a 3-year term
10. Board President asks for reports on conferences and seminars attended by Trustees.
  11. Board President asks for announcements from members of the Board.
  12. Board President asks trustees for items to be added to the agenda for the next Board meeting.
  13. Adjournment.

RESIDENTS ATTENDING THE MEETING MAY SPEAK ON ANY AGENDA ITEM AT THEIR REQUEST.

**Please Note: A copy of this agenda is also available at the District website, [www.mosquitoes.org](http://www.mosquitoes.org) or via email by request. Alternative formats of this agenda can be made available for persons with disabilities. Please contact the district office at (510) 783-7744, via FAX (510) 783-3903, or email at [acmad@mosquitoes.org](mailto:acmad@mosquitoes.org) to request an alternative format.**

## MINUTES

### 1071<sup>st</sup> MEETING OF THE BOARD OF TRUSTEES OF THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT

August 14<sup>th</sup>, 2019

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TIME: 5:00 P.M.  
PLACE: Office of the District, 23187 Connecticut Street, Hayward  
TRUSTEES: Eric Hentschke, President, City of Newark  
Wendi Poulson, Vice-President, City of Alameda  
P. Robert Beatty, Secretary, City of Berkeley  
Cathy Roache, County-at-Large  
Alan Brown, City of Dublin  
Betsy Cooley, City of Emeryville  
George Young, City of Fremont  
Elisa Marquez, City of Hayward  
James N. Doggett, City of Livermore  
Jan O. Washburn, City of Oakland  
Robert Dickinson, City of Piedmont  
Kathy Narum, City of Pleasanton  
Victor Aguilar, City of San Leandro  
Subru Bhat, City of Union City

1. Board President Hentschke called the regularly scheduled board meeting to order at 5:00 P.M.
2. Trustees Hentschke, Poulson, Roache, Brown, Cooley, Marquez, Doggett, Narum and Aguilar were present. Trustees Beatty, Washburn and Bhat were absent. Trustees Young and Dickinson arrived at 5:01 and 5:10, respectively.
3. Board President Hentschke invited members of the public to speak on any issue relevant to the District. Accounting Associate Michelle Robles was present to report on the financial reports. Vector Biologist Jeremy Sette was present to record the minutes.
4. Approval of minutes of the 1070<sup>th</sup> meeting held July 10<sup>th</sup>, 2019.  
**Motion:** Trustee Marquez moved to approve the minutes  
**Second:** Trustee Aguilar  
**Vote:** motion carries: unanimous.
5. Review of bids and awarding of contract for the purchase of two 2020 Chevrolet Colorado 4WD Extended Cab 128" Work Trucks.  
**Discussion:**  
The General Manager discussed the bids for the contract for the purchase of two 2020 Chevrolet Colorado 4WD Extended Cab 128" Work Trucks.  
**Motion:** Trustee Narum moved to approve the awarding of contract for the purchase of two 2020 Chevrolet Colorado 4WD Extended Cab 128" Work Trucks  
**Second:** Trustee Doggett  
**Vote:** motion carries: unanimous.

6. Mosquito and vector control district competency

**Discussion:**

The General Manager discussed how mosquito and vector control district competency was brought up as a concern of President Hentschke and fielded the following discussion. President Hentschke commented that he was proud that ACMAD is a fully capable district, as per the categories concerned. Trustee Roache asked what the primary issue is for other areas in the country (lack of dedicated programs with consistent funding). The General Manager also mentioned the importance of a competent district with the recent *Aedes aegypti* detections in neighboring San Joaquin and Stanislaus counties.

7. Presentation of the Financial Reports as of July 31<sup>st</sup>, 2019.

**Discussion:**

Accounting Associate Michelle Robles presented the Financial Reports as of July 31<sup>st</sup>, 2019 and fielded the following discussion. Trustee Marquez asked what the legal expense was referring to (LAFCo application and a mutual aid agreement). The General Manager commented on how utilities will be higher this year, due to the delay in the solar installation and praised Robles' exemplary work on improving financial processes and reporting.

8. Presentation of the Monthly Staff Report for July 2019.

**Discussion:**

The General Manager presented the Monthly Staff Report for July 2019.

9. Presentation of the Manager's Report for July 2019.

**Discussion:**

The General Manager presented the Manager's Report for July 2019 and fielded the following discussion. Trustee Marquez asked if there was an update on the LAFCo application (it is awaiting a map from a surveyor to be placed on the agenda at an upcoming LAFCo meeting agenda). Trustee Marquez also asked if the LAFCo board met monthly (every other month). Trustee Narum asked if the General Manager would let her know when ACMAD would be on the LAFCo board meeting agenda (yes).

10. Board President Hentschke asked for reports on conferences and seminars attended by Trustees. None.

11. Board President Hentschke asked for announcements from the Board. None.

12. Board President Hentschke asked trustees for items to be added to the agenda for the next Board meeting. None.

13. The meeting adjourned at 5:36 P.M.

**Respectfully submitted,**

Approved as written and/or corrected  
at the 1072<sup>nd</sup> meeting of the Board of  
Trustees held September 11<sup>th</sup>, 2019

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Eric Hentschke, President  
BOARD OF TRUSTEES

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P. Robert Beatty, Secretary  
BOARD OF TRUSTEES



# Alameda County Mosquito Abatement District

## September Board Meeting – OPEB Trust Update

**Joseph Federico, Senior Analyst**

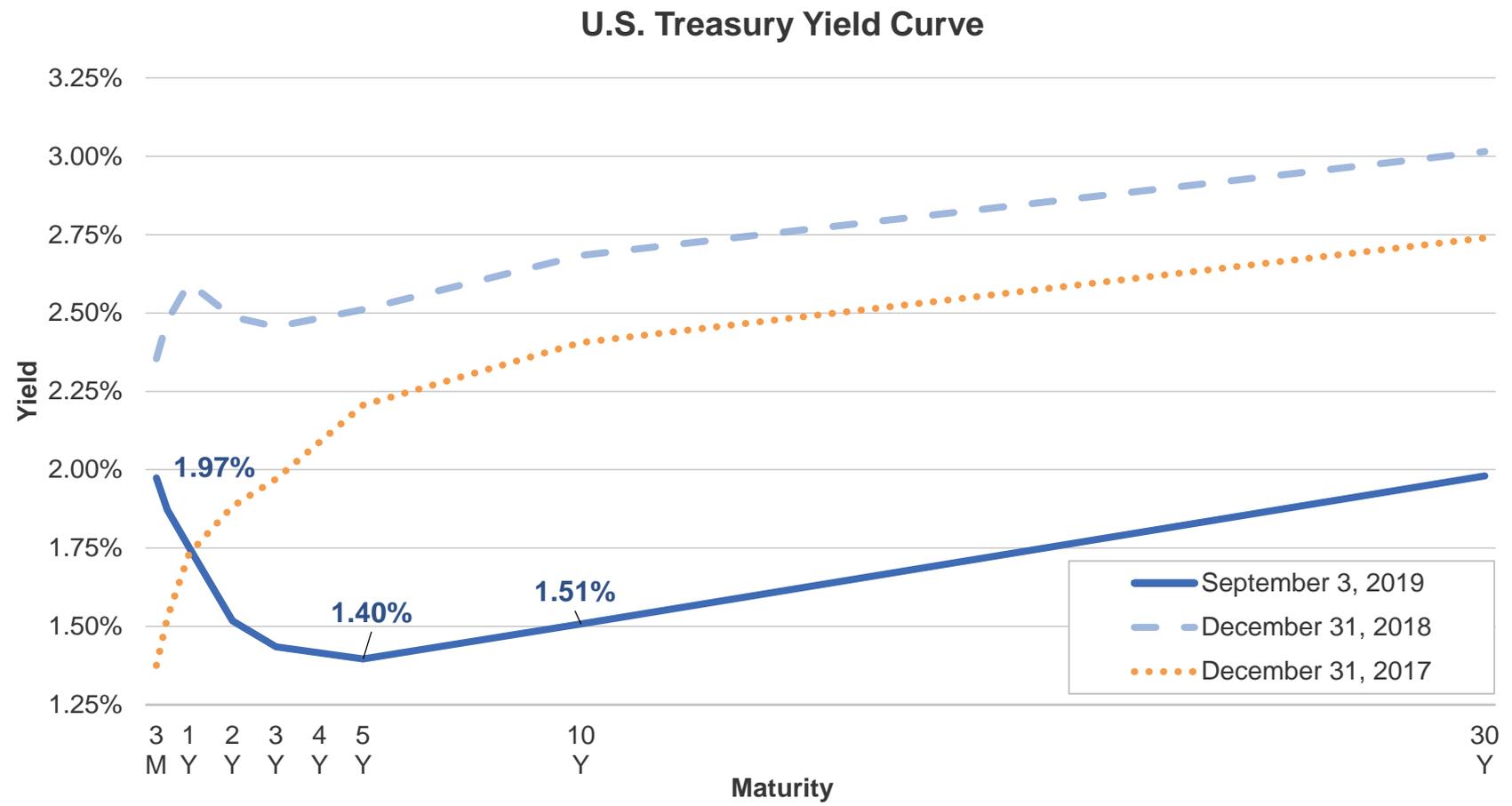
September 11, 2019

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50 California Street  
Suite 2300  
San Francisco, CA 94111



## U.S. Treasury Yield Curve Still Inverted



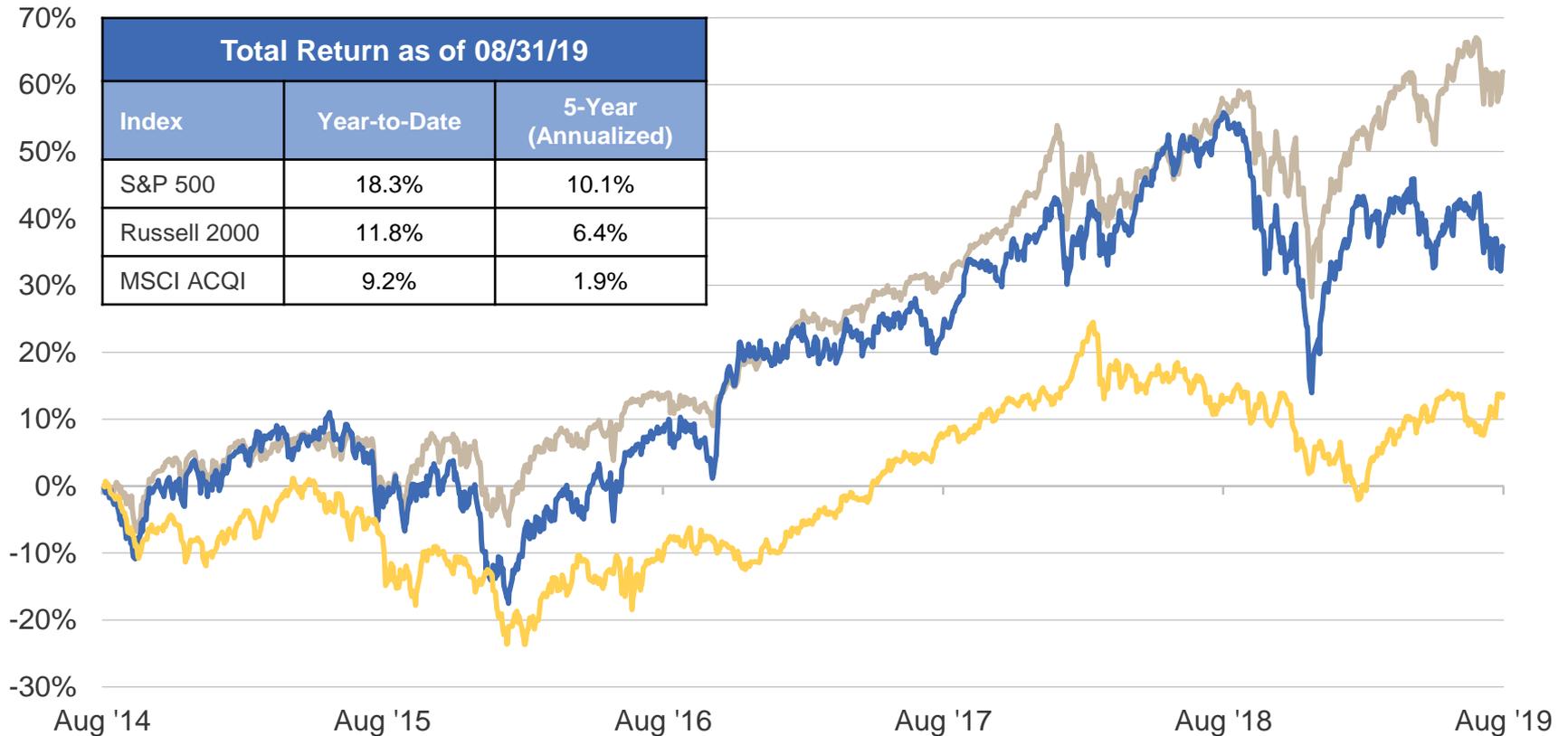
Source: Bloomberg, as of 9/3/2019.



## Equities Continue to Push Higher

### Cumulative 5-Year Total Return in Key Equity Indices

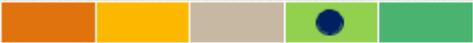
— S&P 500 — Russell 2000 — MCSI ACQI ex-US (net)



Source: Bloomberg, as of 08/31/19. Total Return is net of dividends.



## Factors to Consider Over the Next 6-12 Months

<p><b>Central Banks:</b></p>  <ul style="list-style-type: none"> <li>• ECB has announced plans to remain accommodative</li> <li>• Fed cut rates by 0.25% at July meeting</li> </ul>	<p><b>Economic Growth (U.S.):</b></p>  <ul style="list-style-type: none"> <li>• Q2 GDP at 2.1%</li> <li>• IMF 2019 growth for U.S. revised up to 2.6% from 2.3%</li> </ul>	<p><b>Economic Growth (Global):</b></p>  <ul style="list-style-type: none"> <li>• IMF 2019 global growth revised down to 3.2% from 3.3%</li> <li>• Concerns around slower growth within EM and Eurozone</li> </ul>
<p><b>Trade Tensions:</b></p>  <ul style="list-style-type: none"> <li>• Increasing uncertainty with U.S. – China trade talks continues to have a negative impact on market sentiment</li> </ul>	<p><b>Consumer Confidence (U.S.):</b></p>  <ul style="list-style-type: none"> <li>• Consumer spending and confidence continue to be strong</li> <li>• Labor markets and wage growth continue to supportive of growth</li> </ul>	<p><b>Inflation (U.S.):</b></p>  <ul style="list-style-type: none"> <li>• Range-bound inflation is supportive of risk assets</li> <li>• Globally too, inflation remains subdued</li> </ul>
<p><b>Corporate Fundamentals:</b></p>  <ul style="list-style-type: none"> <li>• High cash levels, strong buyback activity and higher profit margins point to strong corporate fundamentals</li> </ul>	<p><b>Interest Rates:</b></p>  <ul style="list-style-type: none"> <li>• Rise in negative-yielding debt raises concern around long term growth prospects</li> </ul>	<p><b>Geopolitics:</b></p>  <ul style="list-style-type: none"> <li>• Rising tensions with Iran could flare up into a global risk</li> <li>• Hard Brexit is closer to reality and the uncertainty around Brexit still remains</li> </ul>

Stance  
Unfavorable to  
Risk Assets



Favorable  
to Risk  
Assets

The view expressed within this material constitute the perspective and judgment of PFM Asset Management LLC at the time of distribution (8/28/2019) and are subject to change.



## Asset Allocation Summary as of August 31, 2019

	<u>IPS Target</u>	<u>IPS Range</u>	<u>June 30, 2019 Allocation</u>	<u>August 31, 2019 Allocation</u>	<u>Change</u>
<b><u>Domestic Equity</u></b>	<b>33%</b>	<b>13%-53%</b>	<b>33.5%</b>	<b>35.0%</b>	<b>1.5%</b>
Vanguard Total Stock Market Index			26.2%	27.6%	1.4%
Jensen Quality Growth Fund			3.0%	1.6%	-1.4%
iShares Core S&P Mid Cap ETF			2.7%	3.0%	0.3%
iShares Core S&P Small Cap ETF			1.6%	2.8%	1.2%
<b><u>International Equity</u></b>	<b>17%</b>	<b>0%-37%</b>	<b>16.9%</b>	<b>17.9%</b>	<b>1.0%</b>
Vanguard Total International Stock Index Fund			5.4%	5.6%	0.2%
Vanguard International Value			3.5%	4.6%	1.1%
JO Hambro International Select			4.3%	3.6%	-0.7%
Invesco Oppenheimer Int'l Small-Mid Company			2.1%	1.8%	-0.3%
Hartford Schroders Emerging Markets Equity			1.7%	2.3%	0.6%
<b><u>Other Growth</u></b>	<b>0%</b>	<b>0%-10%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>
<b><u>Fixed Income</u></b>	<b>50%</b>	<b>30%-75%</b>	<b>49.4%</b>	<b>46.9%</b>	<b>-2.4%</b>
Baird Core Plus			15.3%	14.6%	-0.7%
DoubleLine Core Fixed Income			15.3%	14.5%	-0.8%
Prudential Total Return Bond Fund			11.3%	10.8%	-0.5%
Vanguard Intermediate-Term Investment Grade			7.5%	7.0%	-0.4%
<b><u>Cash Equivalent</u></b>	<b>0%</b>	<b>0%-20%</b>	<b>0.2%</b>	<b>0.2%</b>	<b>0.0%</b>
First American Government Obligation			0.2%	0.2%	0.0%



# Alameda County Mosquito Abatement District

## Investment Performance Review For the Quarter Ended June 30, 2019

Client Management Team

Ellen Clark, Senior Managing Consultant  
Joseph Federico, Senior Analyst

PFM Asset Management LLC

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# **Financial Markets & Investment Strategy Review**



## QUARTERLY MARKET SUMMARY

## Market Index Performance

As of June 30, 2019

	QTD	YTD	1 Year	3 Years	5 Years	7 Years	10 Years
<b>DOMESTIC EQUITY</b>							
S&P 500	4.30%	18.54%	10.42%	14.19%	10.71%	13.98%	14.70%
Russell 3000 Index	4.10%	18.71%	8.98%	14.02%	10.19%	13.79%	14.67%
Russell 1000 Value Index	3.84%	16.24%	8.46%	10.19%	7.46%	12.09%	13.19%
Russell 1000 Growth Index	4.64%	21.49%	11.56%	18.07%	13.39%	15.76%	16.28%
Russell Midcap Index	4.13%	21.35%	7.83%	12.16%	8.63%	13.37%	15.16%
Russell 2500 Index	2.96%	19.25%	1.77%	12.34%	7.66%	12.51%	14.44%
Russell 2000 Value Index	1.38%	13.47%	-6.24%	9.81%	5.39%	10.31%	12.40%
Russell 2000 Index	2.10%	16.98%	-3.31%	12.30%	7.06%	11.63%	13.45%
Russell 2000 Growth Index	2.75%	20.36%	-0.49%	14.69%	8.63%	12.87%	14.41%
<b>INTERNATIONAL EQUITY</b>							
MSCI EAFE (Net)	3.68%	14.03%	1.08%	9.11%	2.25%	7.31%	6.90%
MSCI AC World Index (Net)	3.61%	16.23%	5.74%	11.62%	6.16%	9.87%	10.15%
MSCI AC World ex USA (Net)	2.98%	13.60%	1.29%	9.39%	2.16%	6.36%	6.54%
MSCI AC World ex USA Small Cap (Net)	1.21%	11.60%	-5.94%	7.76%	2.77%	7.66%	8.48%
MSCI EM (Net)	0.61%	10.59%	1.21%	10.66%	2.49%	4.15%	5.81%
<b>ALTERNATIVES</b>							
FTSE NAREIT Equity REIT Index	1.24%	17.78%	11.21%	4.20%	7.92%	8.88%	15.46%
FTSE EPRA/NAREIT Developed Index	0.20%	15.09%	8.64%	5.45%	5.79%	8.16%	11.45%
Bloomberg Commodity Index Total Return	-1.19%	5.06%	-6.75%	-2.18%	-9.15%	-6.69%	-3.74%
<b>FIXED INCOME</b>							
Blmbg. Barc. U.S. Aggregate	3.08%	6.11%	7.87%	2.31%	2.95%	2.62%	3.90%
Blmbg. Barc. U.S. Government/Credit	3.53%	6.90%	8.52%	2.41%	3.11%	2.73%	4.09%
Blmbg. Barc. Intermed. U.S. Government/Credit	2.59%	4.97%	6.93%	1.99%	2.39%	2.15%	3.24%
Blmbg. Barc. U.S. Treasury: 1-3 Year	1.47%	2.47%	4.02%	1.29%	1.22%	1.02%	1.20%
Blmbg. Barc. U.S. Corp: High Yield	2.50%	9.94%	7.48%	7.52%	4.70%	6.35%	9.24%
Credit Suisse Leveraged Loan index	1.58%	5.42%	4.15%	5.43%	3.85%	4.71%	6.29%
ICE BofAML Global High Yield Constrained (USD)	2.87%	9.57%	7.52%	7.25%	3.91%	6.27%	9.03%
Blmbg. Barc. Global Aggregate Ex USD	3.42%	4.99%	4.10%	0.97%	-0.12%	0.71%	2.10%
JPM EMBI Global Diversified	4.08%	11.31%	12.45%	5.47%	5.30%	5.57%	7.79%
<b>CASH EQUIVALENT</b>							
90 Day U.S. Treasury Bill	0.64%	1.24%	2.31%	1.37%	0.85%	0.63%	0.47%

Source: Investment Metrics. Returns are expressed as percentages. Please refer to the last page of this document for important disclosures relating to this material.



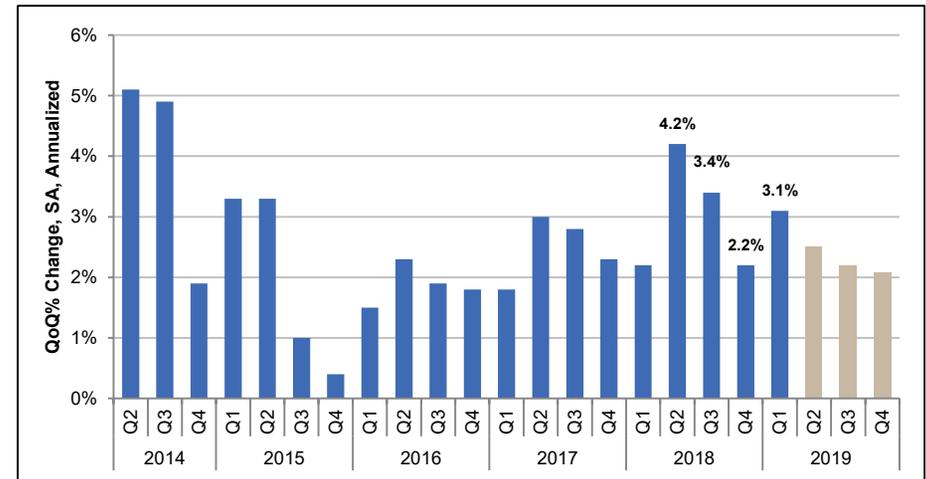
# QUARTERLY MARKET SUMMARY

## THE ECONOMY

- In line with slowing growth expectations, U.S. Gross Domestic Product (GDP) for the second quarter of 2019 is projected to grow at an annual rate of 1.5% according to the Federal Reserve Bank of Atlanta GDPNow Forecast. This is down from 3.1% in the first quarter of 2019. The International Monetary Fund (IMF) also recently cut its global growth forecasts to 3.3% from 3.5% for 2019.
- While the June unemployment rate ticked up slightly to 3.7%, labor markets still continue to be strong. The U.S. labor market added an average of 170,000 jobs per month in the second quarter, down slightly from 180,000 a month in the first quarter of 2019. Average hourly earnings rose 3.1% in the quarter, nearly matching the 3.2% growth in the first quarter. The labor force participation rate edged up slightly from 62.8% in May to 62.9% in June.
- U.S. manufacturing activity slowed to near a three-year low in June according to the Institute for Supply Management (ISM). The ISM Manufacturing Index dropped to 51.7 from 52.1 in May, a third straight monthly decline largely attributed to uncertainty stemming from trade tensions between the U.S. and China. However, the reading surpassed expectations of 51 for the month of June. A reading of 50 or more indicates expansion in the manufacturing sector. Construction spending also fell unexpectedly as private construction projects declined.
- The core personal consumption expenditures (PCE) price index, the Federal Reserve's (Fed) preferred measure of inflation, rose 1.5% over the 12 months ended in May 2019. Inflation rates have consistently fallen below the Fed's target of 2% and Fed officials have warned that weaker inflation readings could persist, strengthening the case for more accommodative monetary policy.
- Globally, major central banks remain ready to ease monetary policy as risks to global growth, such as trade uncertainty and weakening manufacturing activity, continue to mount. Labor market strength continues in most major economies, with the global unemployment rate near a 40-year low, but manufacturing continues to deteriorate according to the latest purchasing managers' index (PMI) data. Leading economies including the Eurozone, the UK, China and Japan have seen PMIs fall below 50. Readings below 50 indicate a slow-down in manufacturing.

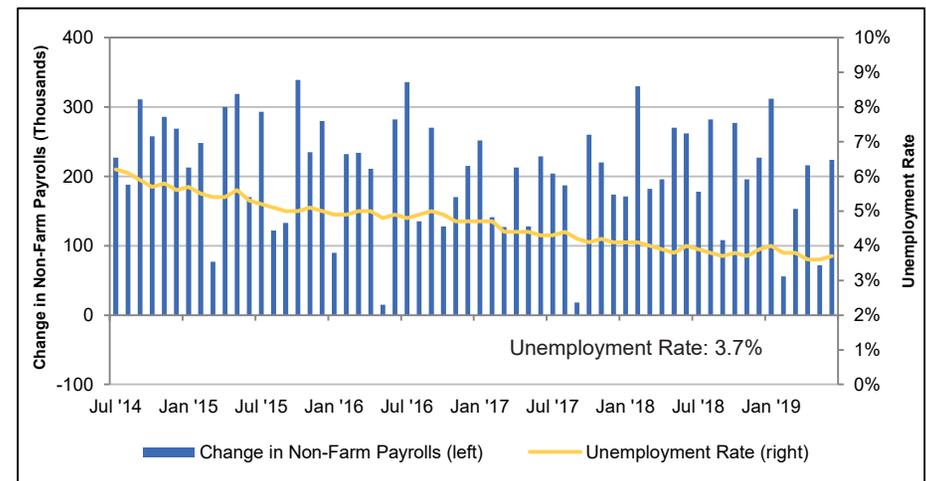
**U.S. Real GDP Growth**

Seasonally Adjusted (SA)



Source: Bloomberg. Blue bars indicate actual numbers; taupe bars indicate forecasted estimates.

