



High Quality Service through Continuous Improvement 2017 4th Quarter Performance Report

TriMet Board Meeting, March 28, 2018

Quality is a never-ending quest and continuous improvement is a never-ending way to discover and eliminate the root causes of problems. It accomplishes this by using sustainable, incremental improvements rather than implementing one large change. It is a way of looking at how we can do our work better.

Key performance indicators are performance measurements that identify the level of progress toward attaining stated objectives.

APPROACH

Focus on TriMet's three primary areas for improvement:

1. Vehicle and System Reliability

Goal: Reduce service disruptions through effective preventive maintenance and asset management.

Key Performance Indicators: Preventive maintenance schedule compliance, mean distance traveled between mechanical failures, and maintenance employee attendance.

- *Bus Maintenance, Rail Equipment Maintenance (REM), and Maintenance of Way (MOW) all exceeded the preventive maintenance target set by the Federal Transit Administration of 80%. Bus maintenance compliance declined slightly year-to-year from 96.5% to 95.2%. REM declined from 94.4% last year of the same quarter to 87.1%. REM preventive maintenance rates tend to vary throughout the year. While lower in the past quarter, REM is achieving 93.5% in the first two months of 2018. MOW performance has declined slightly by 0.3 percentage points over the past year comparison. Fare equipment is tracking for the eight straight quarter at 100% of PM work completed on time.*
- *MAX light rail MDBF (Mean Distance Between Failure) performance has demonstrated a strong quarter of performance increasing by 22.9% over the previous year and up from the past quarter as well. The 32 year old Type 1 vehicles have continued to be challenging and are now in planning for replacement. However, there have been great improvements in other fleets in early 2018. In February the Type 5s achieved nearly 48,000 miles between mechanical failures and the Type 2s exceeded 50,000 miles. These improvements reflect REM's strong efforts to decrease door and propulsion defects.*

- *Fixed route bus MDBF (Mean Distance Between Failure) has increased by 27.7% over the previous year, to 14,401 miles, and increased over the past quarter.*
- *Maintenance attendance increased slightly by 0.2 percentage points over the previous year.*

2. Service Delivery

Goal: Ensure efficient service delivery by creating staffing levels and reporting structures that increase the ability to respond quickly to service and customer needs. Improve route design and service delivery through ongoing line reviews.

Key Performance Indicators: On time performance, operator attendance, and boarding rides per revenue hour.

- *Bus service OTP has improved by 5.3 percentage points over the previous year, and increased over the last quarter. This is a result of many OTP initiatives and strategies.*
- *MAX service OTP increased from 82.9% in Qtr 4 2016 to 86.9% in Qtr 4 2017. The next round of identified OTP opportunities is continuing across the organization.*
- *WES OTP increased 3.1 percentage points from Qtr 4 of 2016 from 92.9% to 96.0%.*
- *Transportation employee attendance has shown a slight improvement over the past year, up 0.4 percentage points to 90.1%, and compared to the last quarter.*
- *Boarding rides per revenue hour overall declined by 3.0% compared to Qtr 4 2016. Bus boardings per revenue hour are down 2.3%, and MAX boardings per revenue hour are down by 3.0%. Total boarding rides were down, but only by 1.5% compared to the same quarter last year, so the other contributing factor was increased service, particularly for bus, which increased the revenue hours over the past year. WES continues to see declines in ridership, down 4.3% from the past year. A major cause is the loss of jobs in the corridor as a number of large employers have been laying off staff over the past year.*

3. Operator Support

Goal: Improve safety and customer service through customized training programs for operators and supervisors.

Key Performance Indicators: Collisions, complaints, commendations, and rail rule violations.

- *Beginning this quarter mirror strikes will be included in collision reporting statistics. These are minor incidents but they do impact our service and our customer's overall experience so it is important to track them. Mirror strikes account for over 40% of bus collisions and have decreased by 9% in the past year.*
- *Total bus collisions are down by 13.8% compared to last year and showing a slight increase compared to Qtr 3 of 2017. Collisions with vehicles and fixed objects/parked cars decreased over the past year. Bike and pedestrian incidents were comparable to the prior year, but decreased by half compared to 2017 Qtr 3. In the category of "Collision Other" there was an increase from 7 incidents in the 2016 Qtr 4 to 14 incidents in 2017 Qtr 4. However, this is a*

decline from the previous quarter's 21 incidents. This category contains collisions with railroad gate arms, animals, rolling carts, and other items.