**Change in Non-Farm Payrolls**



Source: Bloomberg.

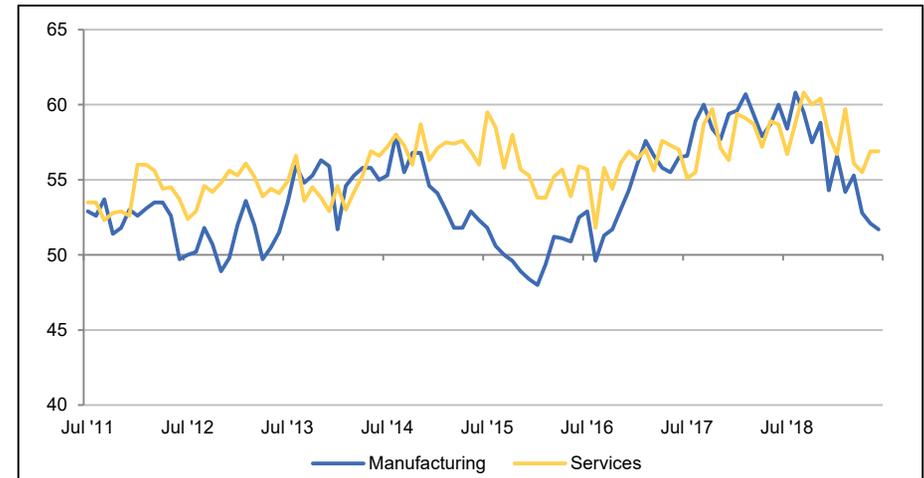


## QUARTERLY MARKET SUMMARY

### WHAT WE'RE WATCHING

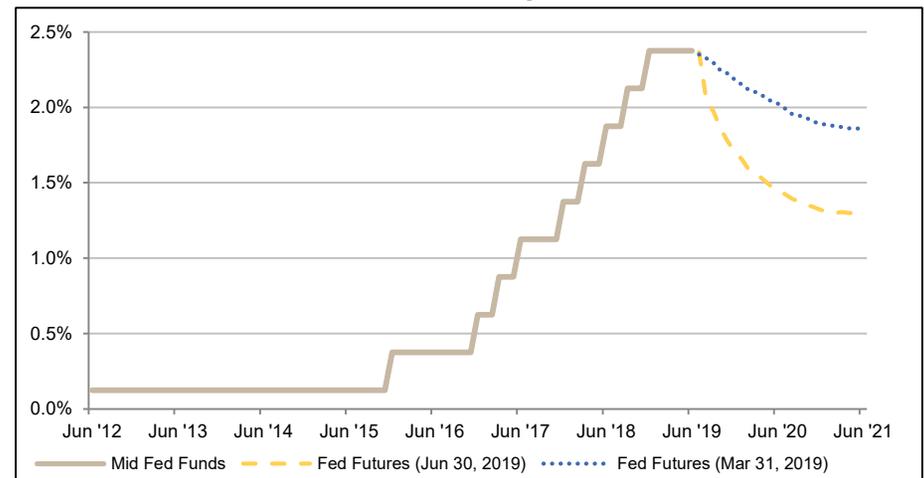
- After the Federal Open Market Committee (FOMC) met in June, Federal Reserve Chairman, Jerome Powell, signaled that the Fed would consider cutting its target interest rate if economic data continued to fall short of expectations. The news sent market indices to all-time highs at the prospect of more accommodative monetary policy. A strong June jobs report posed a threat to easing monetary policy, and turned investors' attention to pending inflation data. However, Chairman Powell's testimony on Capitol Hill in early July again signaled that a rate cut later in the month is possible. The FOMC will meet again from July 30 - July 31.
- Trade tensions between the U.S. and China escalated once again in the second quarter of 2019 after the U.S. ceased negotiations and threatened tariffs on an additional \$300 billion of Chinese goods. Trade talks resumed after President Trump and President Xi met at the G-20 summit in June and called a truce. The two sides did not outline a path forward. The IMF lowered its 2019 growth forecast for China to 6.2% from 6.3% citing significant, but contained, impacts from trade tensions.
- International Monetary Fund Chief, Christine Lagarde, was nominated to lead the European Central Bank (ECB). She would be taking the reins from outgoing ECB president Mario Draghi. Markets are betting that they will see an easing of monetary policy under her leadership over the next eight years, as evidenced by a drop in benchmark yields across the Eurozone.
- Tensions in the Middle East intensified in June leading to oil prices spiking nearly 10%. Attacks on two tankers in the Gulf of Oman and a U.S. drone have led to uncertainty about global oil supply. During the month, the Organization of Petroleum Exporting Countries (OPEC) also agreed to extend production cuts until March 2020, providing another boost to oil prices.

ISM Manufacturing & Services PMI



Source: Bloomberg.

Federal Funds Target Rate



Source: Bloomberg.



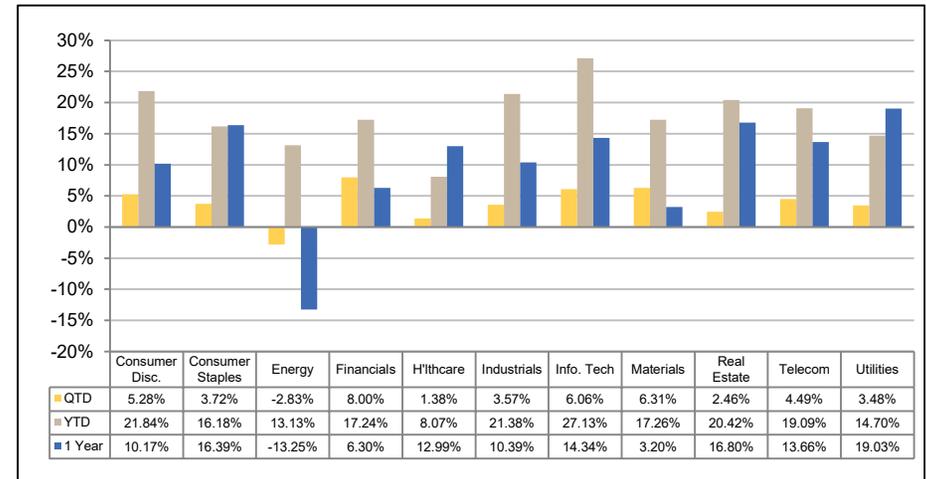
# QUARTERLY MARKET SUMMARY

## DOMESTIC EQUITY

- The S&P 500 Index posted a return of 4.30% for the quarter, in a quarter marked by an intra-quarter drawdown of 6.62%. The markets reacted negatively in May to concerns of slowing growth coupled with an increase in rhetoric around trade talks. The Fed's dovish stance has led market participants to expect three rate cuts this year, and progress on U.S.-China trade talks at the G-20 summit in Japan led to a strong return of 7.05% in June.
- Within the S&P 500, Financials was the best performing sector, returning 8.00%, followed by Materials and Information Technology at 6.31% and 6.06%, respectively. Energy was the worst performing sector, returning -2.83%.
- Value stocks, as represented by the Russell 1000 Value Index, returned 3.84%, and underperformed growth stocks, as represented by the Russell 1000 Growth Index, which returned 4.64%. Growth outperformed value across all market capitalizations.
- Small-caps, as represented by the Russell 2000 Index, returned 2.10% during the quarter and lagged mid- and large-caps. Large-caps were the best performers for the quarter, returning 4.25%, as represented by Russell 1000 Index, followed by mid-caps which returned 4.13%, as represented by the Russell Mid-Cap Index.
- For the quarter, according to FactSet Earnings Insight (as of July 3, 2019), the expected second quarter earnings growth for the S&P 500 is -2.6%. This marks another quarter of expected decline in earnings growth following the -0.3% decline reported for the first quarter. Looking ahead, analysts expect another quarter of earnings decline in the third quarter followed by mid-single-digit earnings growth expectations in the fourth quarter.

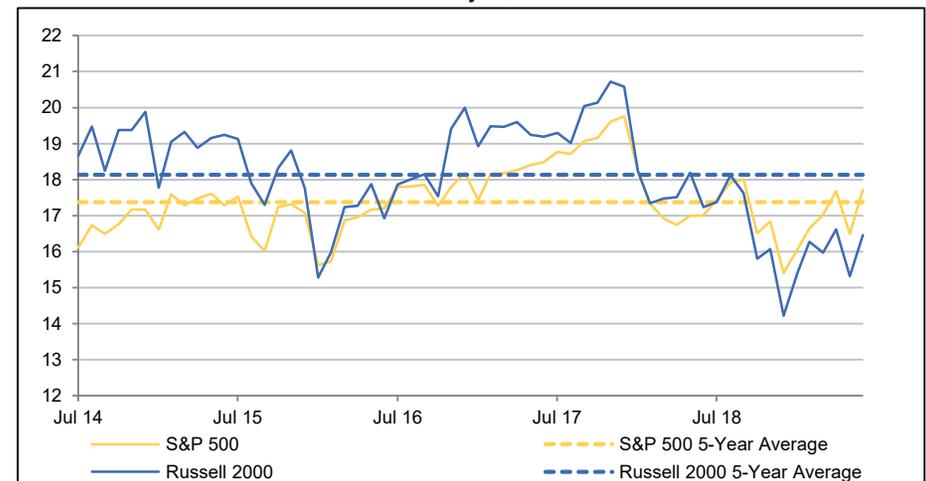
S&P 500 Index Performance by Sector

Periods Ended June 30, 2019



Source: Bloomberg.

P/E Ratios of Major Stock Indices\*



Source: Bloomberg.

\*P/E ratios are calculated based on one-year forward estimates and adjusted to include only positive earnings results for consistency.



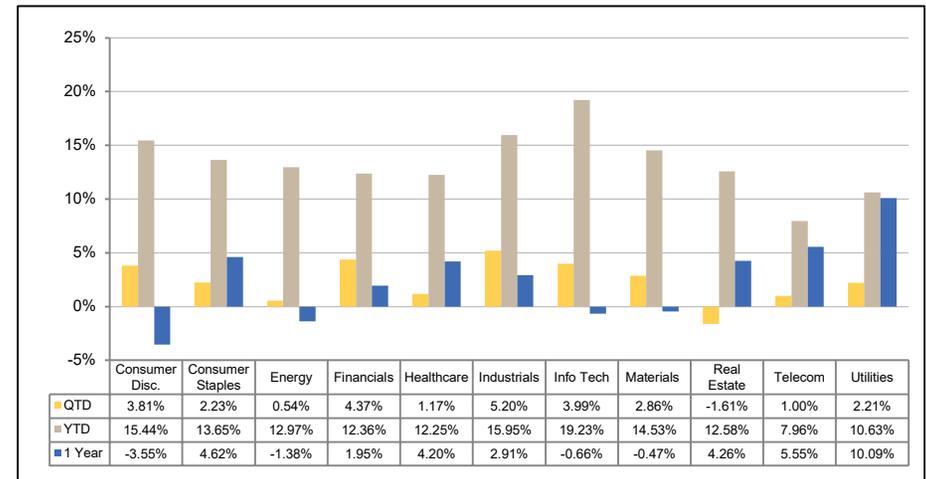
# QUARTERLY MARKET SUMMARY

## NON-U.S. EQUITY

- Markets outside of the United States, as measured by the MSCI ACWI ex U.S. Index, lagged their domestic equity counterparts and returned 2.98% for the second quarter. The Industrials sector delivered the strongest results, up 5.20%, followed by Financials and Information Technology with returns of 4.37% and 3.99%, respectively. Real Estate was the worst performing sector in the quarter, with a return of -1.61%, followed by Energy at 0.54%.
- Emerging markets (EM), as represented by MSCI Emerging Market Index, lagged behind developed markets for the quarter, returning 0.61%. Emerging Market EMEA (Europe, Middle East and Africa) led the way with a return of 7.15%, while EM Asia performed the worst, returning -1.25%.
- The trade talks between the U.S. and China continued to weigh on the sentiment toward international equities during the quarter, which led to positive returns in April and June, with a negative return in May reflecting the souring market sentiment.
- The ECB reiterated a dovish stance on monetary policy, with stated intentions to restart the stimulus program, if necessary, to support the falling inflation outlook. The quagmire surrounding Brexit continued as the Conservative Party heads into voting to elect a new leader to replace Theresa May, who announced her resignation in May.

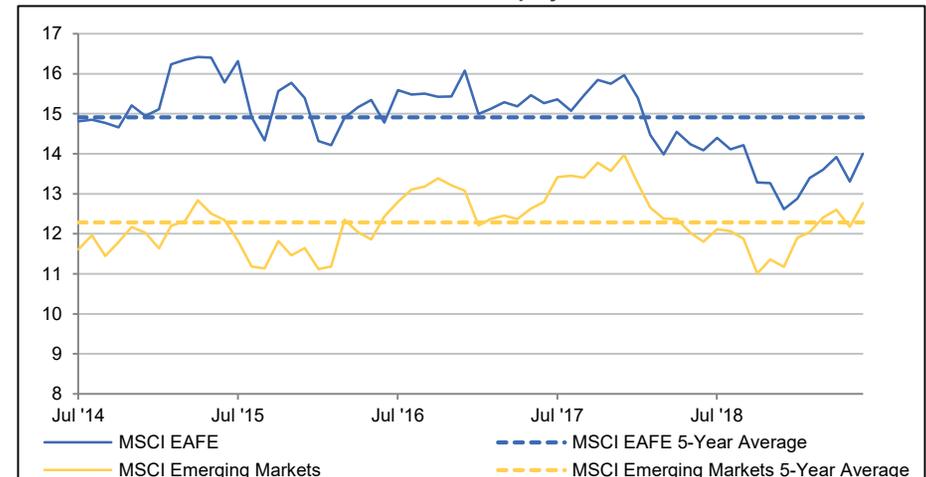
MSCI ACWI ex-U.S. Sectors

Periods Ended June 30, 2019



Source: Bloomberg.

P/E Ratios of MSCI Equity Indices\*



Source: Bloomberg.

\*P/E ratios are calculated based on one-year forward estimates and adjusted to include only positive earnings results for consistency.

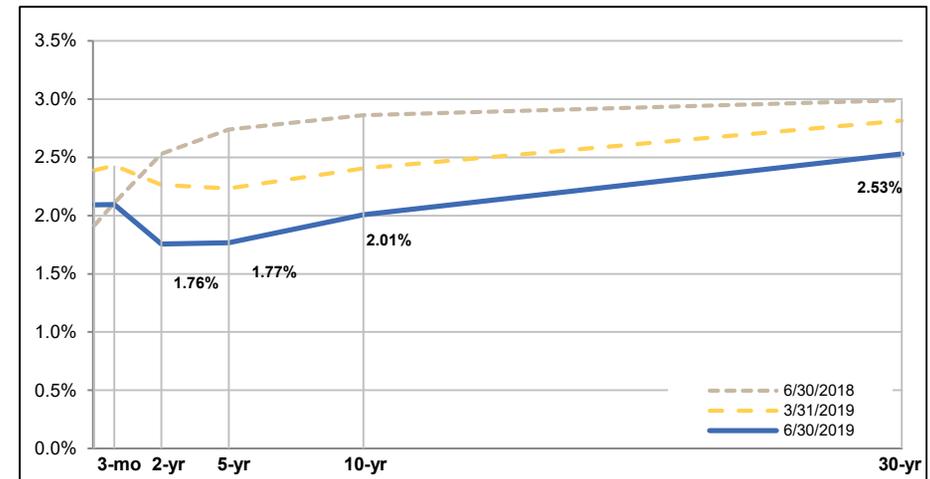


# QUARTERLY MARKET SUMMARY

## FIXED INCOME

- The U.S. bond market, represented by the Bloomberg Barclays U.S. Aggregate (Aggregate) Index, rose 3.08% in the second quarter.
- Rates fell again during the quarter with the front end and 30-year both falling about 30 basis points (bps). Short and intermediate rates represented by the 2- and 10-year Treasury had the largest moves, decreasing 52 bps and 41 bps, respectively.
- Long-term Treasury yields also fell during the quarter, with the 30-year bond ending June at a yield of 2.53%. Rates generally fell on weaker economic data and a view of a more dovish Fed as the market implied multiple rate cuts before year-end.
- Investment-grade (IG) corporate spreads slightly tightened during the quarter. The Bloomberg Barclays U.S. Corporate Index rose sharply at 4.48%, bringing a year-to-date (YTD) return of just less than 10%. High yield bonds, as represented by the Bloomberg Barclays U.S. Corporate High Yield Index also performed well at 2.50% but lagged IG counterparts as CCC-rated dragged on returns.
- The fixed-rate mortgage market, as measured by the Bloomberg Barclays U.S. Mortgage-Backed Securities (MBS) Index, gained 1.96%, while the Bloomberg Barclays U.S. Agency CMBS Index (measuring commercial MBS) gained 3.14%.
- Global bond markets were generally positive during the quarter with much of the gains coming from emerging markets. Emerging market USD sovereign bonds, as represented by the JP Morgan EMBI index, rose 4.08%.

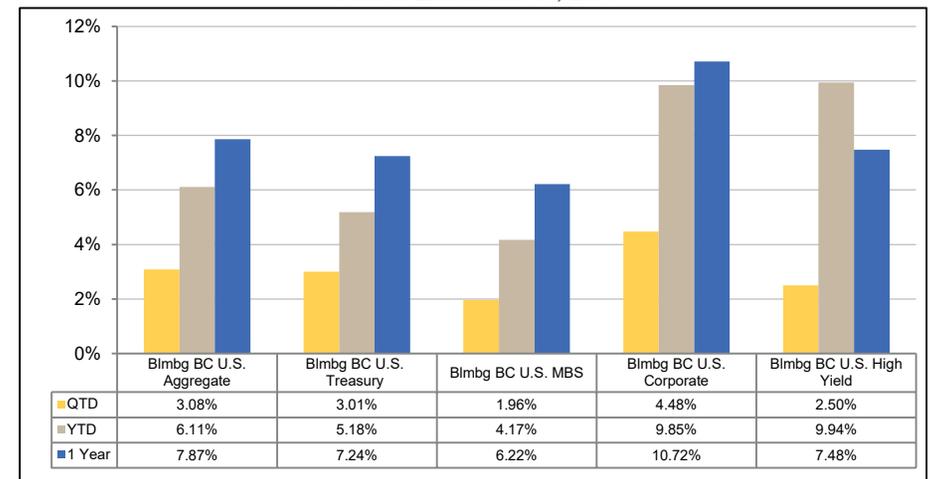
U.S. Treasury Yield Curve



Source: Bloomberg.

Returns for Fixed-Income Segments

Periods Ended June 30, 2019



Source: Bloomberg. "Bimbg BC" is Bloomberg Barclays.



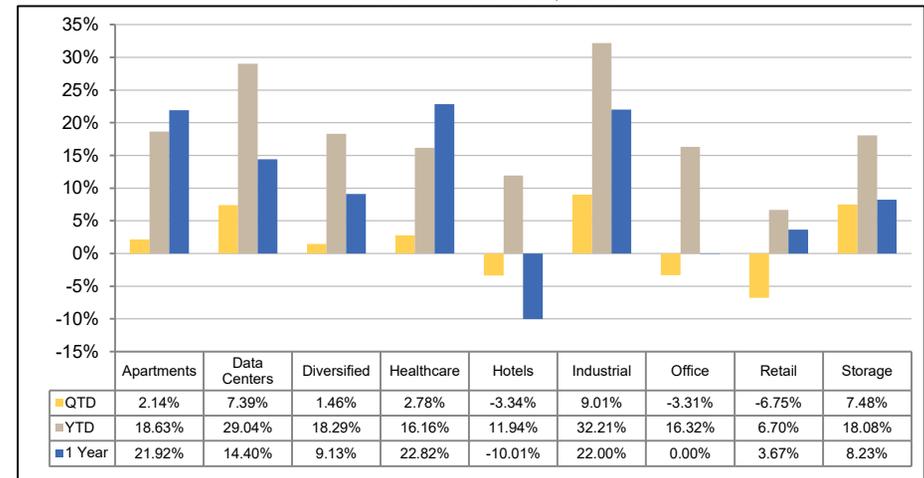
## QUARTERLY MARKET SUMMARY

### ALTERNATIVES

- REITs, as measured by the FTSE NAREIT Equity REITs Index, returned 1.24% in the second quarter, extending YTD gains after a strong return of 16.33% the previous quarter. Sector returns were mixed with six of the nine sectors posting gains. Industrial, Self-Storage, and Data Centers generated the strongest returns of 9.01%, 7.48%, and 7.39%, respectively. Office, Lodging/Resorts, and Retail returned -3.31%, -3.34%, and -6.75%, respectively.
- Private real estate, as measured by the NCREIF Property Index, generated a total return of 1.80% in the first quarter, up from the 1.37% return generated during the fourth quarter. Industrial properties continue to be the top performing sector with a return of 3.02% for the quarter. Retail rebounded during the quarter from -0.43% last quarter to a positive 1.74%.
- Hedge funds generated positive returns in the second quarter with the HFRI Fund Weighted Composite Index returning 2.02%. The HFRI Equity Hedge (Total) Index returned 1.72% during the second quarter, while the HFRI Macro (Total) Index returned 2.88% and the HFRI Fund of Funds Index returned 1.59%.
- In 2018, private capital funds raised \$757 billion, down from a record \$925 billion raised in 2017. In 2018, private capital dry powder, the capital available for fund managers to deploy, surpassed the \$2 trillion mark to reach \$2.19 trillion. Private equity dry powder, which accounts for the bulk of private capital dry powder, has reached \$1.20 trillion. As of September 2018, private equity funds generated an average 1-year internal rate of return (IRR) of 18.2% IRR and a 5-year IRR of 15.5%. Over those same time periods, private debt generated 7.9% and 7.7%, respectively.
- Commodity futures, represented by the Bloomberg Commodity Index Total Return, returned -1.19% in the second quarter, down from 5.70% in the first quarter. The U.S. Dollar Index (DXY) posted a 1.20% loss in the second quarter, following a gain of 1.15% in first quarter. Gold spot price ended the quarter at \$1,409 per ounce, up from \$1,292 per ounce at the end of the first quarter. West Texas Intermediate (WTI) Crude Oil spot price ended the quarter at \$58.20, down from \$60.14 at the end of the first quarter.

#### FTSE NAREIT Sectors

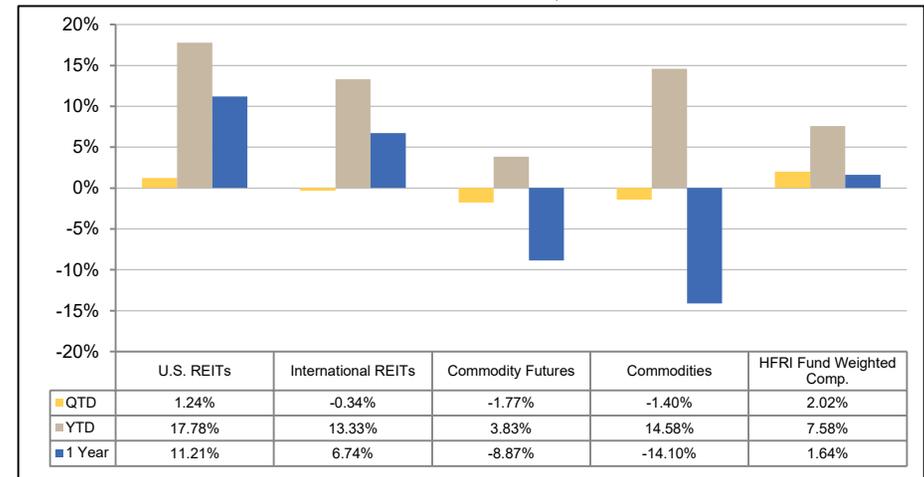
Periods Ended June 30, 2019



Source: Bloomberg.

#### Returns for Alternative Assets

Periods Ended June 30, 2019



Sources: Bloomberg and Hedge Fund Research, Inc.



QUARTERLY MARKET SUMMARY

Investment Strategy Overview

For the Third Quarter 2019

Asset Class	Our Investment Preferences	Comments
<b>U.S. EQUITIES</b>		
Large-Caps		<ul style="list-style-type: none"> <li>Dovish stance by Federal Reserve has the market expecting three rate cuts this year. While global growth expectations are slowing, accommodative monetary policy will be supportive of equity valuations. U.S. – China trade talk progress continues to impact near-term sentiment.</li> <li>Lesser exposure to international economies and more favorable valuations support our overweight of U.S. mid- and small-cap equities.</li> </ul>
Mid-Caps		
Small-Caps		
<b>NON-U.S. EQUITIES</b>		
Developed Markets		<ul style="list-style-type: none"> <li>International equities continue to trade at a discount to U.S. equities. We believe this discount is warranted due to slower growth expectations and higher risks.</li> <li>Trade tensions, slowing China economic growth and higher risks coupled with attractive valuations leads us to retain neutral view on emerging market equities.</li> </ul>
Emerging Markets		
International Small-Caps		
<b>FIXED INCOME</b>		
Long Duration, Interest-Rate-Sensitive Sectors		<ul style="list-style-type: none"> <li>Fed's recent change in guidance to possible rate cuts from no rate cuts in 2019 has been supportive of longer duration assets. Globally too, major central banks continue to align with accommodative monetary policy stance.</li> <li>After a strong first quarter, credit spreads were range-bound during the quarter. We continue to overweight credit in the context of continued economic growth and good credit fundamentals.</li> </ul>
Credit-Sensitive Sectors		
<b>ALTERNATIVES</b>		
Real Estate		<ul style="list-style-type: none"> <li>Lower level of interest rates and more favorable valuations are positives for REITs while slowing economy is a headwind.</li> <li>Private equity funds carefully selected may provide higher returns relative to public markets, but the overall PE industry faces headwinds from the significant growth in assets under management and number of firms.</li> <li>Select private debt strategies look attractive as they provide income with lower risk than private equity, while floating rates hedge against rising rates.</li> <li>Select hedge fund strategies managed by talented managers may provide some benefit in a market environment of higher overall valuations and volatility. We remain cautious on the overall hedge fund universe.</li> </ul>
Private Equity		
Private Debt		
Hedge Funds		

● Current outlook    ○ Outlook one quarter ago



# Plan Performance Summary



## Asset Allocation &amp; Performance

	Allocation		Performance(%)							
	Market Value (\$)	%	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	Since Inception	Inception Date
<b>TOTAL FUND</b>	<b>4,390,951</b>	<b>100.00</b>	<b>3.37</b>	<b>12.47</b>	<b>6.80</b>	<b>7.85</b>	<b>5.74</b>	<b>7.84</b>	<b>7.07</b>	<b>02/01/2011</b>
<i>Blended Policy Benchmark</i>			3.53	12.17	7.46	7.99	5.34	7.22	6.61	02/01/2011
<b>Domestic Equity</b>	<b>1,471,007</b>	<b>33.50</b>	<b>3.75</b>	<b>18.17</b>	<b>8.13</b>	<b>13.44</b>	<b>9.93</b>	<b>13.37</b>	<b>12.12</b>	<b>02/01/2011</b>
<i>Russell 3000 Index</i>			4.10	18.71	8.98	14.02	10.19	13.79	12.38	02/01/2011
Vanguard Total Stock Market Index	1,148,735	26.16	4.09	18.71	8.99	14.03	10.17	13.77	13.02	05/01/2012
<i>Russell 3000 Index</i>			4.10	18.71	8.98	14.02	10.19	13.79	13.05	05/01/2012
Jensen Quality Growth Fund	130,707	2.98	2.56	17.39	14.78	15.60	13.23	15.09	2.56	04/01/2019
<i>S&amp;P 500</i>			4.30	18.54	10.42	14.19	10.71	13.98	4.30	04/01/2019
iShares Core S&P Mid Cap ETF	119,470	2.72	3.03	17.93	1.25	10.83	7.94	12.59	3.03	04/01/2019
<i>S&amp;P MidCap 400</i>			3.05	17.97	1.36	10.90	8.02	12.68	3.05	04/01/2019
iShares Core S&P Small-Cap ETF	72,096	1.64	1.87	13.68	-4.85	11.96	8.39	12.99	2.05	05/01/2018
<i>S&amp;P SmallCap 600</i>			1.87	13.69	-4.88	11.97	8.41	13.00	2.06	05/01/2018
<b>International Equity</b>	<b>742,617</b>	<b>16.91</b>	<b>2.76</b>	<b>14.19</b>	<b>0.69</b>	<b>8.61</b>	<b>3.02</b>	<b>6.94</b>	<b>4.50</b>	<b>02/01/2011</b>
<i>MSCI AC World ex USA (Net)</i>			2.98	13.60	1.29	9.39	2.16	6.36	3.65	02/01/2011
Vanguard Total International Stock Index Fund	236,271	5.38	2.75	13.27	0.57	8.94	2.31	6.55	7.25	10/01/2016
<i>MSCI AC World ex USA (Net)</i>			2.98	13.60	1.29	9.39	2.16	6.36	7.63	10/01/2016
Vanguard International Value	154,337	3.51	2.42	12.09	-0.39	8.74	1.27	6.81	7.45	05/01/2016
<i>MSCI AC World ex USA (Net)</i>			2.98	13.60	1.29	9.39	2.16	6.36	7.76	05/01/2016
J. O. Hambro International Select	187,186	4.26	2.58	15.22	0.90	9.36	5.51	11.49	9.32	01/01/2016
<i>MSCI AC World ex USA (Net)</i>			2.98	13.60	1.29	9.39	2.16	6.36	7.68	01/01/2016
Invesco Oppenheimer Int'l Small-Mid Company	91,592	2.09	4.28	18.98	1.62	14.95	10.17	16.53	11.86	04/01/2015
<i>MSCI AC World ex USA Smid Cap Index (Net)</i>			2.14	12.61	-3.81	8.15	2.80	7.39	4.74	04/01/2015
Hartford Schroders Emerging Markets Equity	73,232	1.67	2.15	12.96	1.73	12.18	N/A	N/A	-5.51	03/01/2018
<i>MSCI EM (net)</i>			0.61	10.59	1.21	10.66	2.49	4.15	-6.51	03/01/2018

Returns are net of mutual fund fees.  
Returns are expressed as percentages.



## Asset Allocation &amp; Performance

	Allocation		Performance(%)							
	Market Value (\$)	%	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	Since Inception	Inception Date
<b>Fixed Income</b>	<b>2,167,875</b>	<b>49.37</b>	<b>3.33</b>	<b>7.00</b>	<b>8.40</b>	<b>2.93</b>	<b>3.34</b>	<b>3.62</b>	<b>4.03</b>	<b>02/01/2011</b>
<i>Blmbg. Barc. U.S. Aggregate</i>			3.08	6.11	7.87	2.31	2.95	2.62	3.37	02/01/2011
Baird Core Plus	673,761	15.34	3.23	7.05	8.39	3.23	3.52	3.56	3.70	05/01/2014
<i>Blmbg. Barc. U.S. Aggregate</i>			3.08	6.11	7.87	2.31	2.95	2.62	3.09	05/01/2014
DoubleLine Core Fixed Income	670,329	15.27	3.02	6.07	7.04	3.12	3.40	3.53	3.31	09/01/2017
Prudential Total Return Bond Fund	495,457	11.28	3.68	7.85	9.23	4.00	4.12	4.28	4.28	09/01/2017
<i>Blmbg. Barc. U.S. Aggregate</i>			3.08	6.11	7.87	2.31	2.95	2.62	3.25	09/01/2017
Vanguard Intermediate-Term Investment Grade	328,329	7.48	3.62	7.69	9.51	2.97	3.54	3.58	3.64	05/01/2012
<i>Blmbg. Barc. U.S. Credit 5-10 Year Index</i>			4.36	9.85	11.35	3.79	4.15	4.29	4.33	05/01/2012
<b>Cash Equivalent</b>	<b>9,451</b>	<b>0.22</b>	<b>0.57</b>	<b>1.14</b>	<b>2.13</b>	<b>1.25</b>	<b>0.76</b>	<b>0.54</b>	<b>0.45</b>	<b>02/01/2011</b>
First American Government Obligation	9,451	0.22	0.38	0.71	1.37	0.93	0.57	0.40	0.34	02/01/2011

Returns are net of mutual fund fees.  
Returns are expressed as percentages.



## Comparative Performance

	2018	2017	2016	2015	2014
<b>TOTAL FUND</b>	<b>-4.78</b>	<b>14.66</b>	<b>6.05</b>	<b>0.88</b>	<b>5.97</b>
<i>Blended Policy Benchmark</i>	-4.41	14.00	6.77	-0.85	6.12
<b>Domestic Equity</b>	<b>-5.54</b>	<b>21.31</b>	<b>12.10</b>	<b>0.46</b>	<b>12.25</b>
Vanguard Total Stock Market Index	-5.17	21.17	12.66	0.39	12.56
<i>Russell 3000 Index</i>	-5.24	21.13	12.74	0.48	12.56
Jensen Quality Growth Fund	2.44	23.56	12.29	1.80	11.98
<i>S&amp;P 500</i>	-4.38	21.83	11.96	1.38	13.69
iShares Core S&P Mid Cap ETF	-11.14	16.19	20.63	-2.23	9.64
<i>S&amp;P MidCap 400</i>	-11.08	16.24	20.74	-2.18	9.77
iShares Core S&P Small-Cap ETF	-8.43	13.20	26.49	-2.00	5.67
<i>S&amp;P SmallCap 600</i>	-8.48	13.23	26.56	-1.97	5.76
<b>International Equity</b>	<b>-12.68</b>	<b>24.60</b>	<b>1.00</b>	<b>2.66</b>	<b>-5.17</b>
Vanguard Total International Stock Index Fund	-14.43	27.55	4.67	-4.26	-4.17
Vanguard International Value	-14.52	27.96	4.46	-6.44	-6.69
J. O. Hambro International Select	-8.27	22.89	5.20	-4.05	5.35
<i>MSCI AC World ex USA (Net)</i>	-14.20	27.19	4.50	-5.66	-3.87
Invesco Oppenheimer Int'l Small-Mid Company	-9.25	38.30	-0.24	15.15	0.38
<i>MSCI AC World ex USA Smid Cap Index (Net)</i>	-17.06	30.35	3.57	0.44	-3.05
Hartford Schroders Emerging Markets Equity	-15.45	41.09	10.64	-12.63	N/A
<i>MSCI EM (net)</i>	-14.58	37.28	11.19	-14.92	-2.19
<b>Fixed Income</b>	<b>-0.49</b>	<b>4.26</b>	<b>3.56</b>	<b>0.76</b>	<b>5.71</b>
Baird Core Plus	-0.51	4.65	4.73	0.14	6.59
Prudential Total Return Bond Fund	-0.63	6.71	4.83	0.09	7.25
DoubleLine Core Fixed Income	-0.02	4.66	4.11	0.63	6.86
<i>Blmbg. Barc. U.S. Aggregate</i>	0.01	3.54	2.65	0.55	5.97
Vanguard Intermediate-Term Investment Grade	-0.57	4.15	3.83	1.53	5.81
<i>Blmbg. Barc. U.S. Credit 5-10 Year Index</i>	-1.55	5.57	5.23	0.69	7.38
<b>Cash Equivalent</b>	<b>1.70</b>	<b>0.75</b>	<b>0.20</b>	<b>0.00</b>	<b>0.00</b>
First American Government Obligation	1.22	0.65	0.26	0.00	0.00

Returns are net of mutual fund fees.  
Returns are expressed as percentages.



## Account Reconciliation

## QTR

	Market Value As of 04/01/2019	Net Flows	Return On Investment	Market Value As of 06/30/2019
TOTAL FUND	4,248,568	(771)	143,154	4,390,951

## YTD

	Market Value As of 01/01/2019	Net Flows	Return On Investment	Market Value As of 06/30/2019
TOTAL FUND	3,905,355	(1,500)	487,096	4,390,951

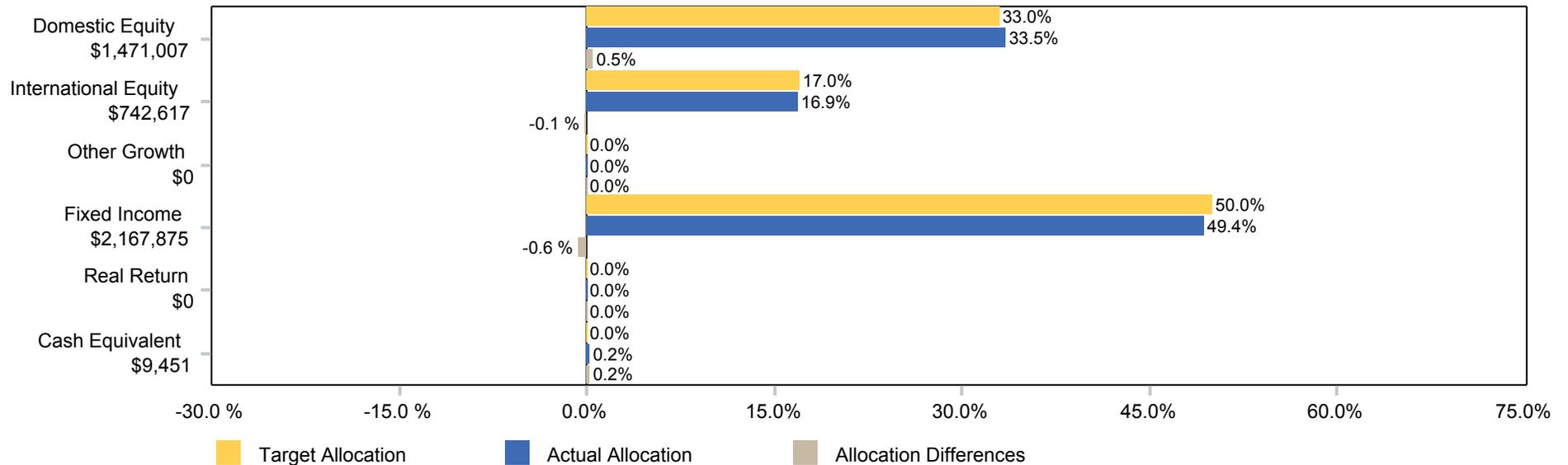
## 1 Year

	Market Value As of 07/01/2018	Net Flows	Return On Investment	Market Value As of 06/30/2019
TOTAL FUND	4,286,368	(180,283)	284,866	4,390,951



Asset Allocation Compliance - TOTAL FUND

	Asset Allocation (%)	Target Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Differences (%)
TOTAL FUND	100.0	100.0	N/A	N/A	0.0
Domestic Equity	33.5	33.0	13.0	53.0	0.5
International Equity	16.9	17.0	0.0	37.0	-0.1
Other Growth	0.0	0.0	0.0	10.0	0.0
Fixed Income	49.4	50.0	30.0	75.0	-0.6
Real Return	0.0	0.0	0.0	10.0	0.0
Cash Equivalent	0.2	0.0	0.0	20.0	0.2



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**Historical Hybrid Composition - Blended Policy Benchmark**

Allocation Mandate	Weight (%)
<b>Feb-2011</b>	
Russell 3000 Index	31.0
MSCI AC World ex USA (Net)	19.0
FTSE NAREIT Equity REIT Index	2.5
Lipper Nat Res Fd IX	2.5
Blmbg. Barc. U.S. Aggregate	45.0
<b>Dec-2015</b>	
Russell 3000 Index	36.0
MSCI AC World ex USA (Net)	19.0
Blmbg. Barc. U.S. Aggregate	45.0
<b>Mar-2019</b>	
Russell 3000 Index	33.0
MSCI AC World ex USA (Net)	17.0
Blmbg. Barc. U.S. Aggregate	50.0



# Investment Manager Review



### ● Vanguard Total Stock Market Index

- **Management:** Gerard C. O'Reilly has managed the Fund since its inception in 1994. Walter Nejman is now a co-portfolio manager for the fund. They have been in the investment management industry since 1992 and 2008, respectively.
- **Objective:** The Fund seeks to track the performance of a benchmark index that measures the investment return of the overall stock market.
- **Strategy:** The Fund employs a “passive management” – or indexing – investment approach designed to track the performance and characteristics of the CRSP US Total Market Index. These key characteristics include industry weightings and market capitalization, as well as certain financial measures, such as price/earnings ratio and dividend yield.

### ● Jensen Quality Growth Fund

- **Management:** The fund is managed by an investment committee comprised of Eric Shoenstein, Rob McIver, Allen Bond, Kurt Havnaer, Kevin Walkush, and Adam Calamar. All members of the investment committee have been working together for over 10 years.
- **Objective:** The Fund seeks outperformance relative to the S&P 500 through a concentrated, fundamental, bottom-up portfolio.
- **Strategy:** The team invests in companies that have strong competitive advantages, high quality balance sheets, and are trading at a discount to the team's assessment of fair value. The key characteristic within the strategy is the initial screen. The team screens for companies that are able to generate ROE of greater than 15% for each of the last 10 years.

### ● iShares Core S&P Mid-Cap ETF

- **Management:** BlackRock Fund Advisors: Rachel Aguirre (2018), Diane Hsiung (2008), Jennifer Hsui (2012), Alan Mason (2016), Greg Savage (2008), and Amy Whitelaw (2018)
- **Objective:** The Fund seeks to replicate the performance of the S&P MidCap 400 Index.
- **Strategy:** The Fund employs a “passive management” – or indexing – investment approach designed to track the performance and characteristics of the S&P MidCap 400 Index. These key characteristics include industry weightings and market capitalization, as well as certain financial measures, such as price/earnings ratio and dividend yield. S&P MidCap 400 Index is a float adjusted market cap weighted index consisting of US mid-capitalization companies.

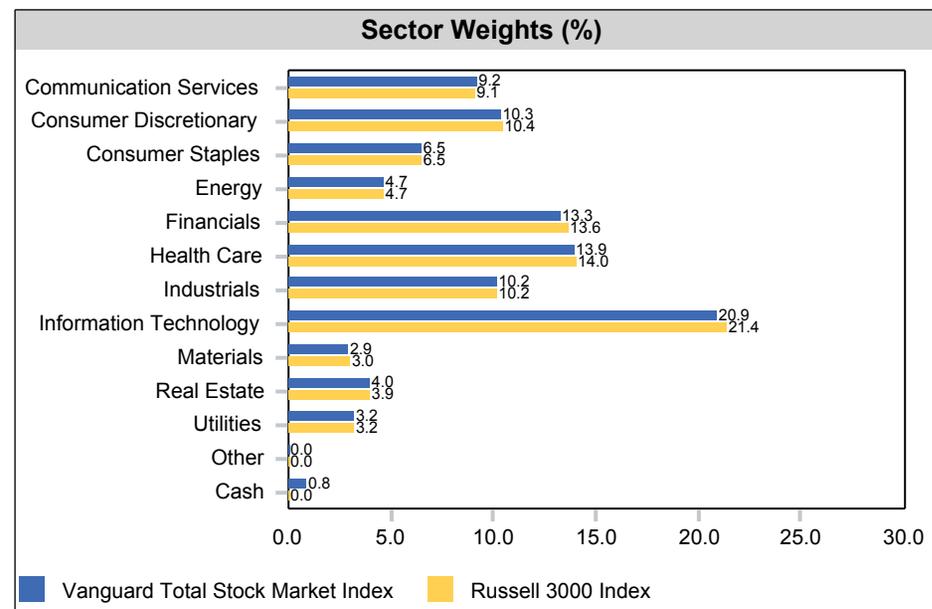
### ● iShares Core S&P Small Cap ETF

- **Management:** BlackRock Fund Advisors: Diane Hsiung (since 2008), Jennifer Hsui (since 2012), Alan Mason (since 2016) and Greg Savage (since 2008)
- **Objective:** The Fund seeks to replicate the performance of S&P SmallCap 600 Index.
- **Strategy:** The Fund employs a “passive management” – or indexing – investment approach designed to track the performance and characteristics of the S&P SmallCap 600 Index. These key characteristics include industry weightings and market capitalization, as well as certain financial measures, such as price/earnings ratio and dividend yield. S&P SmallCap 600 Index is a float adjusted market cap weighted index consisting of US smaller capitalization companies.



Vanguard Total Stock Market Index vs. Russell 3000 Index

<u>Portfolio Characteristics</u>		
	<b>Portfolio</b>	<b>Benchmark</b>
Wtd. Avg. Mkt. Cap (\$M)	197,110	202,131
Median Mkt. Cap (\$M)	1,053	1,670
Price/Earnings ratio	20.43	20.34
Price/Book ratio	3.39	3.39
5 Yr. EPS Growth Rate (%)	15.38	15.35
Current Yield (%)	1.87	1.88
Number of Stocks	3,601	2,954



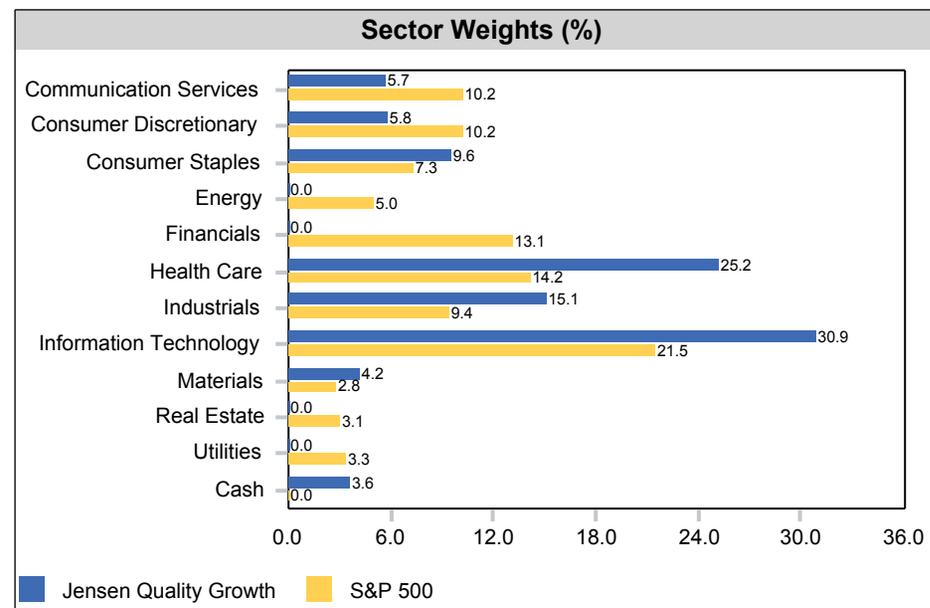
<u>Top Ten Holdings</u>				
	<b>Portfolio Weight (%)</b>	<b>Benchmark Weight (%)</b>	<b>Active Weight (%)</b>	<b>Quarterly Return (%)</b>
Microsoft Corp	3.48	3.46	0.02	14.00
Apple Inc	2.78	3.20	-0.42	4.60
Amazon.com Inc	2.68	2.65	0.03	6.34
Facebook Inc	1.57	1.56	0.01	15.78
Berkshire Hathaway Inc	1.37	1.41	-0.04	6.11
Johnson & Johnson	1.25	1.27	-0.02	0.32
JPMorgan Chase & Co	1.17	1.26	-0.09	11.28
Exxon Mobil Corp	1.10	1.11	-0.01	-4.08
Alphabet Inc	1.09	1.10	-0.01	-8.00
Alphabet Inc	1.09	1.12	-0.03	-7.88
% of Portfolio	17.58	18.14	-0.56	

<u>Ten Best Performers</u>				
	<b>Portfolio Weight (%)</b>	<b>Benchmark Weight (%)</b>	<b>Active Weight (%)</b>	<b>Quarterly Return (%)</b>
Provention Bio Inc	0.00	0.00	0.00	426.09
Workhorse Group Inc	0.00	0.00	0.00	378.05
Orion Energy Systems Inc	0.00	0.00	0.00	235.40
DGSE Cos Inc	0.00	0.00	0.00	203.74
Novan Inc	0.00	0.00	0.00	182.72
Aspen Aerogels Inc	0.00	0.00	0.00	179.61
Rekor Systems Inc	0.00	0.00	0.00	167.14
HF Foods Group Inc	0.00	0.00	0.00	162.72
Iovance Biotherapeutics Inc	0.01	0.01	0.00	157.83
Zynerba Pharmaceuticals Inc	0.00	0.00	0.00	150.00
% of Portfolio	0.01	0.01	0.00	



Jensen Quality Growth vs. S&P 500

Portfolio Characteristics		
	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	232,108	238,882
Median Mkt. Cap (\$M)	102,710	22,707
Price/Earnings ratio	22.93	20.41
Price/Book ratio	6.19	3.52
5 Yr. EPS Growth Rate (%)	9.17	15.46
Current Yield (%)	1.89	1.97
Number of Stocks	29	505



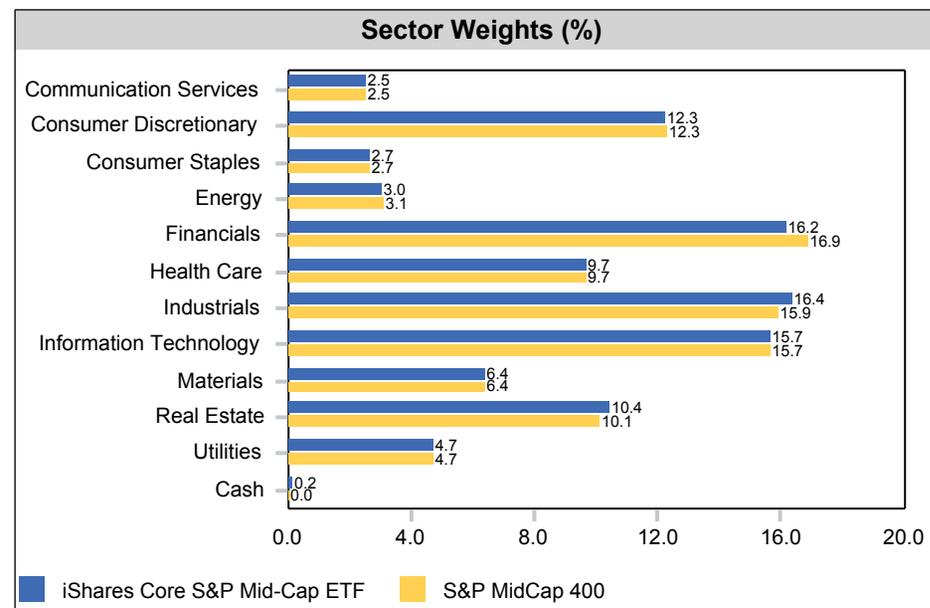
Top Ten Holdings				
	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
Microsoft Corp	6.78	4.20	2.58	14.00
Becton Dickinson and Co	6.55	0.28	6.27	1.24
PepsiCo Inc	6.46	0.75	5.71	7.78
United Technologies Corp	5.84	0.43	5.41	1.57
Oracle Corp	5.12	0.57	4.55	6.54
Unitedhealth Group Inc	5.11	0.95	4.16	-0.88
Johnson & Johnson	4.69	1.51	3.18	0.32
Stryker Corp	4.67	0.26	4.41	4.35
3M Co	4.36	0.41	3.95	-15.85
Ecolab Inc.	4.24	0.21	4.03	12.11
% of Portfolio	53.82	9.57	44.25	