- *MAX collisions have declined by 6% from the prior year and are up slightly from the prior quarter. Collisions with vehicles are down by 46% from the previous year and down from the past quarter.*
- *Total fixed route bus complaints are down 11.7% compared to the past year and down compared to last quarter as well. Service Delivery and Public Relations complaints have decreased over the past year and are also down from the previous quarter. Safety related complaints are flat compared to the past year and are down slightly from the previous quarter.*
- *Total MAX operator complaints are down nearly 40% compared to the previous year. The majority of MAX complaints are related to Service Delivery. Service Delivery and Public Relations complaints decreased over the past year, while Safety Related complaints increased. Most Safety Related complaints were regarding other riders.*
- *Bus operator commendations per 100,000 boardings were down from the prior year as well as down to a lesser degree from the previous quarter. MAX commendations per million boardings are down compared to the prior year but up slightly from the past quarter. Commendations tend to rise during inclement weather. There were far more weather-related commendations in 2016 Qtr 4 due to more snow and ice than we had in 2017.*
- *MAX rule violations per million miles have decreased by 19% over the past year. 2017 saw notable improvements (decreases) in the rail rule violation rate, though 2017 Qtr 4 saw an increase in rail rule violations over Qtr 3. Some of the increase can be attributed to new rail operators and plans are in place for improved training to decrease rule violation incidents.*