Ten Best Performers				
	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
Broadridge Financial Solutions Inc	1.71	0.06	1.65	23.59
Microsoft Corp	6.78	4.20	2.58	14.00
Omnicom Group Inc.	2.99	0.07	2.92	13.19
Mastercard Inc	2.35	0.97	1.38	12.51
Ecolab Inc.	4.24	0.21	4.03	12.11
Texas Instruments Inc	1.04	0.44	0.60	8.90
PepsiCo Inc	6.46	0.75	5.71	7.78
V.F. Corp	1.68	0.12	1.56	7.21
Oracle Corp	5.12	0.57	4.55	6.54
Procter & Gamble Co (The)	3.11	1.13	1.98	6.12
% of Portfolio	35.48	8.52	26.96	



iShares Core S&P Mid-Cap ETF vs. S&P MidCap 400

Portfolio Characteristics		
	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	5,794	5,855
Median Mkt. Cap (\$M)	4,102	4,095
Price/Earnings ratio	19.10	19.15
Price/Book ratio	2.54	2.55
5 Yr. EPS Growth Rate (%)	13.29	12.96
Current Yield (%)	1.71	1.70
Number of Stocks	403	400



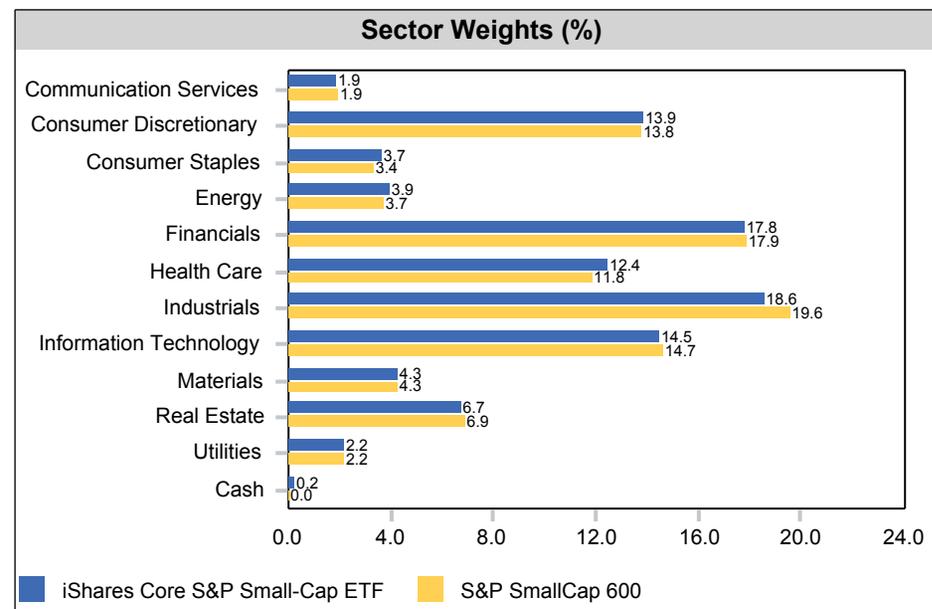
Top Ten Holdings				
	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
IDEX Corp	0.76	0.76	0.00	13.81
Steris Plc	0.73	0.73	0.00	16.57
Leidos Holdings Inc	0.67	0.67	0.00	25.10
Domino's Pizza Inc	0.67	0.67	0.00	8.07
NVR Inc.	0.66	0.66	0.00	21.80
Trimble Inc	0.66	0.66	0.00	11.66
Zebra Technologies Corp.	0.66	0.66	0.00	-0.02
FactSet Research Systems Inc.	0.64	0.64	0.00	15.72
Camden Property Trust	0.59	0.59	0.00	3.64
Teledyne Technologies Inc.	0.58	0.58	0.00	15.55
% of Portfolio	6.62	6.62	0.00	

Ten Best Performers				
	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
Adient Plc	0.12	0.12	0.00	87.27
Sotheby's	0.11	0.11	0.00	53.99
Cypress Semiconductor Corp	0.47	0.47	0.00	49.80
Legg Mason Inc	0.19	0.19	0.00	39.86
Haemonetics Corp	0.36	0.36	0.00	37.56
Caesars Entertainment Corp	0.40	0.40	0.00	36.02
Catalent Inc	0.46	0.46	0.00	33.55
Tetra Tech Inc	0.25	0.00	0.25	32.12
KBR Inc	0.21	0.21	0.00	31.08
McDermott International Inc.	0.10	0.10	0.00	29.84
% of Portfolio	2.67	2.42	0.25	



iShares Core S&P Small-Cap ETF vs. S&P SmallCap 600

Portfolio Characteristics		
	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	1,894	1,921
Median Mkt. Cap (\$M)	1,128	1,125
Price/Earnings ratio	19.49	19.48
Price/Book ratio	2.25	2.26
5 Yr. EPS Growth Rate (%)	8.68	9.53
Current Yield (%)	1.58	1.56
Number of Stocks	604	601



Top Ten Holdings				
	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
Selective Insurance Group Inc	0.59	0.60	-0.01	18.68
FirstCash Inc	0.58	0.58	0.00	15.94
Strategic Education Inc	0.53	0.53	0.00	35.93
Mercury Systems Inc	0.53	0.53	0.00	9.78
John Bean Technologies Corp	0.52	0.52	0.00	31.94
Repligen Corp	0.49	0.49	0.00	45.48
Omniceil Inc	0.48	0.48	0.00	6.42
LHC Group Inc	0.47	0.47	0.00	7.87
Glacier Bancorp Inc	0.46	0.46	0.00	1.83
RLI Corp	0.46	0.45	0.01	19.78
% of Portfolio	5.11	5.11	0.00	

Ten Best Performers				
	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
SolarEdge Technologies Inc	0.38	0.38	0.00	65.76
Sonic Automotive Inc.	0.08	0.08	0.00	58.34
Innovative Industrial Properties Inc	0.19	0.16	0.03	52.01
iStar Inc	0.11	0.11	0.00	49.21
Akorn Inc	0.07	0.07	0.00	46.31
GMS Inc	0.10	0.10	0.00	45.50
Repligen Corp	0.49	0.49	0.00	45.48
Arrowhead Pharmaceuticals Inc	0.34	0.34	0.00	44.41
Powell Industries Inc	0.05	0.04	0.01	44.15
Meta Financial Group Inc	0.11	0.10	0.01	42.79
% of Portfolio	1.92	1.87	0.05	



### ◆ Vanguard Total International Stock Index

- **Management:** The Fund is co-managed by Michael Perre and Michelle Louie. Mr. Perre has advised the Fund since 2008 and Ms. Louie has advised the fund since 2016. They have been in the investment industry since 1990 and 2011, respectively.
- **Objective:** The Fund seeks to track the performance of a benchmark index that measures the investment return of stocks across all market capitalizations issued by companies domiciled in both emerging markets and developed markets outside the United States.
- **Strategy:** The Fund employs a “passive management” – or indexing – investment approach that seeks to track the investment performance of the FTSE Global All Cap ex U.S. Index, an unmanaged benchmark representing stocks from global developed and emerging markets, excluding the United States, across the market capitalization spectrum.

### ◆ Vanguard International Value

- **Management:** Sub-advised by ARGA, Edinburgh Partners, and Lazard since 2012, 2008, and 2010, respectively.
- **Objective:** The Fund seeks capital appreciation
- **Strategy:** By combining elements of deep value, traditional value, and relative value investing, the Fund is expected to temper some of the cyclicality that is inherent in value investing, while retaining exposure to the alpha generation capabilities of all three sub-styles. In addition, the Fund provides access to the three underlying strategies that are otherwise not available to mutual fund investors. The Fund is designed to give total international equity exposure, including both developed and emerging markets.

### ◆ J O Hambro International Select

- **Management:** The fund is co-managed by Christopher Lees and Nudgem Richyal. Both the senior fund managers joined the firm in 2008, having previously worked together at Baring Asset Management.
- **Objective:** The fund managers aim to exploit market anomalies via an investment process that combines both top-down and bottom-up research.
- **Strategy:** The fund managers target multiple sources of performance, looking for stocks, sectors, and countries with rising earnings estimates, rising or high and sustainable return on equity, appropriate valuation, and attractive mean reversion and momentum characteristics. They evaluate the correlation between each stock and its sector or country in order to avoid buying “good stocks in bad neighborhoods”. A ruthless sell discipline is employed, whereby a stock is immediately sold to zero weight when its fundamentals or technicals deteriorate, or when there is contagion from deteriorating fundamentals or technicals in a stock’s sector or country.



### ● Invesco Oppenheimer International Small-Mid Company Fund

- **Management:** Frank Jennings has taken over as portfolio manager for this fund effective the end of September, 2018. Mr. Jennings has managed a global small-mid cap strategy at Oppenheimer since 1995, and has on two previous occasions held portfolio management responsibilities for the International Small-Mid Company fund. He has over forty years of experience in the investment management industry.
- **Objective:** The Fund seeks capital appreciation.
- **Strategy:** The Fund invests primarily in small- and mid-cap companies domiciled outside the U.S. that offer opportunities for growth. Rigorous, fundamental analysis is employed to identify future leaders that operate in industries driven by structural growth and high barriers to entry. The Fund seeks companies with meaningful competitive advantages such as technological leadership, intellectual property, strong brands, or industries favoring natural monopolies. Oppenheimer's Global Equity Team uses several secular growth themes as a way to focus attention on certain segments of the global marketplace, which they refer to as MANTRA (Mass Affluence, New Technology, Restructuring and Aging).

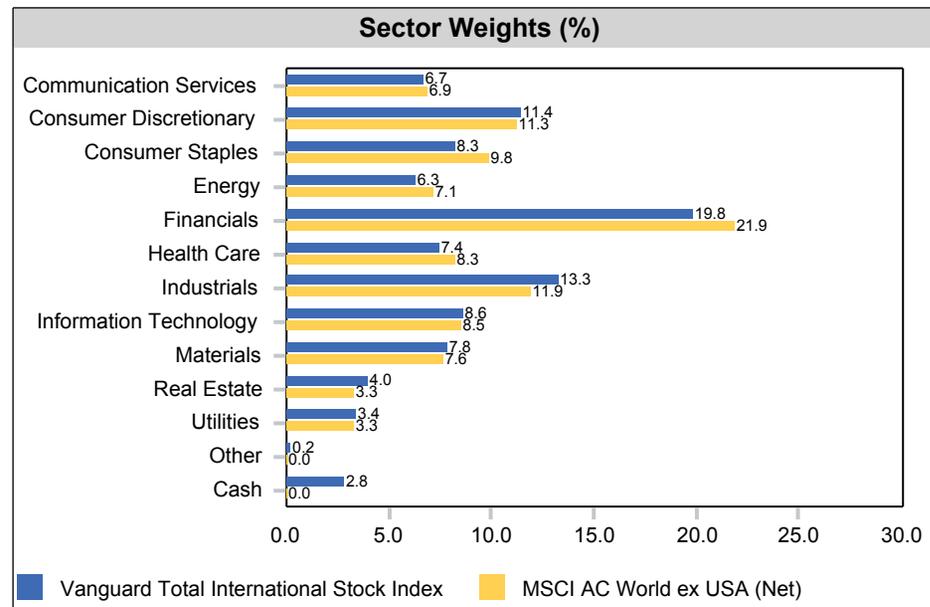
### ● Hartford Schroders Emerging Markets Equity

- **Management:** The fund is managed by a team of five portfolio managers led by Tom Wilson, Schroders' Head of Emerging Markets Equity. He has worked at Schroders since 2001 and has been involved with emerging markets equities at Schroders since 2004.
- **Objective:** The Fund seeks capital appreciation.
- **Strategy:** The Fund employs an actively managed approach that combines fundamental, bottom-up stock research with a quantitative country allocation process. Country rankings are prepared through evaluation of valuation, growth, currency, momentum, and interest rates. Stock level research targets a core universe of the most liquid stocks in the emerging markets universe, utilizing a relative value approach for stocks across the growth/value spectrum without any systematic style bias. Comprehensive risk controls are employed to keep factor exposures in check and constrain strategy-level tracking error to moderate levels.

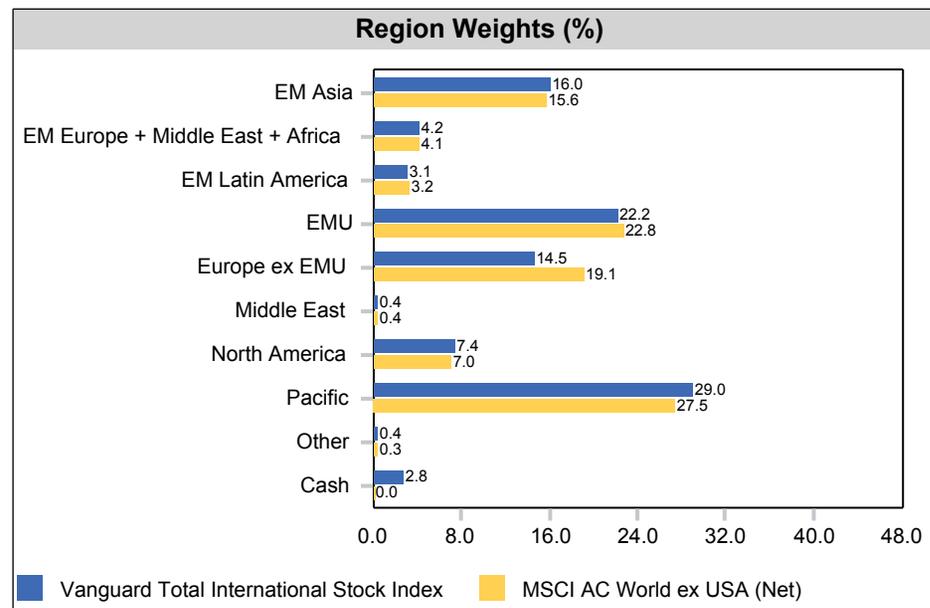


Vanguard Total International Stock Index vs. MSCI AC World ex USA (Net)

Portfolio Characteristics		
	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	55,438	67,766
Median Mkt. Cap (\$M)	1,566	7,982
Price/Earnings ratio	13.83	13.96
Price/Book ratio	2.20	2.23
5 Yr. EPS Growth Rate (%)	10.07	9.73
Current Yield (%)	3.25	3.40
Number of Stocks	7,034	2,206

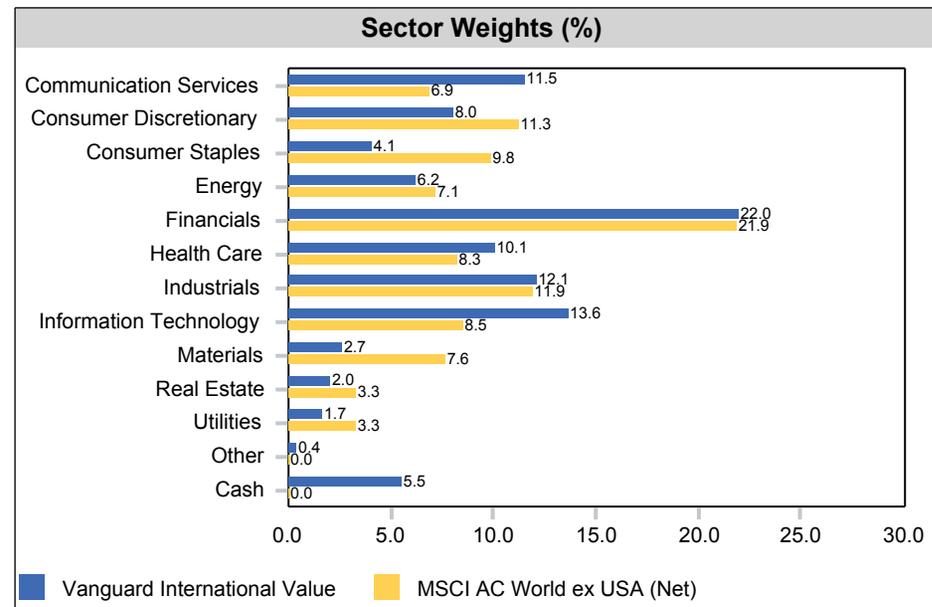


Top Ten Holdings				
	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
CASH	2.80	0.00	2.80	N/A
Nestle SA, Cham Und Vevey	1.32	1.52	-0.20	11.47
Tencent Holdings LTD	1.10	1.23	-0.13	-1.56
Alibaba Group Holding Ltd	0.87	1.15	-0.28	-7.13
Novartis AG	0.85	0.95	-0.10	7.34
Roche Holding AG	0.84	0.95	-0.11	2.14
Samsung Electronics Co Ltd	0.82	0.93	-0.11	4.24
Taiwan Semicon Manufctrg Co Ltd	0.79	0.91	-0.12	0.12
Toyota Motor Corp	0.66	0.68	-0.02	5.99
Royal Dutch Shell PLC	0.61	0.69	-0.08	5.53
% of Portfolio	10.66	9.01	1.65	

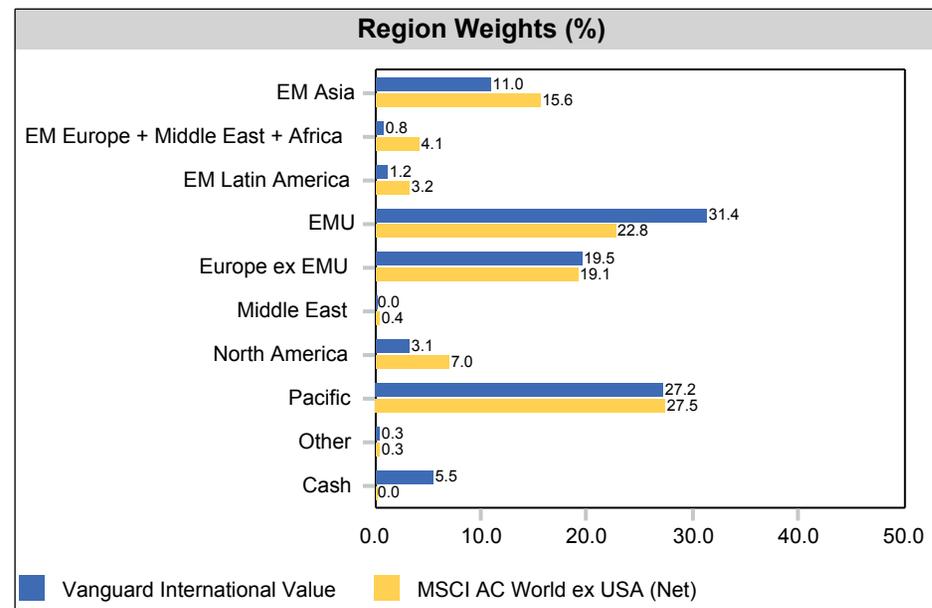


Vanguard International Value vs. MSCI AC World ex USA (Net)

Portfolio Characteristics		
	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	60,713	67,766
Median Mkt. Cap (\$M)	24,191	7,982
Price/Earnings ratio	13.94	13.96
Price/Book ratio	2.10	2.23
5 Yr. EPS Growth Rate (%)	7.17	9.73
Current Yield (%)	3.44	3.40
Number of Stocks	146	2,206

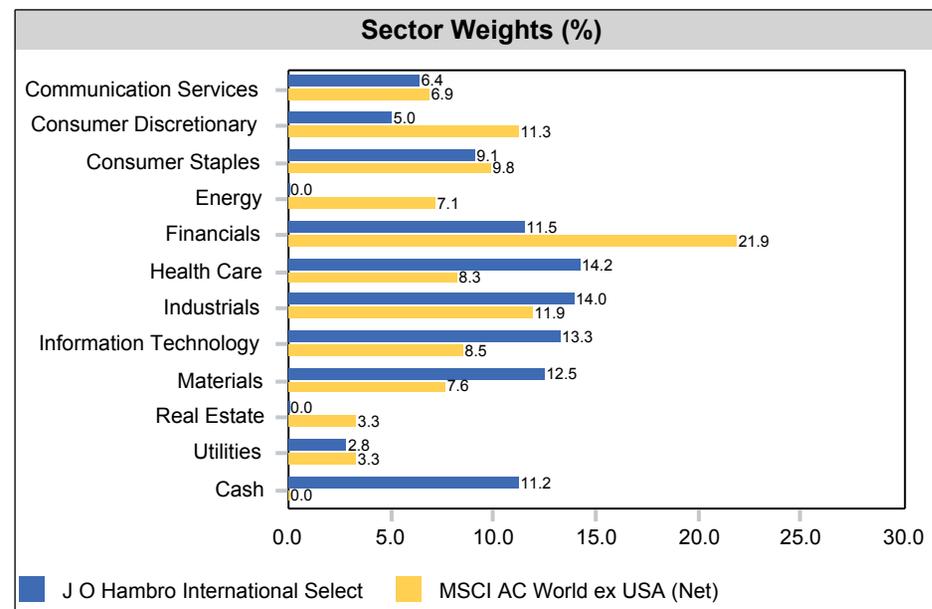


Top Ten Holdings				
	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
CASH	5.51	0.00	5.51	N/A
Novartis AG	2.43	0.95	1.48	7.34
Sanofi	2.12	0.46	1.66	1.84
Royal Dutch Shell PLC	2.04	0.69	1.35	4.04
Icici Bank Ltd	1.93	0.07	1.86	9.86
Roche Holding AG	1.91	0.95	0.96	2.14
Samsung Electronics Co Ltd	1.74	0.93	0.81	4.24
DBS Group Holdings Ltd	1.63	0.16	1.47	6.47
SAP SE	1.53	0.65	0.88	20.41
Sumitomo Mitsui Financial Group Inc	1.48	0.22	1.26	0.95
% of Portfolio	22.32	5.08	17.24	

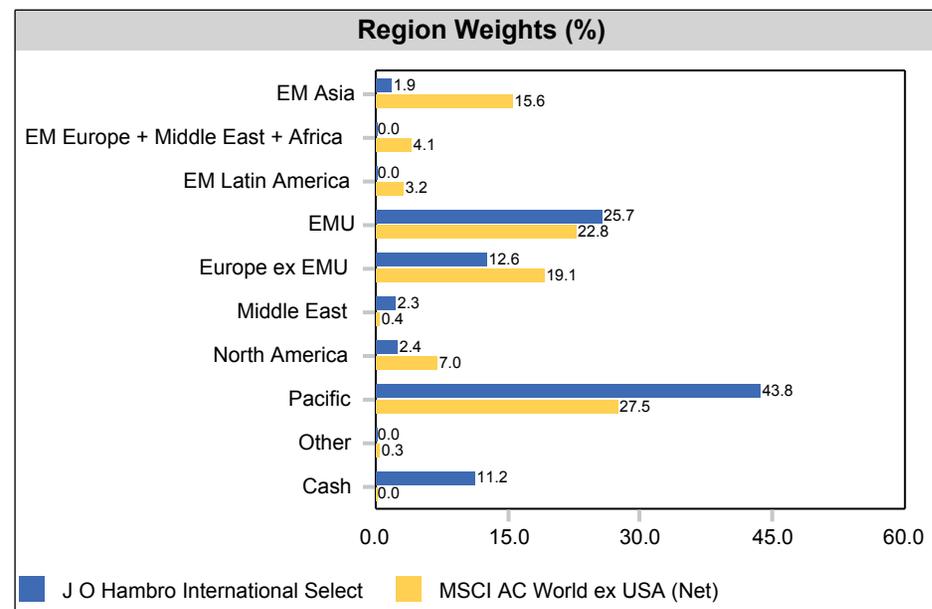


J O Hambro International Select vs. MSCI AC World ex USA (Net)

Portfolio Characteristics		
	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	37,239	67,766
Median Mkt. Cap (\$M)	25,139	7,982
Price/Earnings ratio	19.19	13.96
Price/Book ratio	2.74	2.23
5 Yr. EPS Growth Rate (%)	14.73	9.73
Current Yield (%)	2.07	3.40
Number of Stocks	39	2,206

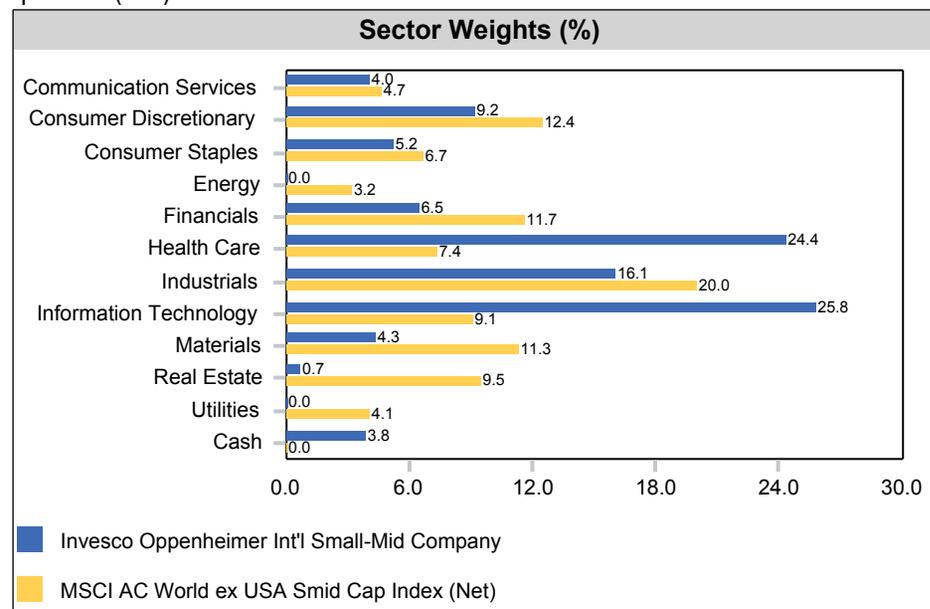


Top Ten Holdings				
	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
CASH	11.24	0.00	11.24	N/A
Newcrest Mining Ltd	2.85	0.08	2.77	23.70
SAP SE	2.84	0.65	2.19	20.41
Orsted A/S	2.81	0.08	2.73	14.12
Rakuten Inc	2.74	0.05	2.69	25.57
Lonza Group AG, Zuerich	2.58	0.12	2.46	9.81
SBI Holdings Inc	2.49	0.03	2.46	11.19
Recruit Holdings Co Ltd	2.48	0.19	2.29	16.89
Rio Tinto Group	2.46	0.34	2.12	6.76
IHS Markit Ltd	2.44	0.00	2.44	17.18
% of Portfolio	34.93	1.54	33.39	

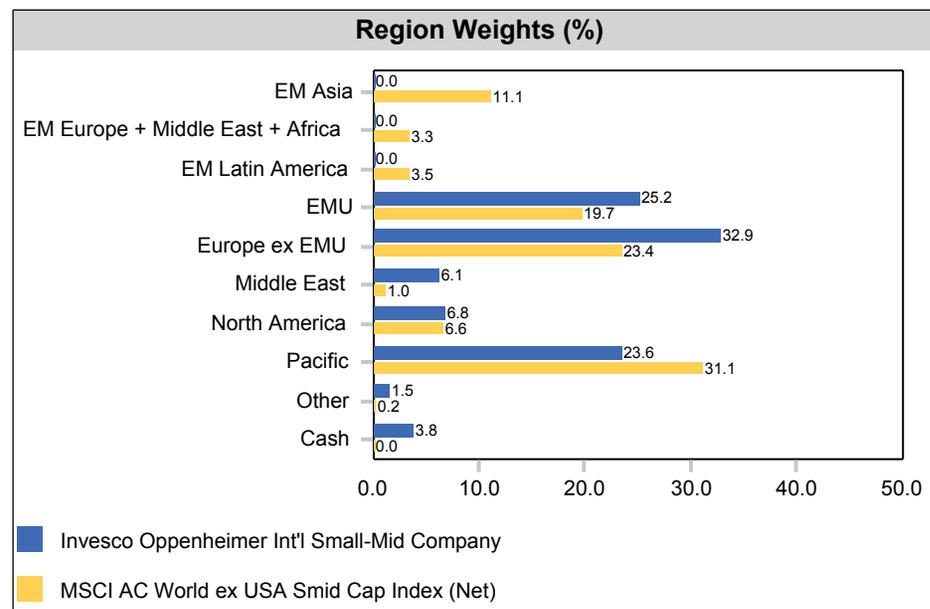


Invesco Oppenheimer Int'l Small-Mid Company vs. MSCI AC World ex USA Smid Cap Index (Net)

Portfolio Characteristics		
	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	4,949	5,931
Median Mkt. Cap (\$M)	3,476	1,107
Price/Earnings ratio	22.81	14.77
Price/Book ratio	3.39	2.27
5 Yr. EPS Growth Rate (%)	14.54	10.95
Current Yield (%)	1.38	2.90
Number of Stocks	128	5,176

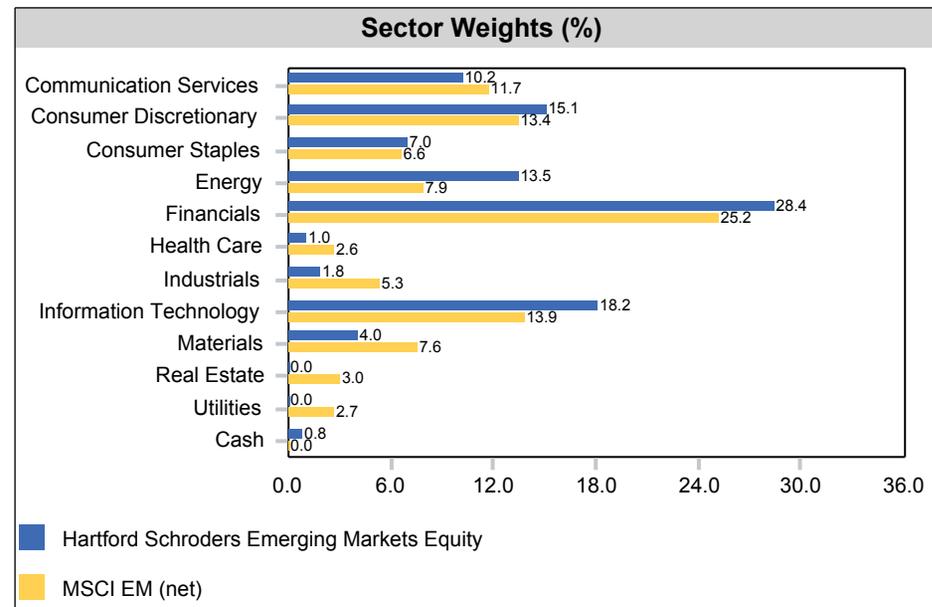


Top Ten Holdings				
	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
NICE Ltd	3.86	0.12	3.74	11.83
CASH	3.83	0.00	3.83	N/A
Carl Zeiss Meditec AG, Jena	2.40	0.05	2.35	18.14
Obic Co Ltd	2.27	0.10	2.17	12.39
Tecan Group AG, Maennedorf	1.92	0.04	1.88	11.07
Amarin Corp PLC	1.71	0.00	1.71	-6.60
CAE Inc.	1.65	0.10	1.55	21.87
Xing SE	1.60	0.02	1.58	25.36
Nektar Therapeutics	1.54	0.00	1.54	5.89
Ocado Group PLC	1.51	0.09	1.42	-16.91
% of Portfolio	22.29	0.52	21.77	

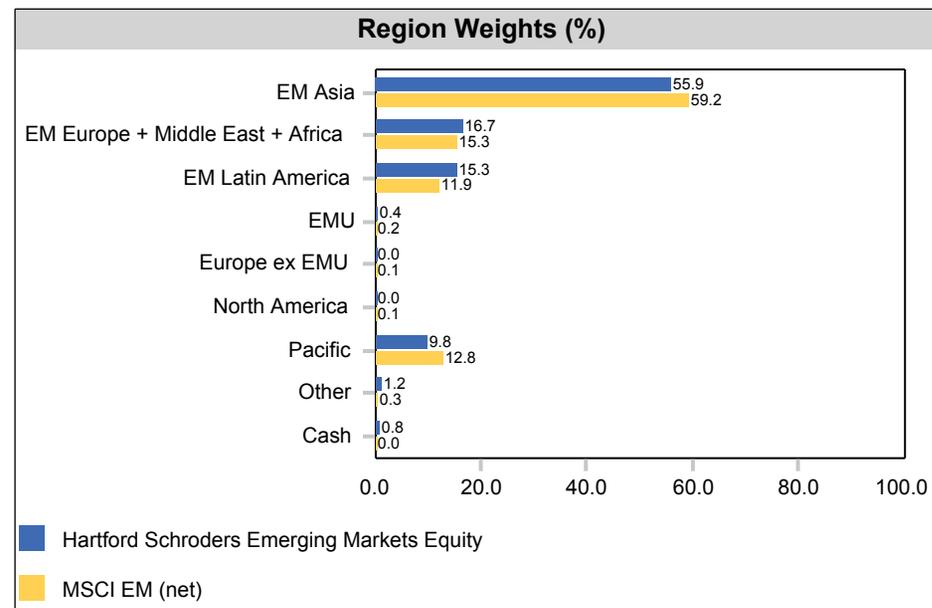


Hartford Schrodgers Emerging Markets Equity vs. MSCI EM (net)

Portfolio Characteristics		
	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	107,087	81,469
Median Mkt. Cap (\$M)	14,101	5,440
Price/Earnings ratio	15.11	12.00
Price/Book ratio	2.27	2.28
5 Yr. EPS Growth Rate (%)	19.50	14.02
Current Yield (%)	2.42	3.01
Number of Stocks	105	1,194

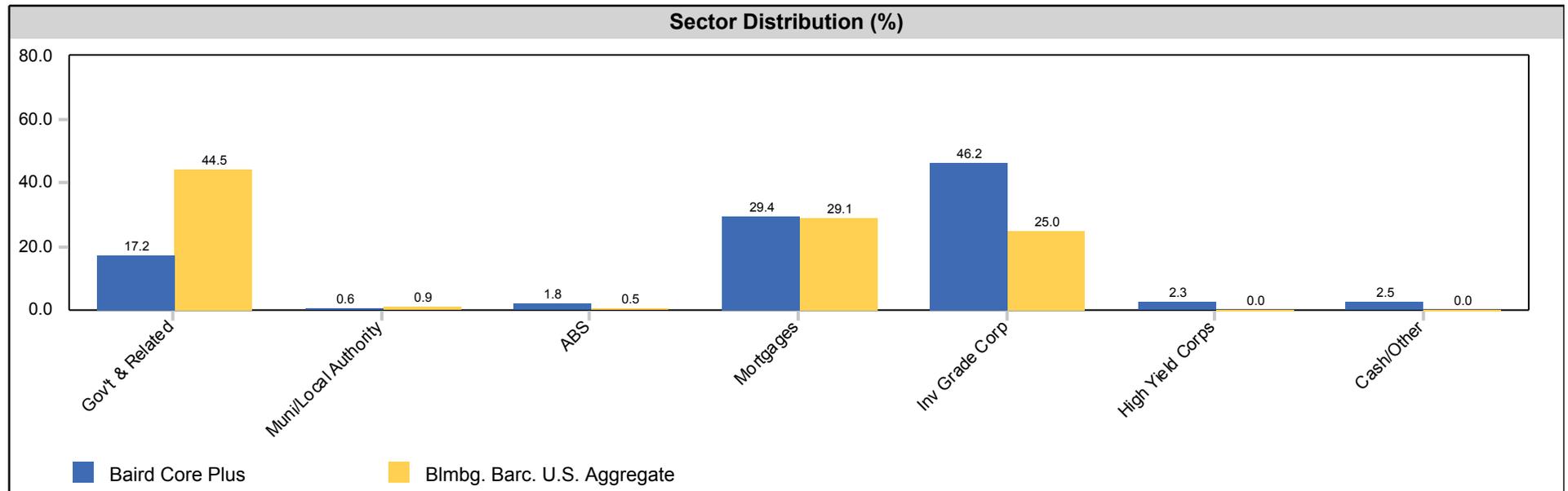
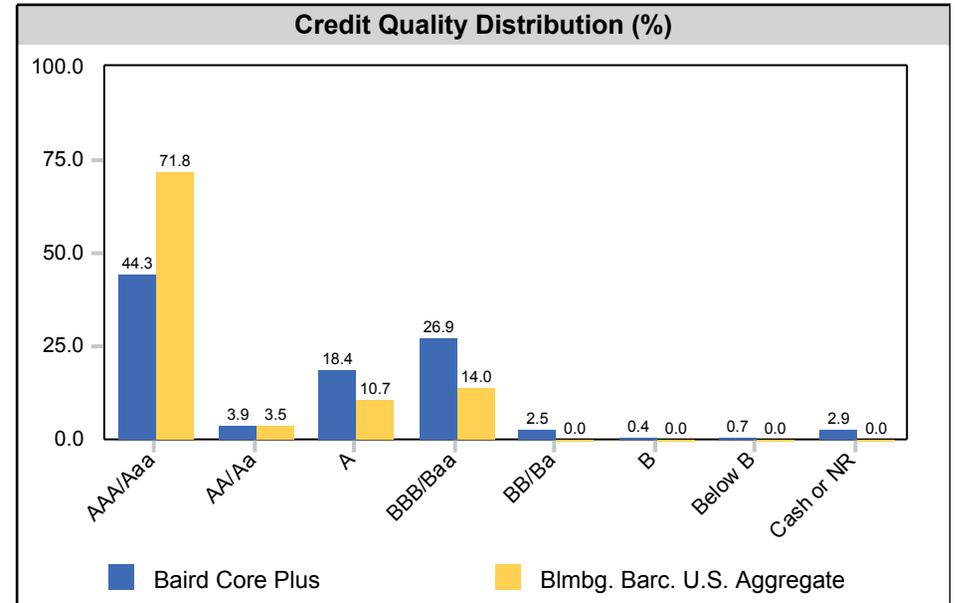


Top Ten Holdings				
	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
Samsung Electronics Co Ltd	7.15	3.51	3.64	4.24
TENCENT HOLDINGS LTD	6.71	0.00	6.71	N/A
Taiwan Semicon Manufctrng Co Ltd	5.67	3.44	2.23	0.12
Alibaba Group Holding Ltd	5.44	4.36	1.08	-7.13
PING AN INSURANCE GROUP	2.84	0.00	2.84	N/A
Sberbank of Russia OJSC	2.79	0.74	2.05	21.90
AIA Group Ltd	2.76	0.00	2.76	9.71
Naspers Ltd	2.47	1.92	0.55	4.73
Itau Unibanco Holding SA	2.38	0.83	1.55	7.06
Oil Co LUKOIL PJSC	2.25	0.63	1.62	-6.45
% of Portfolio	40.46	15.43	25.03	



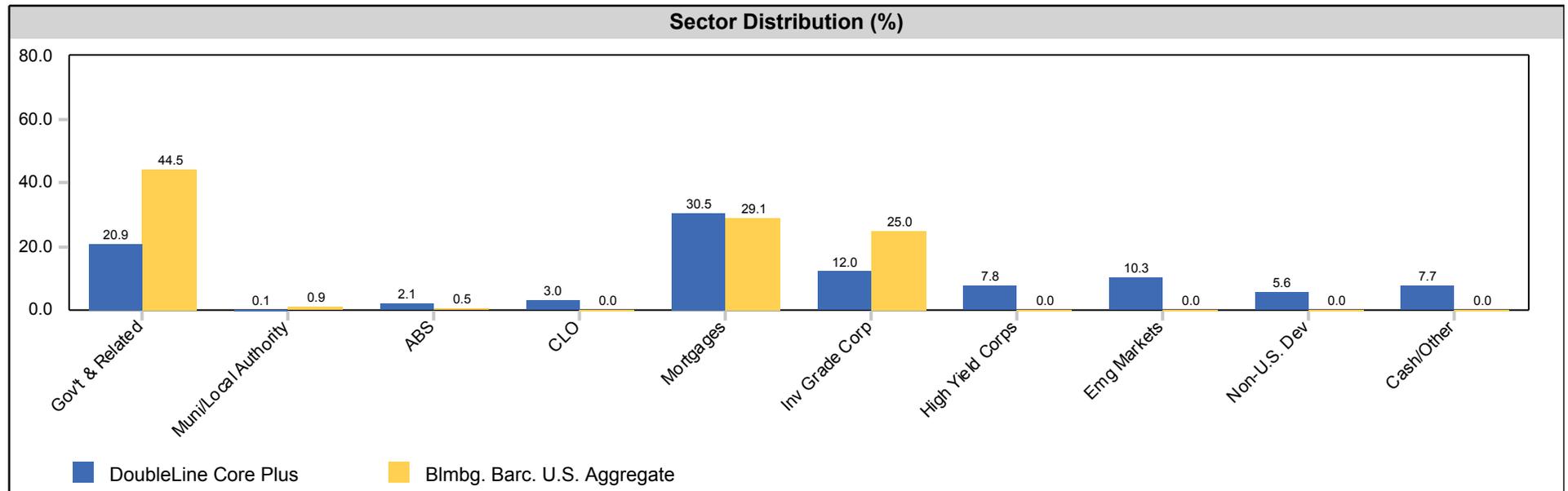
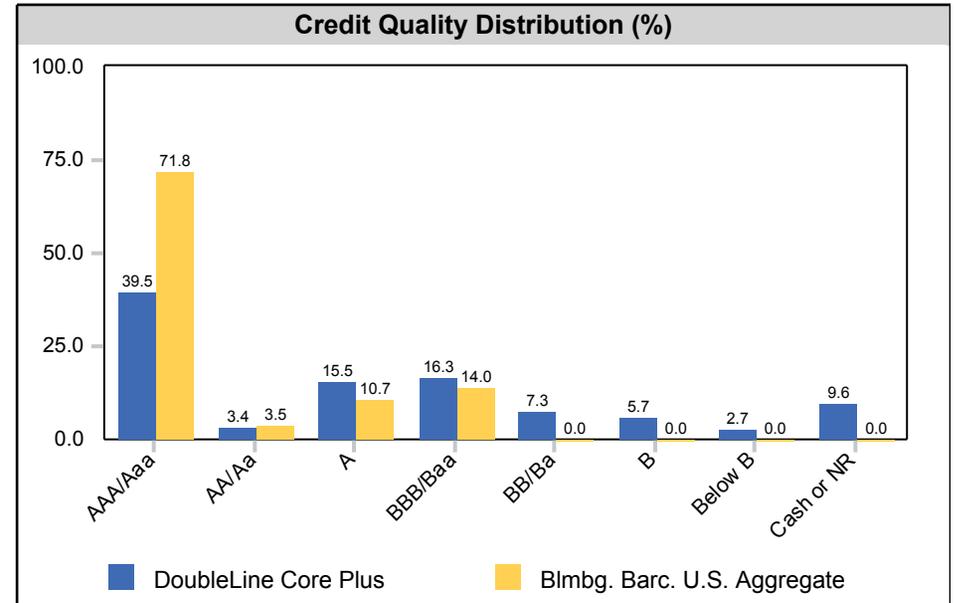
Baird Core Plus vs. Blmbg. Barc. U.S. Aggregate

Portfolio Characteristics		
	Portfolio	Benchmark
Effective Duration	5.56	5.73
Yield To Maturity (%)	2.90	2.50
Avg. Maturity	7.42	7.87
Avg. Quality	AA	AA
Coupon Rate (%)	3.70	3.23



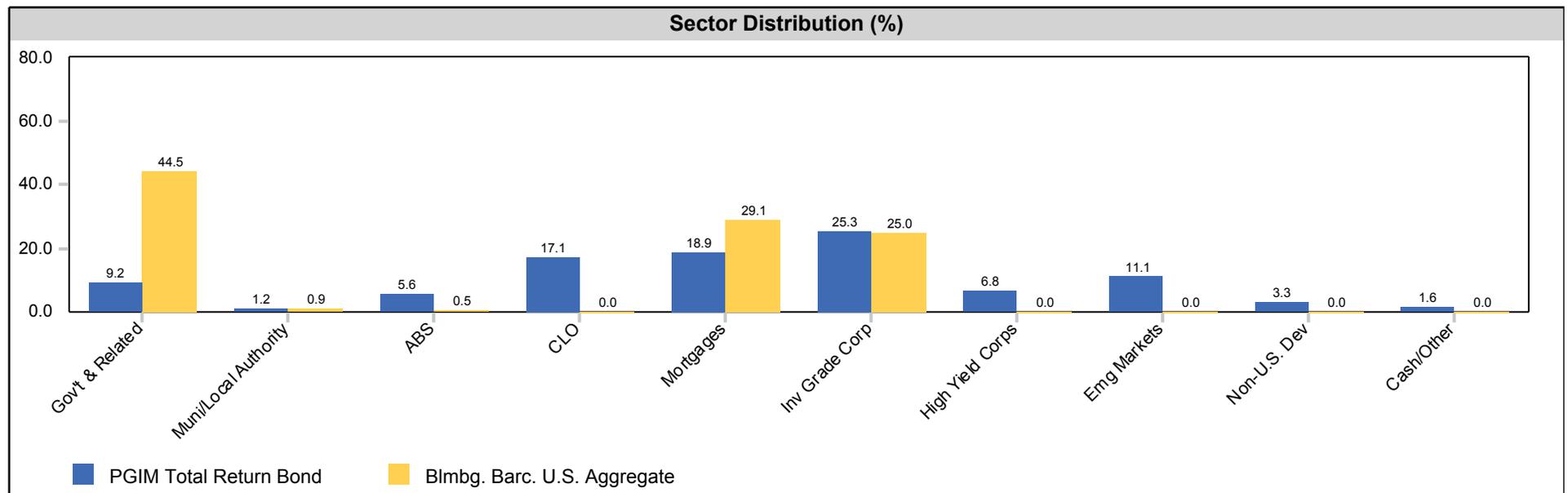
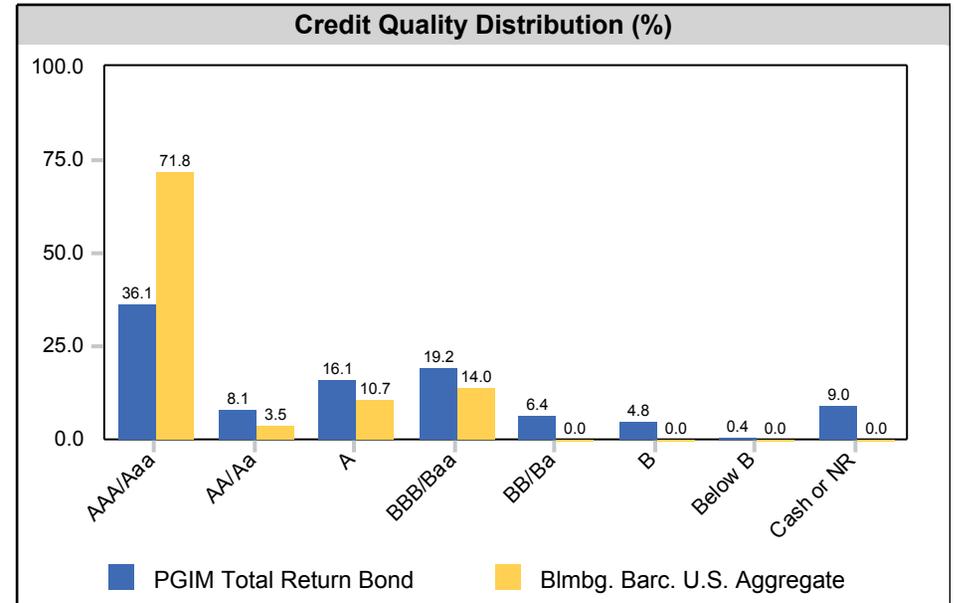
DoubleLine Core Plus vs. Blmbg. Barc. U.S. Aggregate

Portfolio Characteristics		
	Portfolio	Benchmark
Effective Duration	4.57	5.73
Yield To Maturity (%)	3.24	2.50
Avg. Maturity	6.56	7.87
Avg. Quality	A	AA
Coupon Rate (%)	3.82	3.23



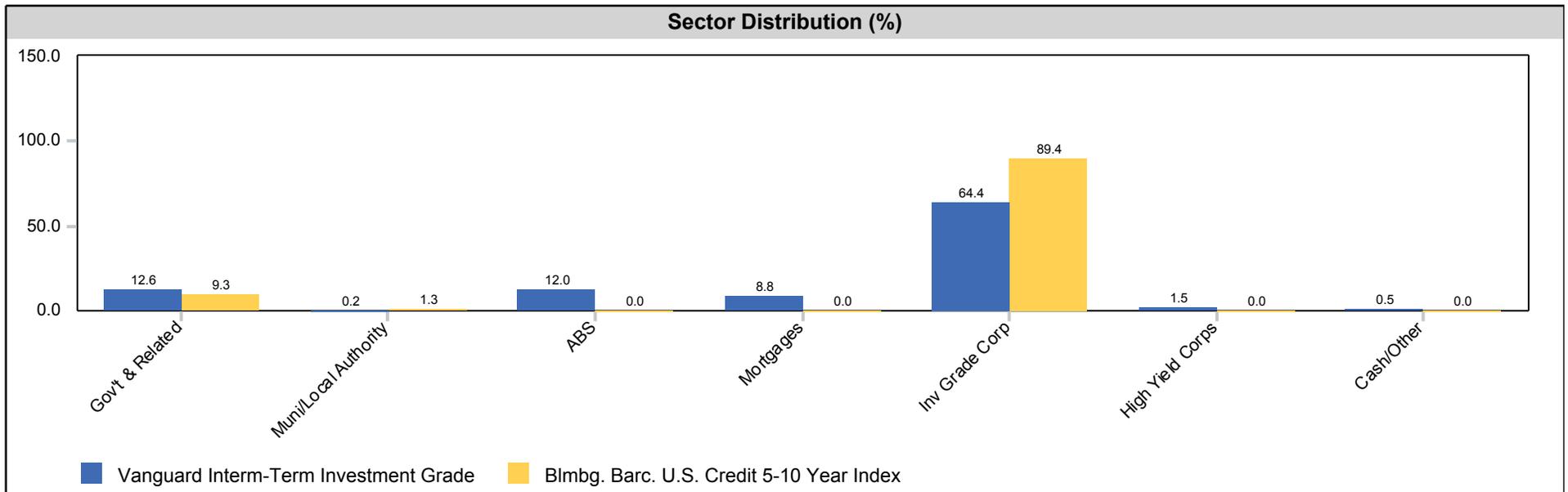
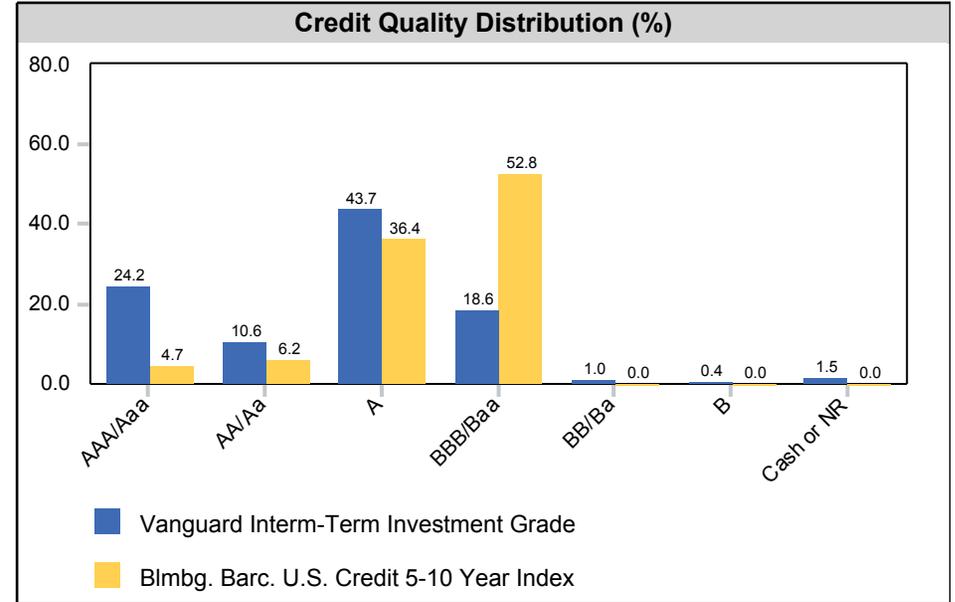
PGIM Total Return Bond vs. Blmbg. Barc. U.S. Aggregate

Portfolio Characteristics		
	Portfolio	Benchmark
Effective Duration	6.20	5.73
Yield To Maturity (%)	3.11	2.50
Avg. Maturity	7.02	7.87
Avg. Quality	A	AA
Coupon Rate (%)	3.71	3.23



Vanguard Interm-Term Investment Grade vs. Blmbg. Barc. U.S. Credit 5-10 Year Index

Portfolio Characteristics		
	Portfolio	Benchmark
Effective Duration	5.40	6.27
Yield To Maturity (%)	2.70	3.05
Avg. Maturity	5.60	7.39
Avg. Quality	A	A
Coupon Rate (%)	3.20	3.82



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# Multi-Asset Class Portfolio Update

April 1, 2019

## EVENT SUMMARY

PFM's Multi-Asset Class Investment Committee (the "Committee") has voted to remove the tactical overweight to domestic equity and tactical underweight to fixed income, thereby moving client portfolios to a neutral weighting that is in-line with the strategic asset allocation targets.