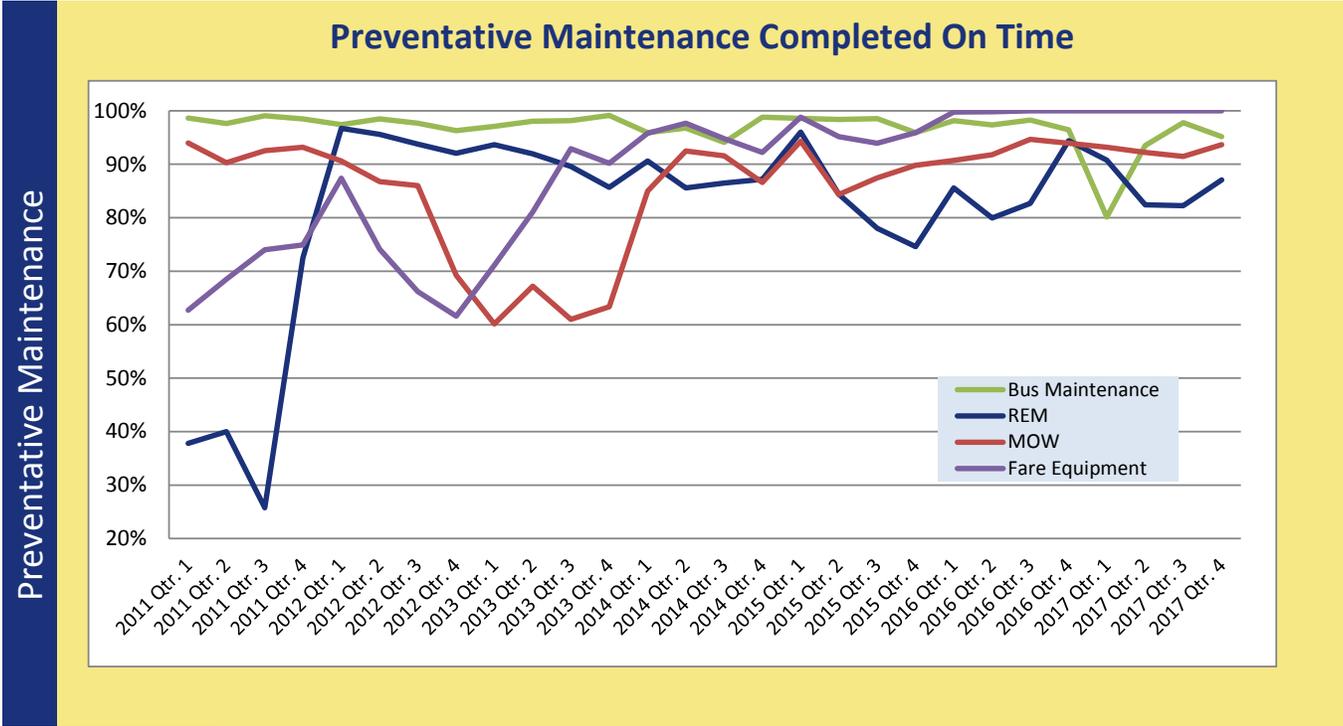


2017 4th Quarter Report

Quarterly Performance Report

Preventative Maintenance Completed On Time

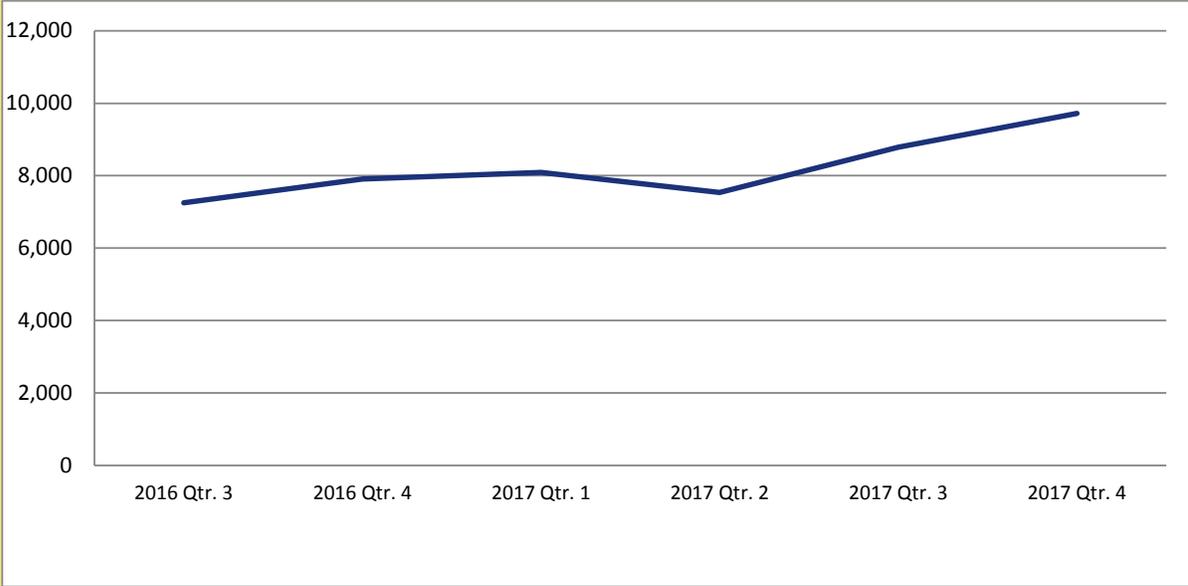
	<u>2017 Qtr. 4</u>	<u>2017 Qtr. 3</u>	<u>2016 Qtr. 4</u>	<u>2017 - 2016</u> <u>Percent Pt. Change</u>
Bus Maintenance	95.2%	97.8%	96.5%	-1.3
REM	87.1%	82.2%	94.4%	-7.3
MOW	93.7%	91.5%	94.0%	-0.3
Fare Equipment	100.0%	100.0%	100.0%	0.0



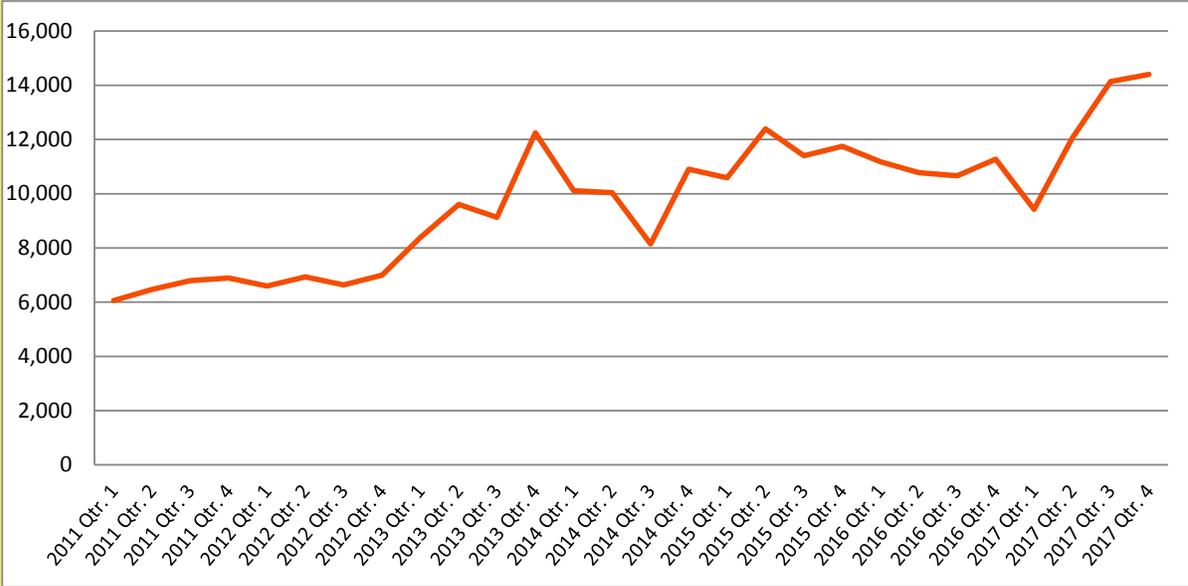
Mean Distance Between Failures (MDBF)