## ASSESSMENT

Following the volatility in Q4 of 2018, equity markets have rallied strongly as a result of a change in the Fed's stance towards a more patient approach to increasing rates. While the risk of too much Fed tightening has now receded, other events that unnerved the markets in 2018 continue to add to uncertainty.

Global growth expectations continue to slow as evidenced by recent economic data coming out of the U.S. and Eurozone. Slowing growth in China continues to be a risk along with uncertainty around Brexit. U.S. - China trade talks have been progressing but a comprehensive resolution still seems a long way from becoming reality. As we enter an environment of increased risk from a valuation and fundamental perspective, risks to the downside have become elevated, leading the Committee to have less conviction that remaining overweight in equities will produce higher risk-adjusted returns. Amidst this backdrop, the Committee views that by selling equities after the strong recent rally allows our clients to realize gains from the equity overweight while we await further data.

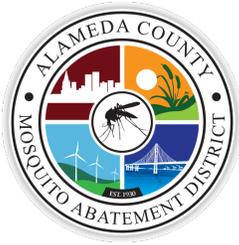
The reaction of equity markets to the slowdown in economic fundamentals this year has been out of sync with falling 10-year Treasury yields through 2019. The yield curve inversion at a time when the equity markets have seen a strong rally speaks to disconnect in growth expectations between equity and fixed income markets. This disconnect leads the Committee to consider the move to trim equities as timely.

## CONCLUSION

In light of increased risks to the downside, especially due to slowing global growth expectations, the Committee has moved client portfolios to be in-line with their long-term strategic asset allocation targets. As a result, client portfolios are now equal weight across the domestic equity, international equity and fixed income asset classes relative to strategic targets. The Committee expects this neutral stance to serve clients better in this period of increased volatility. Any change in growth expectations to the upside along with attractive valuations and earnings growth could possibly lead the Committee to overweight equity markets again in the future.

We appreciate your continued confidence in working toward your investment objectives with PFM as your investment adviser. Should you have any specific questions or wish to discuss this topic in more detail, please contact your client manager directly.

*PFM is the marketing name for a group of affiliated companies providing a range of services. All services are provided through separate agreements with each company. The information contained in this report is not an offer to purchase or sell any securities. This is for general information purposes only and is not intended to provide specific investment advice or a specific recommendation. Investment advisory services are provided by PFM Asset Management, an investment advisor registered under the Investment Advisers Act of 1940.*



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Hayward, CA 94545

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[acmad@mosquitoes.org](mailto:acmad@mosquitoes.org)

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## Agenda item: 1072.6

### Board of Trustees

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Kathy Narum

#### **Pleasanton**

Victor Aguilar

#### **San Leandro**

Subru Bhat

#### **Union City**

**Ryan Clausnitzer**

*General Manager*

### Summary:

This new and proven technology controls larval mosquitoes in cryptic sources that hold standing water--such as found in backyard containers or in crawl spaces. It acts like a traditional fogger by aerosolizing/atomizing a larvicide product, though it differs by controlling mosquitoes in their *larval phase* rather than as adults.

Florida and California mosquito control districts published many trials with this technology leading to positive results as an effective tool for combating container breeding non-native mosquitoes such as *Aedes aegypti*. This system may also prove useful to treat difficult to access marsh sources as well.

The 2019-2020 Capital Reserve budget included this purchase.

### Evaluation of four quotes:

Adapco A-1	\$16,483.00
Leading Edge London Air 18-20L	\$20,595.00
Clarke Buffalo Turbine Liquid Sprayer	\$31,412.56

### Recommendation:

Quote evaluations are based on efficacy, price, ease-of-use, and maintenance. Based on these criteria, staff recommends the Adapco A-1 Commercial Super Duty Mist Sprayer with Rotary Atomizer.

### Attachments:

Quotes: Adapco; Leading Edge; Clarke Buffalo Turbine (liquid)



creating value,  
growing together



Date: August 2, 2019  
 Quotation #: 080219-1  
 Customer #:  
 Valid through: November 30, 2019  
 Prepared by: Dennis Candito

ADAPCO is pleased to provide the following quotation to:  
 ALAMEDA MAD  
 HAYWARD CA

Comments or special instructions:

Applicable sales tax will be added to invoice, based on the tax rate at delivery location at the time of delivery.

Item Description	Unit Price/ Unit	Pkg Price/ Pkg
A1 COMMERCIAL SUPER DUTY MIST SPARAYER 100 gallon w/ Rotary Atomizer	\$ 16,071.43 EA	\$ 16,071.43 EA
OPTIONAL HOSE REEL, 100' HOSE & SPRAY GUN ASSEMBLY	\$ 412.00 EA	\$ 412.00 EA

Freight prepaid on \$8,000. Payment Terms Net 30 days.

Please visit our website at [www.myadapco.com](http://www.myadapco.com) to view SDS and Labels and get other product information

Should you have any questions or immediate needs, please contact me at 877-875-6353.

Thank you for the opportunity to serve you.

Best regards,

*Dennis Candito* [electronic signature]

Dennis Candito  
 Territory Manager

ADAPCO, an Azelis Company

Email: [DCandito@myadapco.com](mailto:DCandito@myadapco.com)

Direct: 877-875-6353

ADAPCO P 800 367 0659  
 550 Aero Ln F 866 330 9888  
 Sanford, FL 32771  
[www.myadapco.com](http://www.myadapco.com) [www.azelis.com/americas](http://www.azelis.com/americas)



**Leading Edge Associates, Inc.**  
Quote Date: August 12, 2019

675 S. Haywood St  
Waynesville, NC 28786

Bill To:

Company:	Alameda County Mosquito Abatement District
Address:	23187 Connecticut St
City/State/Zip:	Hayward, Ca 94545
Phone:	
FAX:	
Contact Name:	Joseph Huston
Email:	<a href="mailto:joseph@mosquitoes.org">joseph@mosquitoes.org</a>

<b>Notes/Special Instructions:</b>

Ship To:

Company:	Same
Address:	
City/State/Zip:	
Phone:	
FAX:	
Contact Name:	
Email:	

Order #		Requisition/reference #					
Item/Issue #	Description	Category	Qty/Hours	Rate	Total	Summary	
1	London Air 18-20L		1	\$ 19,995.00	\$ 19,995.00		
2	Shipping		1	\$ 600.00	\$ 600.00		
	Pilot license attached/DPR License attached				\$ -		
					\$ 20,595.00		
Estimated shipping date 5-6 weeks after receipt of order							
					Total: \$	20,595.00	

Software Contract:	Customer:	Alameda County Mosquito Abatement District								
Total Amount of Contract:		\$ 20,595.00								
Terms:	Due upon receipt									
Payment #	Description	Percentage	Amount	Amount Due	Due Date	Notes	Invoice #/Date	Date Paid		
Invoice										
		<b>Total</b>		\$ -						



675 Sidwell Ct  
St Charles, IL 60174  
U.S.A.  
www.clarke.com  
TOLL-FREE: 800-323-5727

PH: 630-894-2000  
FAX: 630-443-3070  
EMAIL: customercare@clarke.com

### QUOTATION

**B** Alameda County MAD (002286)  
**I** Joseph Huston  
**L** 23187 Connecticut St  
**L**  
**T** Hayward, CA 94545-1605  
**O** 510-783-7744  
510-783-3903

**S** Alameda County MAD  
**H** Joseph Huston  
**I** 23187 Connecticut St  
**P**  
**T** Hayward, CA 94545-1605  
**O** 510-783-7744  
510-783-3903

Quotation #	Quote Date	Salesperson	Written by	Valid to
0002022727	08/12/19	Nancy Voorhees - Salesrep	Gabriela - Sales Associate	09/30/19

Delivery Method	Terms
Best Way	Net 30 Days

Item #	Item Description	Qty Ordered	Unit Price	Extended Price
BTCS4	BT SPRAYER LIQUID	1 ea	27,535.3800/ ea	27,535.38

<b>Freight Charge</b>	1,192.48
<b>Tax:</b>	2,684.70
<b>Order total</b>	31,412.56
<b>Total</b>	31,412.56

\* For your convenience we also accept Visa and MasterCard

Clarke will charge applicable sales taxes unless a valid exemption certificate is Emailed to: accountsreceivable@clarke.com or faxed to: 630-672-7439

\* A 15% restocking fee plus freight costs may be assessed to any returned items.  
Items must be returned within 120 days of shipment and in an acceptable condition.

*Helping make communities around the world more livable, safe and comfortable.*

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# Buffalo Turbine for Public Health

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Time tested, turbine powered application makes larvicide treatments in *every* back yard easy and cost effective.

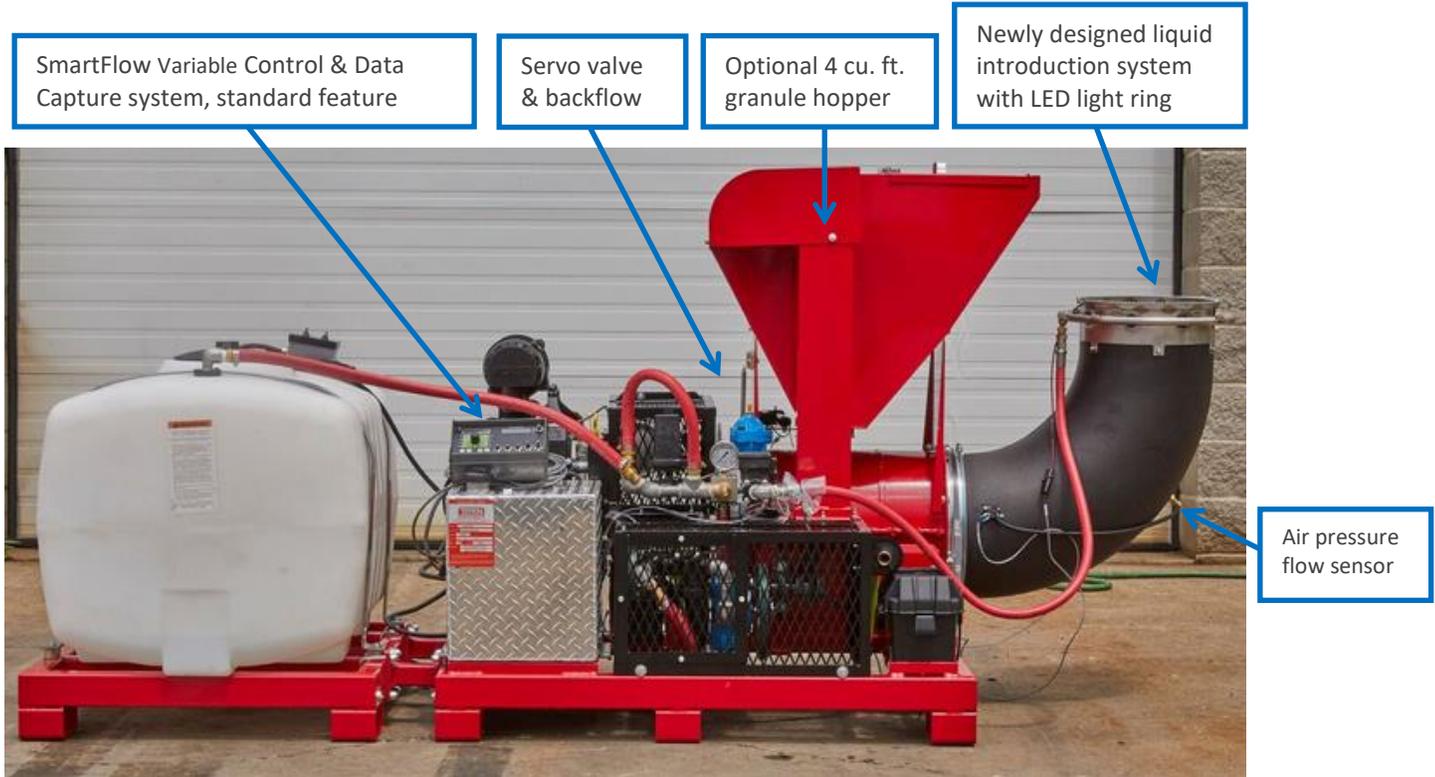


Thanks to military spec engineering of the Buffalo Turbine turbulent air sprayer, mosquito control programs can now effectively and efficiently treat every back yard for container breeding mosquitoes.

Clarke engineers and environmental sciences teams re-designed the Buffalo Turbine liquid delivery configuration to consistently deliver a droplet spectrum within a tight range of the ideal 120  $\mu\text{m}$  target size. With a vertical spray reach of up to 125' and horizontal reach up to 450', the Buffalo Turbine can discreetly and unobtrusively deliver larvicide treatments into hard to reach cryptic breeding sites of residential back yards, around construction sites, cemeteries and more. . The system has been designed to allow for an application speed of 15 mph, much like that of tradition adulticide ULV applications.

Features, specifications and model choices on back.

Droplet validation and efficacy results using VectoBac WDG available separately.



## Buffalo Turbine Price List - January 2019

Description	SKU #	MSP
<b>Public Health Sprayer - 100 Gal Tank + Granular Bin on Skid + DOT Trailer</b> 26.5 hp EFI Kohler Engine, 8 port spray nozzle system, SmartFlow 2 Control System with GPS, remote on/off switch for liquid & granule	BT-CS4GT	\$ 38,835
<b>Public Health Sprayer - 100 Gal Tank + Granular Bin on Skid</b> 26.5 hp EFI Kohler Engine, 8 port spray nozzle system, SmartFlow 2 Control System with GPS, remote on/off switch for liquid & granule	BT-CS4G	\$ 33,706
<b>Public Health Sprayer - 100 Gal Tank on Skid + DOT Trailer</b> 26.5 hp EFI Kohler Engine, 8 port spray nozzle system, SmartFlow 2 Control System with GPS, remote on/off switch for liquid	BT-CS4T	\$ 31,583
<b>Public Health Sprayer - 100 Gal Tank on Skid</b> 26.5 hp EFI Kohler Engine, 8 port spray nozzle system, SmartFlow 2 Control System with GPS, remote on/off switch for liquid, includes hoses.	BT-CS4	\$ 27,535
<b>Public Health Sprayer - Granular Bin Only on Skid</b> 26.5 hp EFI Kohler Engine, remote on/off switch	BT-S4G	\$ 27,782

## Specification Highlights

- Weight:** 1,100 lbs./hopper, 800 w/o
- Length:** 9 ft.
- Width:** 43 in.
- Height:** 60 in. w/ hopper, 40 in. w/o
- Formulation tank:** 100 gal. poly tank with 8 inch fill inlet
- Gas tank:** 12 gal.
- Battery:** 12-volt
- Engine:** Kohler's EFI Engine ECH 749-3060, gas w/ electric start

## Alameda County Mosquito Abatement Dist.

## Check Register

For the Period From Aug 1, 2019 to Aug 15, 2019

Filter Criteria includes: Report order is by Date.

<b>Check #</b>	<b>Date</b>	<b>Payee</b>	<b>Amount</b>
1753	8/15/19	Payroll	79,290.08
1754	8/15/19	Airgas	519.64
1755	8/15/19	All-Ways Green Services	410.00
1756	8/15/19	BARTKIEWICZ, KRONICK & SHANAHAN	351.20
1757	8/15/19	Beck's Shoes	162.23
1758	8/15/19	CalPERS 457	2,742.94
1759	8/15/19	Cintas	561.02
1760	8/15/19	Clarke	21,413.49
1761	8/15/19	City of Hayward FARP	16.00
1762	8/15/19	CCCMA Occupational Clinic	250.00
1763	8/15/19	Element One Architecture	8,917.50
1764	8/15/19	Guaranteed Auto Service	1,920.28
1765	8/15/19	Industrial Park Landscape Maintenance	215.00
1766	8/15/19	Integrated DNA Technologies, Inc	85.57
1767	8/15/19	JCR Custom/ Paul Builders	36,982.50
1768	8/15/19	Mello, Melvin	310.50
1769	8/15/19	Mar-Len Supply, Inc.	88.00
1770	8/15/19	NBC Supply Corp	368.76
1771	8/15/19	PG&E	68.31
1772	8/15/19	PC Professional	245.47
1773	8/15/19	Rusmisl, Benjamin	150.00
1774	8/15/19	Techniclean	342.77
1775	8/15/19	Voya Institutional Trust Company	177.41
1776	8/15/19	Verizon	1,460.43
1777	8/15/19	U.S Bank Corporate Payment System	15,310.00
1778	8/15/19	ALCO EMA, Treasurer	100.00
ACH	8/15/19	CalPERS Retirement	13,144.66
<b>Total Expenditures - August 15, 2019</b>			<b>185,603.76</b>

Alameda County Mosquito Abatement Dist.  
**Check Register**  
 For the Period From Aug 16, 2019 to Aug 31, 2019

Filter Criteria includes: Report order is by Date.

<b>Check #</b>	<b>Date</b>	<b>Payee</b>	<b>Amount</b>
1779	8/19/19	Alameda County LAFCO	4,731.00
1780	8/30/19	Alameda County Mosquito Abatement Dist	77,956.25
1781	8/30/19	James N Doggett	100.00
1782	8/30/19	Robert Dickinson	100.00
1783	8/30/19	Eric Armin Hentschke	100.00
1784	8/30/19	Wendi Lynn Poulson	100.00
1785	8/30/19	George Young	100.00
1786	8/30/19	Airgas	509.49
1787	8/30/19	Automatic Fire Inc	839.73
1788	8/30/19	AT&T	129.39
1789	8/30/19	Bay Alarm	2,159.00
1790	8/30/19	Beck's Shoes	190.00
1791	8/30/19	CalPERS 457	2,742.94
1792	8/30/19	City of Hayward	1,326.86
1793	8/30/19	CalPERS	700.00
1794	8/30/19	Cintas	698.75
1795	8/30/19	Delta Dental	4,639.89
1796	8/30/19	Grainger	557.54
1797	8/30/19	Guaranteed Auto Service	201.10
1798	8/30/19	Integrated DNA Technologies, Inc	25.68
1799	8/30/19	Life Technologies Corporation	4,044.60
1800	8/30/19	NBC Supply Corp	219.50
1801	8/30/19	Namakan West Fisheries	600.00
1802	8/30/19	PFM Asset Management	1,624.05
1803	8/30/19	PG&E	2,010.23
1804	8/30/19	Quill Corporation	76.81
1805	8/30/19	SCI Consulting Group	21,442.99
1806	8/30/19	Treds	4,072.44
1807	8/30/19	Univar	9,870.48
1808	8/30/19	Voya Institutional Trust Company	177.41
1809	8/30/19	VSP	667.19
1810	8/30/19	Waste Management of Alameda County	272.16
1811	8/30/19	WEX Bank	4,869.20
ACH	8/30/19	CalPERS Health	32,528.44
ACH	8/30/19	CalPERS Retirement	13,009.40
ACH	8/30/19	Victor Aguilar	100.00
ACH	8/30/19	Alan Brown	100.00
ACH	8/30/19	Elizabeth Cooley	100.00
ACH	8/30/19	Elisa Marquez	100.00
ACH	8/30/19	Katherine Narum	100.00
ACH	8/30/19	Cathy J Pinkerton. Roache	100.00
<b>Total Expenditures - August 31, 2019</b>			<b>193,992.52</b>

**Alameda County Mosquito Abatement District  
Income Statement  
August 31, 2019. (2 of 12 mth, 17%)**

<b>REVENUES</b>	<b>Actual 2017/18</b>	<b>Actual 2018/19 <sup>1</sup></b>	<b>Current Month</b>	<b>Year to Date 2019/20</b>	<b>Budget 2019/20</b>	<b>Actual vs Budget</b>
<b>Total Revenue</b>	<b>\$ 4,623,350.00</b>	<b>\$ 4,063,848.12</b>	<b>\$ 229,222.24</b>	<b>\$ 229,344.49</b>	<b>\$ 4,705,236.00</b>	<b>5%</b>

<b>EXPENDITURES</b>	<b>Actual 2017/18</b>	<b>Actual 2018/19 <sup>1</sup></b>	<b>Current Month <sup>2</sup></b>	<b>Year to Date 2019/20</b>	<b>Budget 2019/20</b>	<b>Actual vs Budget</b>
Salaries	\$1,744,412	\$ 1,874,396.01	\$ 172,026.13	\$ 341,586.43	\$2,425,552	14%
CalPERS Retirement	\$262,107	\$ 310,838.21	\$ 14,924.20	\$ 216,935.82	\$360,538	60%
Medicare	\$23,564	\$ 25,149.24	\$ 2,290.76	\$ 4,547.78	\$30,843	15%
Fringe Benefits	\$449,954	\$ 452,960.30	\$ 38,146.02	\$ 80,747.03	\$502,043	16%
<b>Total Salaries, Retirement, &amp; Benefits</b>	<b>\$2,480,037</b>	<b>\$ 2,663,343.76</b>	<b>\$227,387</b>	<b>\$643,817</b>	<b>\$3,318,976</b>	<b>19%</b>
Clothing and personal supplies (purchased)	\$ 7,308.71	\$ 8,899.04	\$ 467.42	\$ 818.62	\$8,000	10%
Laundry service and supplies (rented)	\$ 9,819.37	\$ 12,602.62	\$ 1,259.77	\$ 2,696.23	\$12,750	21%
Utilities	\$ 29,830.25	\$ 30,161.25	\$ 2,350.70	\$ 5,063.22	\$12,600	40%
Communications-IT	\$ 102,855.59	\$ 108,886.22	\$ 3,592.66	\$ 5,049.77	\$117,100	4%
Maintenance: structures & improvements	\$ 21,374.70	\$ 13,673.39	\$ 673.43	\$ 1,078.43	\$25,000	4%
Maintenance of equipment	\$ 43,585.45	\$ 43,628.61	\$ 2,284.45	\$ 2,920.57	\$35,000	8%
Transportation, travel, training, & board	\$ 131,330.43	\$ 98,432.96	\$ 8,142.15	\$ 13,919.78	\$134,260	10%
Professional services	\$ 100,563.13	\$ 112,944.66	\$ 27,475.19	\$ 30,710.69	\$169,320	18%
Memberships, dues, & subscriptions	\$ 15,933.00	\$ 20,773.00	\$ 100.00	\$ 12,842.00	\$22,655	57%
Insurance - (VCJPA, UAS)	\$ 131,392.69	\$ 125,189.76	\$ -	\$ 133,141.92	\$133,546	100%
Community education	\$ 64,109.47	\$ 34,860.85	\$ 847.98	\$ 5,949.17	\$40,000	15%
Operations	\$ 176,000.00	\$ 206,731.27	\$ 34,742.60	\$ 34,853.35	\$228,500	15%
Household expenses	\$ 18,101.06	\$ 18,656.19	\$ 3,010.88	\$ 3,420.88	\$15,850	22%
Office expenses	\$ 10,753.26	\$ 11,795.67	\$ 508.77	\$ 508.77	\$14,500	4%
Laboratory supplies	\$ 113,768.06	\$ 95,640.16	\$ 14,498.92	\$ 17,364.93	\$137,000	13%
Small tools and instruments	\$ 8,376.29	\$ 2,211.74	\$ -	\$ -	\$3,000	0%
<b>Total Staff Budget</b>	<b>\$ 985,101.46</b>	<b>\$ 945,087.39</b>	<b>\$ 99,954.92</b>	<b>\$ 270,338.33</b>	<b>\$1,109,081</b>	<b>24%</b>
<b>Total Operating Expenditures</b>	<b>\$ 3,465,138.55</b>	<b>\$ 3,608,431.15</b>	<b>\$ 327,342.03</b>	<b>\$ 914,155.39</b>	<b>\$4,428,057</b>	<b>21%</b>

1 - Unaudited amount, as of July 31, 2019.

2 - Total Operating Expenditures in current month do not match the check register due to accounts receivable, capital purchases, and petty cash transactions.

**Alameda County Mosquito Abatement District  
Investment, Reserves, and Cash Balance Report  
August 31, 2019. (2 of 12 mth, 17%)**

Account #	Investment Accounts	Beginning Balance	Deposits	Withdrawals	Interest Activity	New Balance
1004	LAIF	\$ 1,828,524.18	\$ -	\$ (332,000.00)	\$ -	\$ 1,496,524.18
1005	OPEB Fund	\$ 4,401,805.27	\$ -	\$ -	\$ (2,879.77)	\$ 4,398,925.50
1006	VCJPA Member Contingency	\$ 348,346.00	\$ -	\$ -	\$ -	\$ 348,346.00
1007	VCJPA Property Contingency	\$ 52,025.00	\$ -	\$ -	\$ -	\$ 52,025.00
1008	CAMP: Repair and Replace	\$ 337,512.00	\$ -	\$ (45,900.00)	\$ 609.38	\$ 292,221.38
1009	CAMP: Public Health Emergency	\$ 517,830.65	\$ -	\$ -	\$ 1,004.65	\$ 518,835.30
1010	CAMP: Operating Reserve	\$ 1,913,329.93	\$ -	\$ -	\$ 3,712.07	\$ 1,917,042.00
1011	CAMP: Capital Reserve Fund	\$ 231,803.15	\$ -	\$ -	\$ 449.72	\$ 232,252.87
1012	PARS: Pension Stabilization <sup>1</sup>	\$ 1,064,535.70	\$ -	\$ -	\$ 4,086.26	\$ 1,068,621.96
<b>Total</b>		<b>\$ 10,695,711.88</b>				<b>\$ 10,324,794.19</b>
Cash Accounts		Beginning Balance		Withdrawals	Activity	New Balance
1001	Bank of America (Payroll Account)	\$ 42,316.56				\$ 119,575.72
1002	Bank of The West (Transfer Account)	\$ 954,587.16				\$ 362,892.01
1003	County Account	\$ 204,671.19				\$ 444,081.26
1013	Petty Cash	\$ 503.50		\$ 10.76		\$ 492.74
<b>Total</b>		<b>\$ 1,202,078.41</b>				<b>\$ 926,548.99</b>

1- PARS - Pension Stabilization balance is as of July 31, 2019.

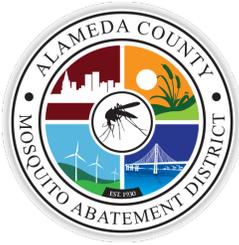
Alameda County Mosquito Abatement Dist.  
Balance Sheet  
August 31, 2019

ASSETS

Current Assets	
Cash	\$ 4,398,925.50
Bank of America payroll	114,752.43
Bank of the West	566,445.31
County	444,081.26
Cash with LAIF	1,496,524.18
VCJPA - Property Contingency	52,025.00
VCJPA- Member Contingency	348,346.00
CAMP - Repair and Replace	292,221.38
CAMP - Public Health Emergency	518,835.30
CAMP - Operating Reserve	1,917,042.00
CAMP - Capital Reserve Fund	232,252.87
PARS	1,068,621.96
Petty cash	<u>492.74</u>
Total Current Assets	11,450,565.93
Property and Equipment	
Acc Dep - equipment	(1,306,030.50)
Acc Dep - stru & improv	(2,316,874.89)
Construction in progress	454,974.98
Equipment	1,619,670.10
Structure/improvement	4,529,022.67
Land	<u>61,406.00</u>
Total Property and Equipment	3,042,168.36
Other Assets	
Net OPEB Asset	<u>716,666.00</u>
Total Other Assets	<u>716,666.00</u>
Total Assets	<u>\$ 15,209,400.29</u>

LIABILITIES AND CAPITAL

Current Liabilities	
Accounts payable	\$ 99,303.31
Acc payroll/vacation	167,855.50
Def inflow - 75	41,760.00
Def inflow pen defer GASB 68	809,861.00
Defer outflow pen cont GASB 68	(818,392.00)
Net pension liability GASB 68	<u>2,642,666.00</u>
Total Current Liabilities	2,943,053.81
Long-Term Liabilities	
OPEB Fund	<u>4,398,925.50</u>
Total Long-Term Liabilities	<u>4,398,925.50</u>
Total Liabilities	7,341,979.31
Capital	
Designated fund balances	4,100,295.19
Investment in general fixed as	4,696,784.11
Net Income	<u>(929,658.32)</u>
Total Capital	<u>7,867,420.98</u>
Total Liabilities & Capital	<u>\$ 15,209,400.29</u>



23187 Connecticut Street  
Hayward, CA 94545

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F: (510) 783-3903

[acmad@mosquitoes.org](mailto:acmad@mosquitoes.org)

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MONTHLY STAFF REPORT – August 2019

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General Manager

## 1. OPERATIONS REPORT

August proved to be a very significant month for *Aedes dorsalis*. The impact of a relatively low high tide was seen in the cities of Newark and Fremont. New housing developments built close to tidal marshes and a nearby sports park were most impacted. This impact resulted in higher than average service requests related to mosquito problems. Of the 122 of this type of request received by the district in August, over half were attributable to *Ae. dorsalis* in these areas.

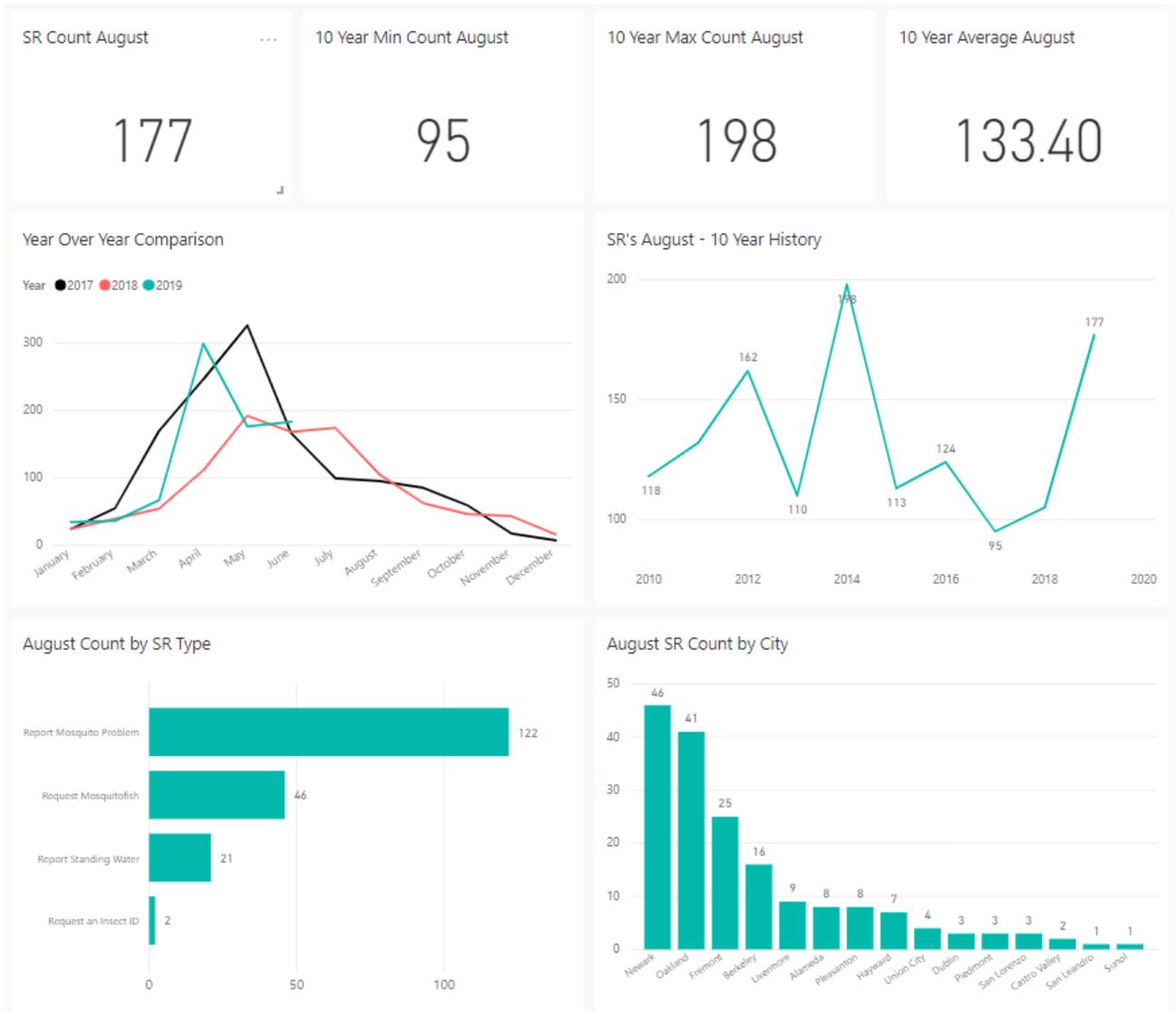
Later in August saw one of the highest tides of the year to date. A great deal of effort went into trying to avert another wave of *Ae. dorsalis* adults from emerging and impacting the public. Another outcome of these events has been that several tidal marsh areas that have not traditionally been sources for *Ae. dorsalis* or that did not cause issues in the past, were discovered and treated. As more development occurs closer to the fringes of tidal, seasonal, and freshwater marshes, the job for operations staff will grow more complex. Operations staff are doing well at adjusting, diverting resources, and working together in problem areas.

Another *Aedes* species also made a rare appearance in August, *Aedes vexans*. This species, known as the "inland floodwater mosquito", was found in significant numbers in Livermore around lake Del Valle. As with most *Aedes* mosquitoes, *Ae. vexans* are vicious day-time biters, and even in low numbers, can attract people's attention. During the investigation of a call received from the East Bay Regional Park District staff at Del Valle, ACMAD operations staff located an area that likely caused the issue. A rise in the lake's water level near the visitor center inundated previously deposited eggs causing them to hatch. District staff is working with the Zone 7 Water District to prevent these types of unexpected infestations in the future. Staff continued to work on controlling *Culex tarsalis* and *Culex pipiens* in August. This included inspections and treatments of freshwater marshes, canals, catch basins, flooded basements, and unmaintained swimming pools. These ongoing efforts to control larval populations of both species prevents adults that can potentially vector West Nile virus and other diseases from entering the environment in significant numbers. Overall numbers of both species continue to be low based on lab and service request data. To date, no West Nile virus positive birds or mosquito samples have been collected in the County this year. Efforts to control these species, as well as *Culex erythrothorax*, will continue until the first rainfall events of fall/winter flush their breeding sources, and cooler temperatures send female adults into sequestration for the winter.

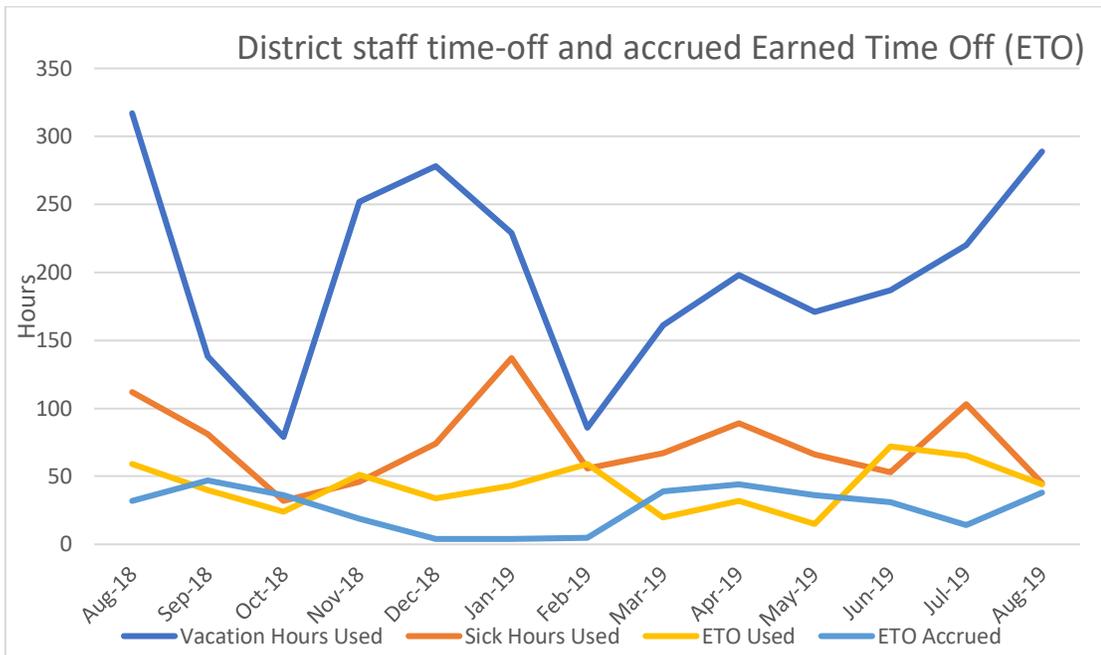
Field Operations Supervisor  
Joseph Huston

## A. District Data

### 1. Service Requests

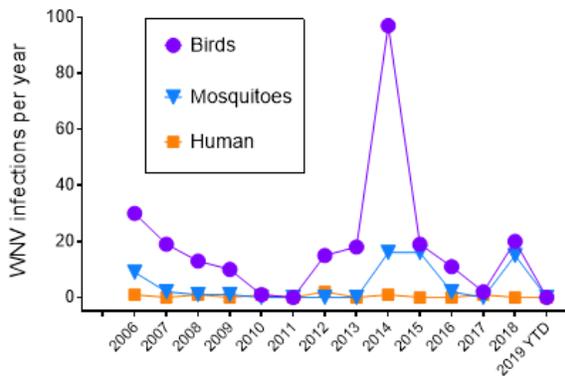


## 2. Activity Report

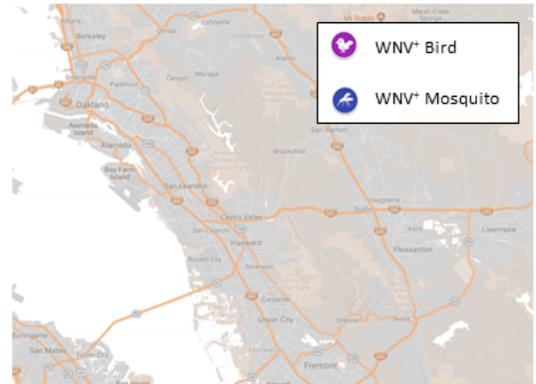


## 3. WNV Activity

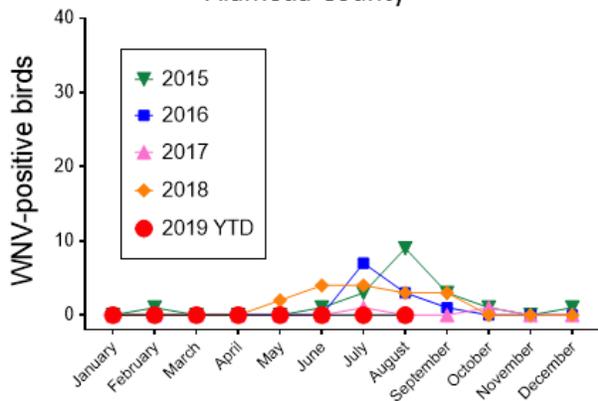
WNV infections detected in Alameda County  
2005 – 2019 YTD



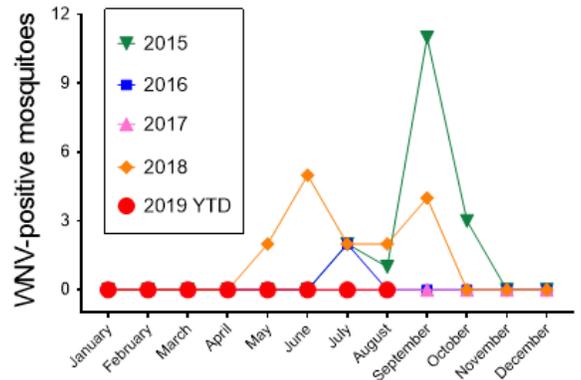
Locations of WNV-infected mosquitoes and birds  
collected in Alameda County during 2019



WNV-infected birds collected in  
Alameda County



WNV-infected mosquitoes collected in  
Alameda County



## 2. LAB

### Summary

- West Nile virus (WNV) was not detected in birds or mosquitoes during August.
- Adult mosquito abundance during August 2019 was slightly lower than the prior year.
- Adult *Aedes vexans* were collected in Livermore during August 2019, the first such detection since May of 2012.
- A total of 9,732 adult mosquitoes were captured and killed by lab traps during August.
- *Aedes aegypti* was detected during August in Stanislaus, San Joaquin, Sacramento, and Placer Counties. Consequently, invasive *Aedes* surveillance was enhanced substantially in the eastern region of Alameda County.
- A research article that describes our use of the ACMAD drone was accepted for publication in the *Journal of the American Mosquito Control Association*. The article is entitled “Assessing Mosquito Breeding Sites and Abundance Using an Unmanned Aircraft” and the authors are Eric Haas-Stapleton, Miguel Barretto, Erika Castillo, Ryan Clausnitzer, and Robert Ferdan.

### Arbovirus Monitoring

- West Nile virus (WNV) was not detected in birds or mosquitoes during the month of August 2019.
- None of the mosquitoes or birds that were collected during 2019 were found to contain Saint Louis encephalitis virus (SLEV) or Western equine encephalitis virus (WEEV).

### Native Mosquito Abundance

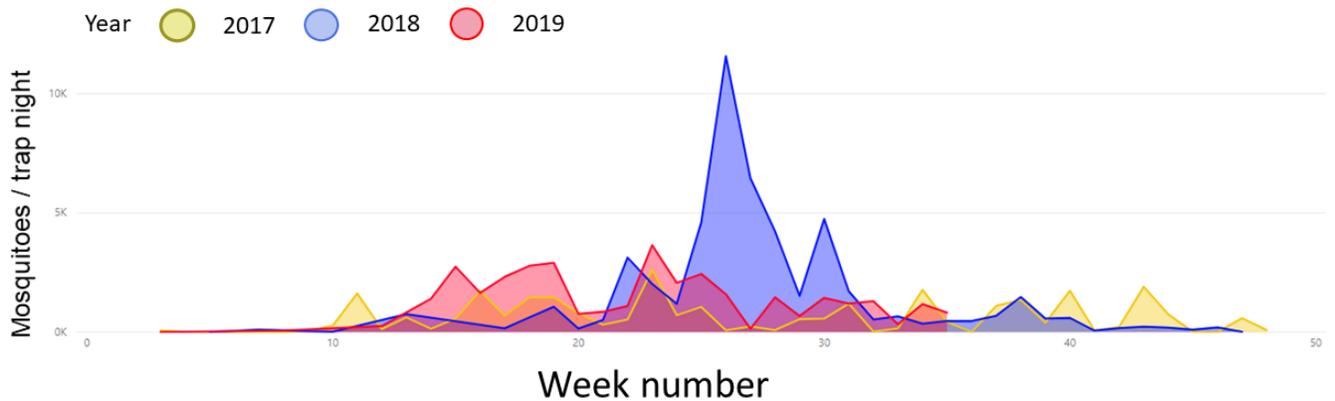
- In August, there was no rainfall and the average maximum temperature was 78 °F (Hayward, CA). The prior two months had average maximum temperatures of 71 °F and 75 °F.
- Over the course of the month, 335 EVS CO<sub>2</sub> traps were placed; 3,852 mosquitoes were collected and identified to species (Figure 1). There was an average of 11.5 mosquitoes per trap night, a 1.2-fold decrease in the number of mosquitoes per trap night relative to the prior month (n = 4,605 mosquitoes collected during August 2019). *Culex erythrorhax* remained the most abundant species collected in EVS CO<sub>2</sub> traps, followed by *Culex tarsalis*, and *Culex pipiens* (Figure 2). The geospatial distribution of mosquito species collected in EVS CO<sub>2</sub> traps at each trap site in the county is displayed in Figure 3a. Overall, mosquito abundance during August 2019 as measured by EVS CO<sub>2</sub> traps was slightly lower than the prior year (Figure 2; 2019, red line; 2018, blue line), and similar to the same period of 2017 (Figure 1; 2017, yellow line).
- Adult *Aedes vexans* were collected from two sites in Livermore during August 2019 (Bruno Canziani Park and Del Valle Regional Park), the first such detection since May of 2012.
- The ACMAD lab increased invasive *Aedes* surveillance in eastern Alameda County (Figure 3b) because *Ae. aegypti* was detected during the month of August in Stanislaus, San Joaquin, Sacramento and Placer counties. Increased number of CO<sub>2</sub>-baited EVS, gravid and ovibucket trap sites were established. Each EVS trap site in the eastern region of the county was surveyed weekly and gravid traps were rotated through each of the EVS trap sites.
- Mosquito abundance, as measured using NJLT, was slightly lower than the prior month (Figure 4; 0.85 and 1.06 mosquitoes / trap night, respectively; total of 349 mosquitoes over 413 trap nights). Similar to the prior month, *Culiseta incidens* was the most prevalent species collected in NJLT during August 2019, followed by *Anopheles occidentalis* and *Culex tarsalis* (Figure 5).
- The Mosquito Magnet Traps (MMT) in and around Coyote Hills Regional Park ceased collecting appreciable quantities of mosquitoes because the breeding site dried. Consequently, the MMT from that area were relocated to the eastern region of Alameda County to support our increased invasive *Aedes* surveillance efforts. Three additional MMT were purchased during August and also located to the eastern region of the county. The only MMT that that collected an appreciable quantity of

mosquitoes was located at the Hayward Regional Shoreline where it collected 2,352 *Culex erythrothorax* during August. However, the water in the marsh at this trap site is currently being drained by East Bay Regional Park District staff, and we anticipate substantially reduced *Cx. erythrothorax* abundance in the coming months.

- A research article that describes our use of the ACMAD drone was accepted for publication in the *Journal of the American Mosquito Control Association*. The article is entitled “Assessing Mosquito Breeding Sites and Abundance Using an Unmanned Aircraft” and the authors are Eric Haas-Stapleton, Miguel Barretto, Erika Castillo, Ryan Clausnitzer, and Robert Ferdan. Images of the abstract and figures from the proofs that were sent by the journal editors are provided in Figure 6.

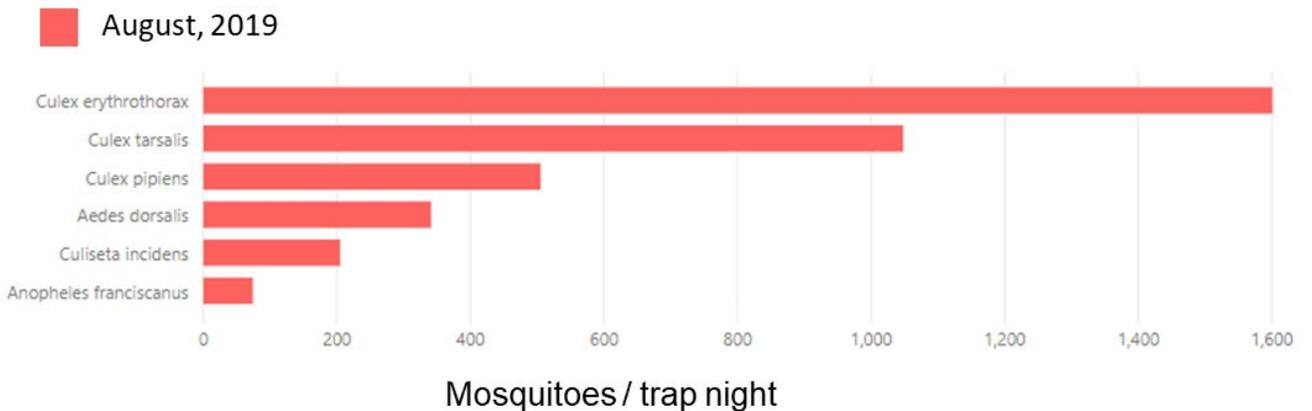
**Invasive Aedes Monitoring**

- Invasive *Aedes* mosquitoes have not been detected in any mosquito trap placed in Alameda County during 2019.

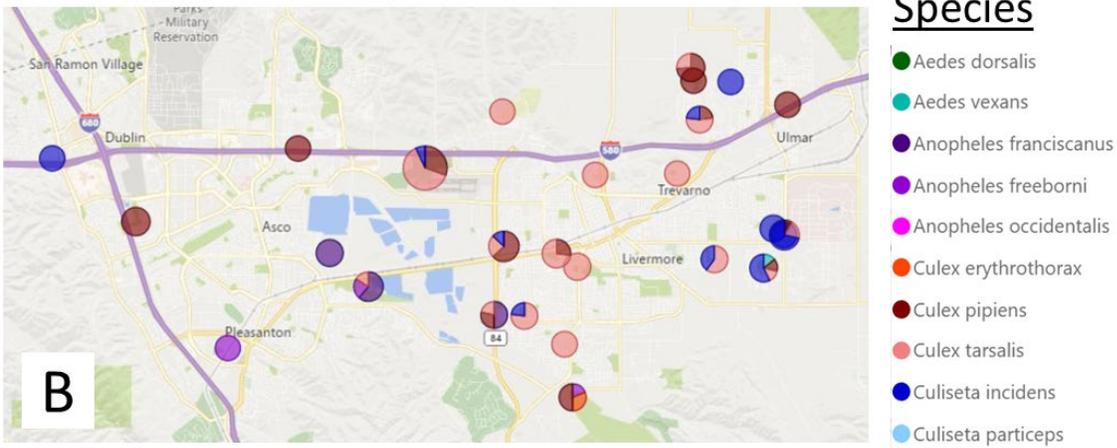
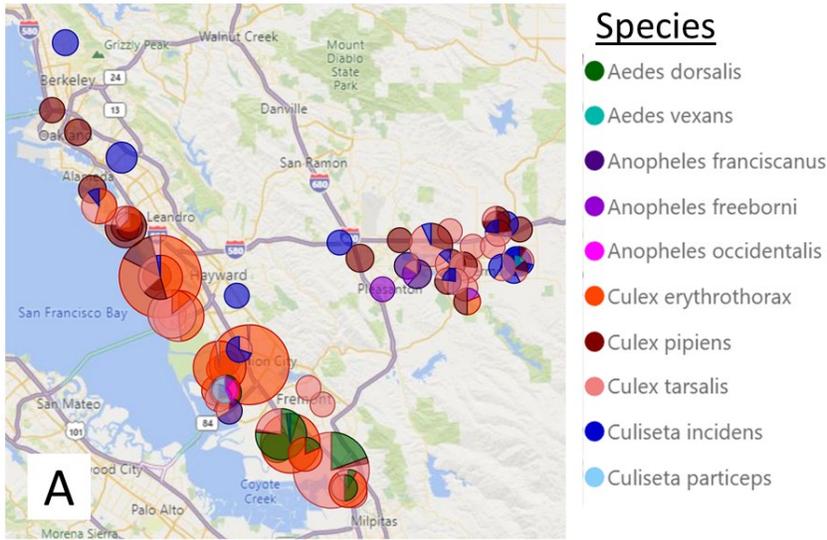


**FIGURES**

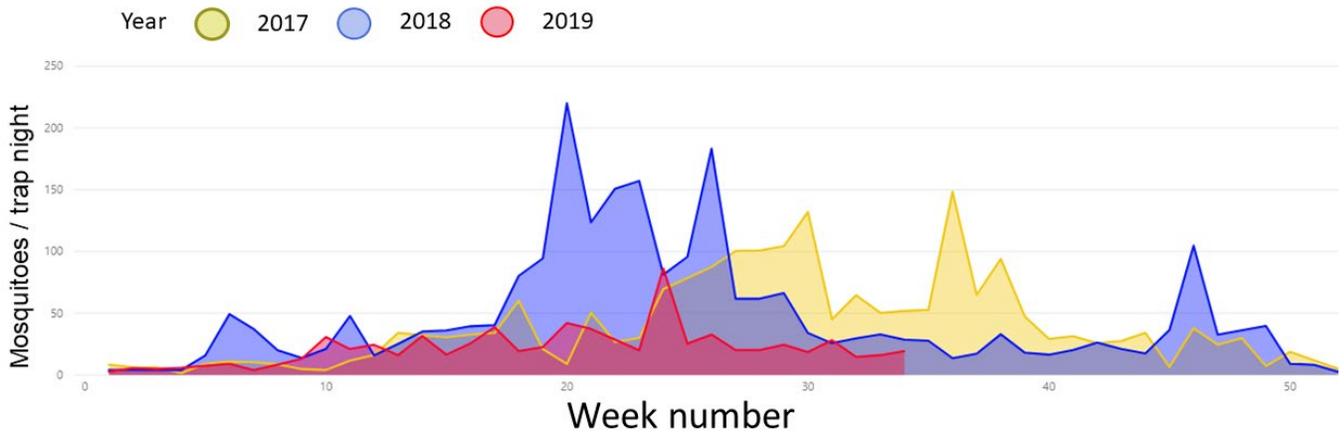
**Figure 1. Mosquitoes captured in EVS CO<sub>2</sub> traps from 2017 – 2019.** A total of 3,852 mosquitoes were captured in EVS CO<sub>2</sub> traps during August 2019 and identified to species.



**Figure 2. The six-most abundant species of mosquito captured during August 2019 using EVS CO<sub>2</sub> traps.**



**Figure 3. Mosquito abundance by trap site evaluated using EVS CO<sub>2</sub> traps.** Pie charts over trap sites indicate the distribution of mosquito species collected at the trap site. The size of the pie charts indicates the relative number of mosquitoes at each site during August 2019. Sites with five or fewer mosquitoes collected in the traps are not shown on the map. (A) Entirety of Alameda County. (B) Eastern Alameda County.



**Figure 4. Mosquitoes captured in NJLT from 2017 – 2019.** A total of 780 mosquitoes were captured in NJLT during August 2019 and identified to species.



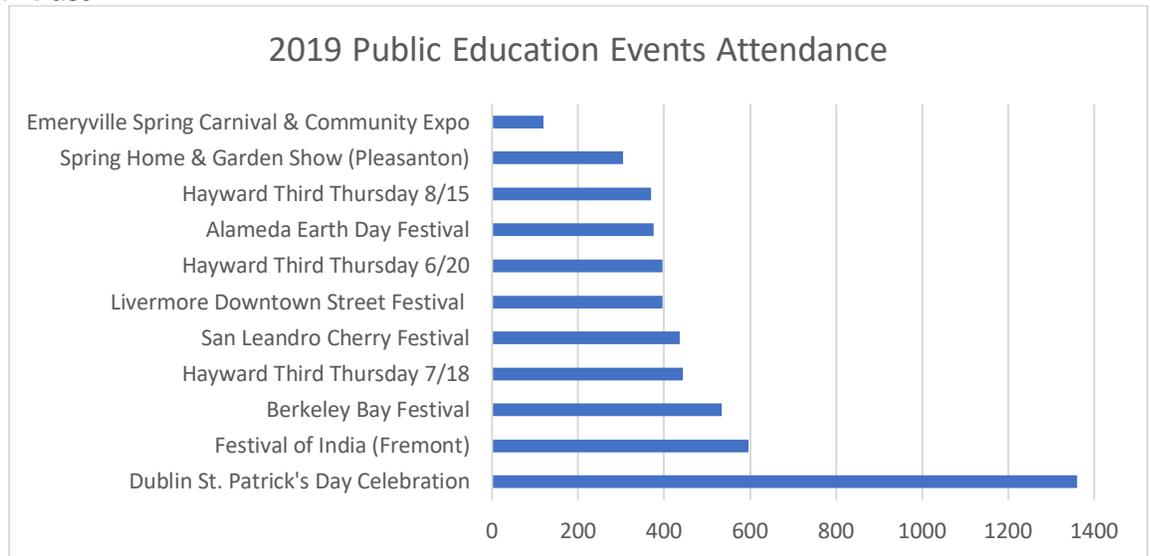
**PUBLIC EDUCATION**

**A. Events**

**i. Upcoming**

- **Port of Oakland Annual Safety, Health, and Wellness Fair** – Wednesday, September 11<sup>th</sup> (Port of Oakland Headquarters)
- **Dublin Splatter Festival** – Saturday, September 14<sup>th</sup> (Dublin)
- **Port of Oakland Annual Safety, Health, and Wellness Fair** – Thursday, September 19<sup>th</sup> (Oakland International Airport, Shephard-Glenn parking lot)
- **Newark Days** – Sunday, September 22<sup>nd</sup> (Newark)
- **Oaktobefest** – Saturday, October 5<sup>th</sup> and Sunday, October 6<sup>th</sup> (Oakland)
- **Dia de los Muertos Festival** – Saturday, November 2<sup>nd</sup> (Oakland)

**ii. Past**

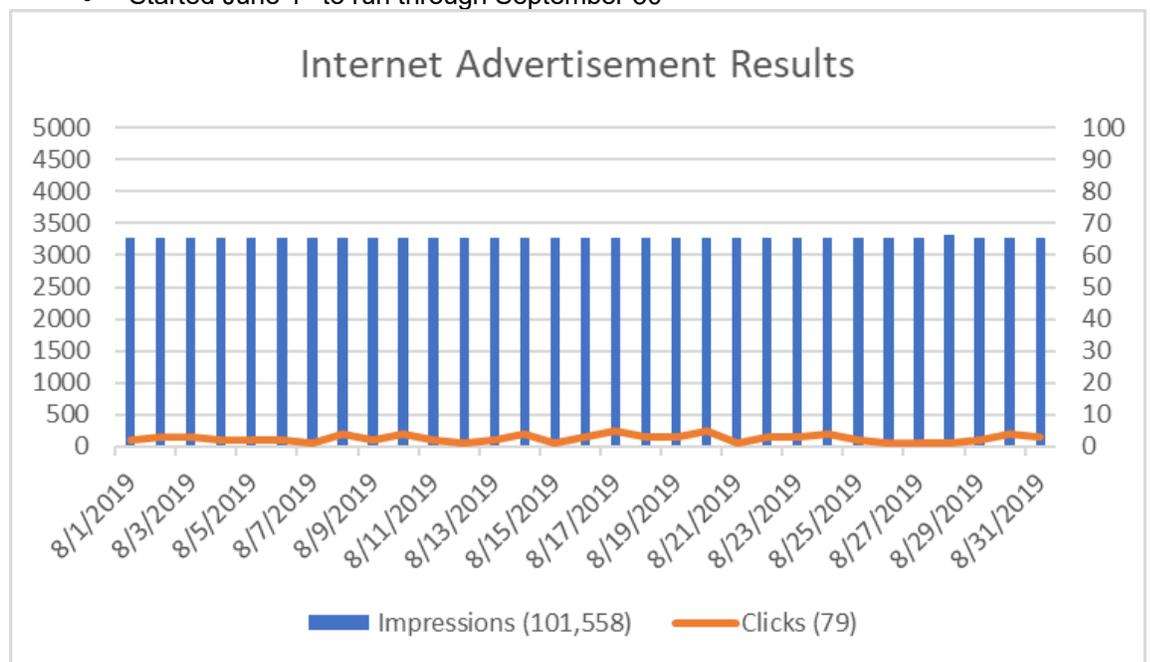


**Figure 1. Number of visitors that attended each event**

**B. Advertisement Campaigns**

**i. Internet Ads**

- Started June 1<sup>st</sup> to run through September 30<sup>th</sup>



**Figure 2. Internet advertisement results**

### C. Google Analytics

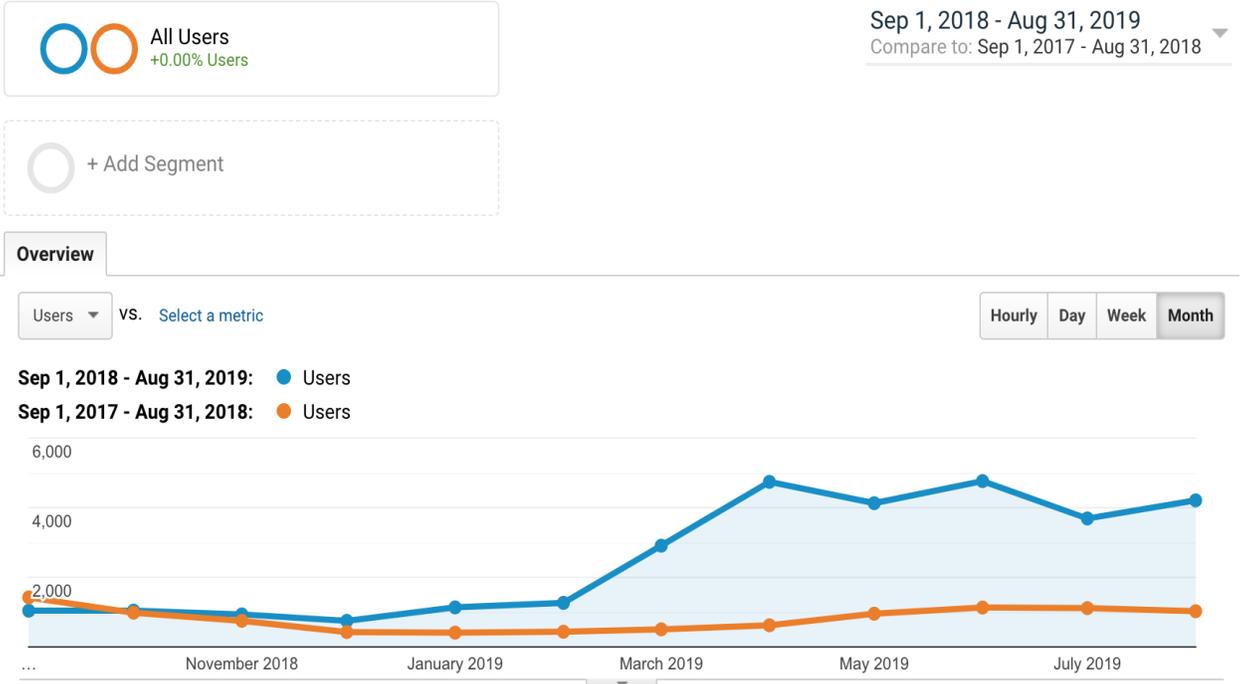


Figure 3. Comparison of website users over the past two years

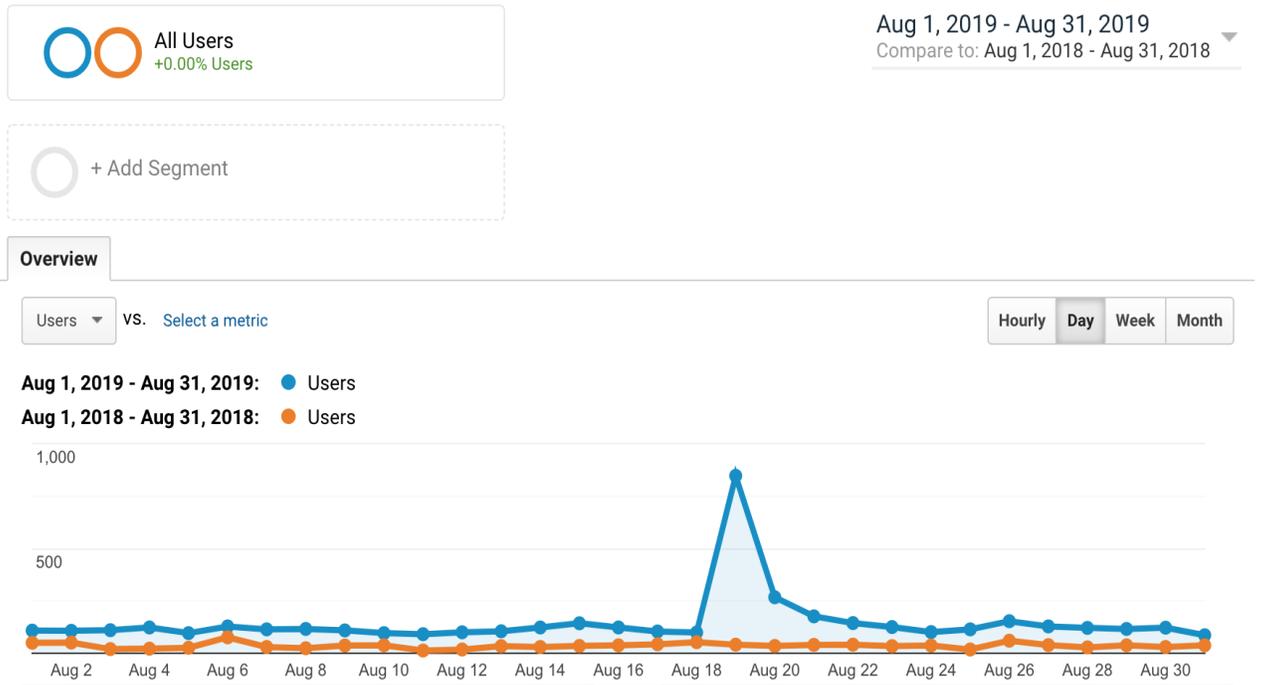
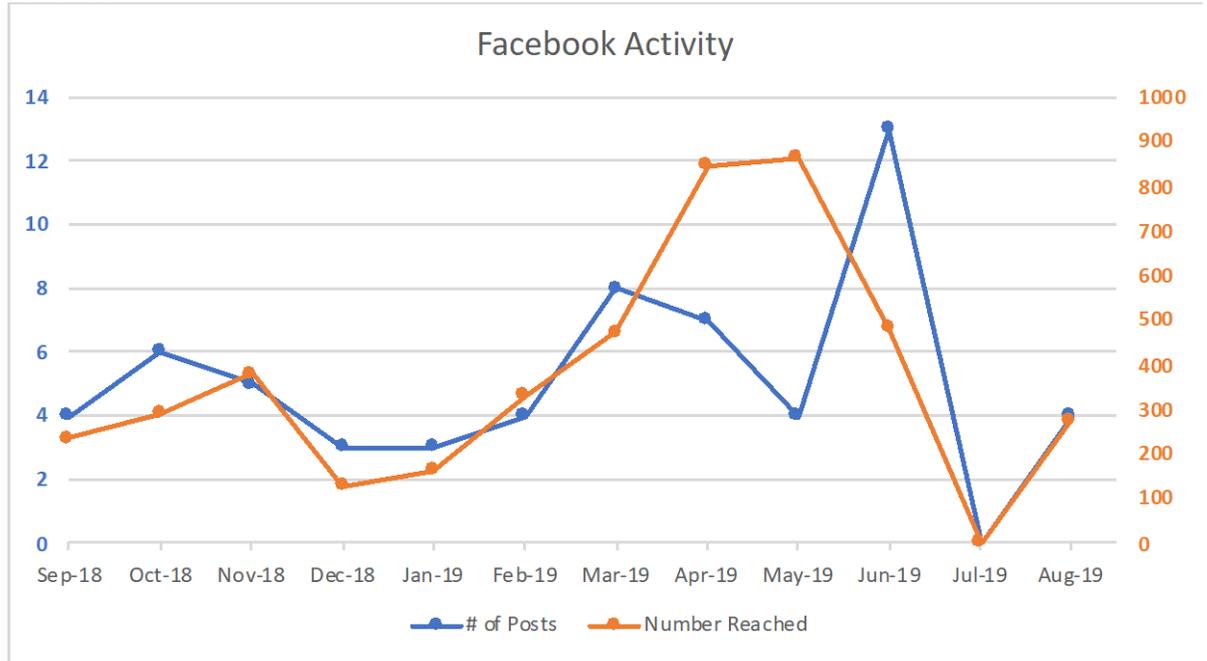


Figure 4. Comparison of website users over the past two years for August. Note: ACMAD posted about the *Aedes aegypti* mosquito detections in Stanislaus and San Joaquin counties on August 19<sup>th</sup> via Facebook, Twitter, and Nextdoor. The discussion on Nextdoor was closed on August 23<sup>rd</sup>.

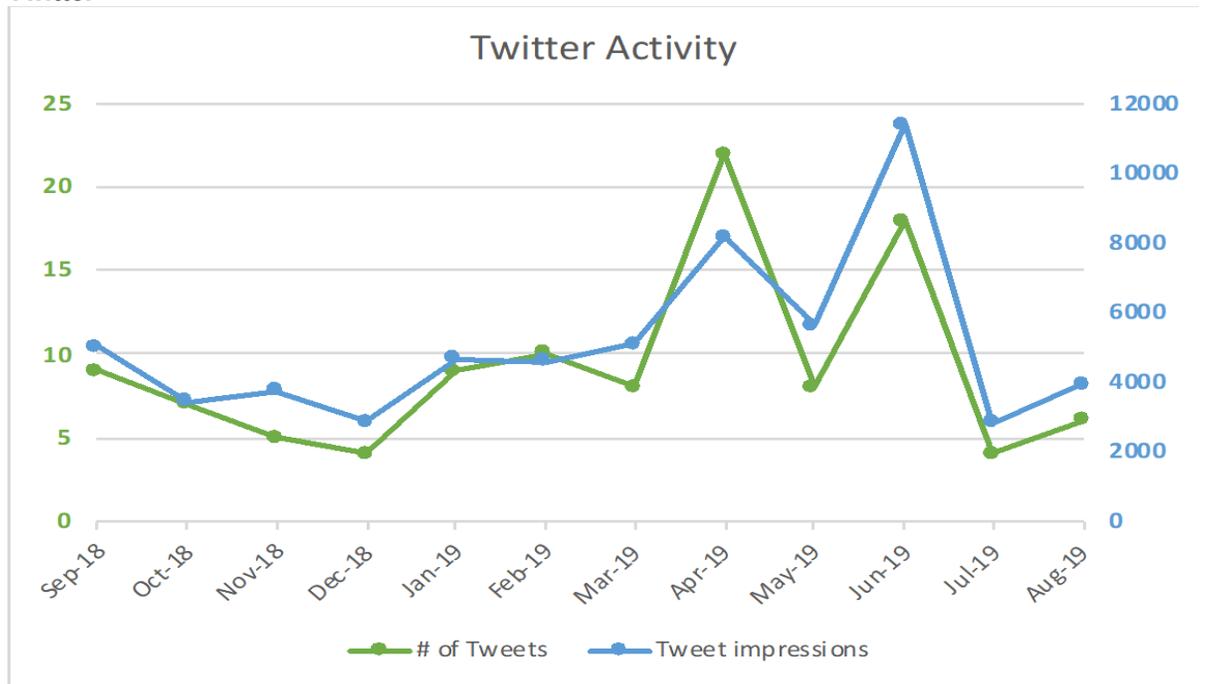
**D. Facebook**



**Total Number of Followers:** 200 (up from 194 in July)

**August's Most Popular Post:** A heat wave is here! If you plan to be outside in the next few days make sure to use insect repellent and check your yards for any items that could be holding standing water. (picture)

**E. Twitter**



**Number of Profile Visits in August:** 89

**Total Number of Followers (New This Month):** 668 (down from 669 in July)

**Top July Tweet:** A heat wave is here! If you plan to be outside in the next few days make sure to use insect repellent and check your yards for any items that could be holding standing water. (gif)

## F. Nextdoor



Alameda County Mosquito Abatement District Communications Specia...



### Aedes aegypti Mosquito Found in Neighboring Counties

*Aedes aegypti*, an invasive mosquito, has recently been found in the neighboring counties of Stanislaus and San Joaquin, specifically in the cities of Modesto and Stockton. This non-native mosquito can spread diseases such as chikungunya, dengue, and Zika. The *Aedes aegypti* mosquito is not currently known to be in Alameda County, but we encourage residents to eliminate items in their yard that could hold water. *Aedes aegypti* only need a bottle cap of water to grow. They lay their eggs just above the water line in small containers, such as saucers under potted plants, bird baths, ornamental fountains, or discarded tires. For more information about the *Aedes aegypti* mosquito visit our website: <https://mosquitoes.org/invasive-mosquitoes>.

If you are experiencing aggressive mosquitoes biting during the day, please put in a request for service on our website: <https://mosquitoes.org/services>.

Please be aware that we are only able to engage in conversations that happen on this post. We are not able to see conversations you have in your neighborhoods and want to remind you to contact us through our website if you are having a mosquito problem.



#### Invasive Mosquitoes

*Aedes aegypti*, also known as the yellow fever mosquito, is an invasive species native to Africa and is highly

[MOSQUITOES.SPECIALDISTRICT.ORG](https://mosquitoes.org)

19 Aug · Subscribers of Alameda County



Thank



Reply



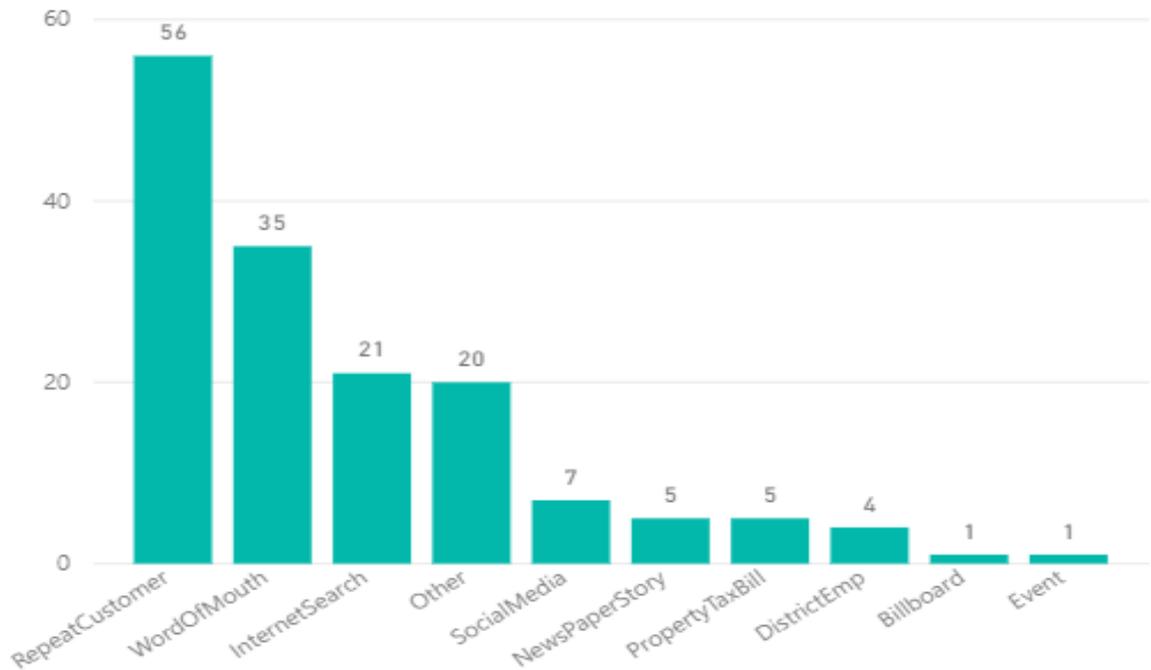
165



74 · 42577 Impressions

## G. Service Request Referral Summary

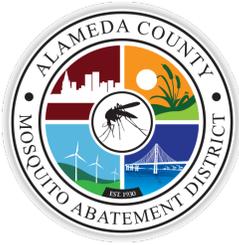
Number of Requests by Channel



**Note:** Movie theater ads, Internet ad and phone book are also options for this question but were not included on this chart because they were not selected in August. Those who chose Other indicated they heard about us from mailers, Alameda County Vector Control, the pool flyover, the City of Newark, the City of Hayward, and Nextdoor. Nine people did not indicate a reason.

4. **LEGISLATIVE UPDATE:**

	<b>Bill Name and description</b>	<b>Status</b>	<b>ACMAD Position</b>	<b>ACMAD Action</b>
<i>California</i>				
<b>MVCAC</b>	<b>AB 320:</b> This bill would create the California Mosquito Surveillance and Research Program, to be administered by the University of California, and would require the University to maintain an interactive internet website for management and dissemination of data on mosquito-borne virus and surveillance control and coordinate with the department, among other functions.	Passed in the Senate appropriations committee, read second time, ordered to third reading.	Support	Letter of support



23187 Connecticut Street  
Hayward, CA 94545

T: (510) 783-7744  
F: (510) 783-3903

## Staff Anniversary Recognitions:

ACMAD is pleased to recognize and thank the following employees on their anniversaries in September

### Board of Trustees

**President**

Eric Hentschke

**Newark**

**Vice-President**

Wendi Poulson

**Alameda**

**Secretary**

P. Robert Beatty

**Berkeley**

Employee	Job Title	Years of Service	Anniversary Date
Sarah Erspamer	Mosquito Control Technician	4	September 14th
Ben Rusmisl	Vector Biologist	4	September 28th

Cathy Roache

**County at Large**

Betsy Cooley

**Emeryville**

Alan Brown

**Dublin**

George Young

**Fremont**

Elisa Marquez

**Hayward**

James N. Doggett

**Livermore**

Jan O. Washburn

**Oakland**

Robert Dickinson

**Piedmont**

Kathy Narum

**Pleasanton**

Victor Aguilar

**San Leandro**

Subru Bhat

**Union City**

**Ryan Clausnitzer**

*General Manager*