	<u>2017 Qtr. 4</u>	<u>2017 Qtr. 3</u>	<u>2016 Qtr. 4</u>	<u>2017 - 2016 Percent Change</u>
MAX Light Rail	9,720	8,785	7,909	22.9%
Fixed Route Bus	14,401	14,131	11,273	27.7%

MAX Light Rail Car Miles / Service Related Repairs



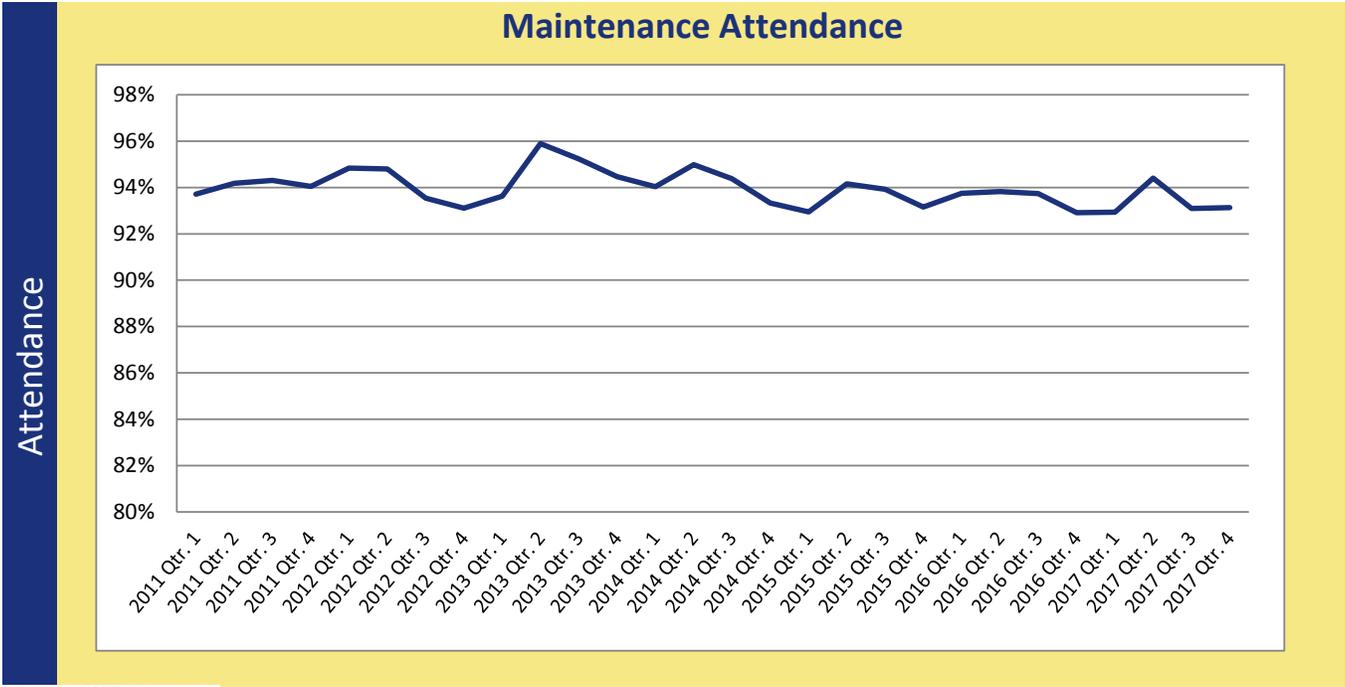
Fixed Route Bus Miles Between Mechanical Failures - Lost Service



Mean Distance Between Failures (MDBF)

Maintenance Employee Attendance

	<u>2017 Qtr. 4</u>	<u>2017 Qtr. 3</u>	<u>2016 Qtr. 4</u>	<u>2017 - 2016</u> <u>Percent Pt. Change</u>
Maintenance	93.1%	93.1%	92.9%	0.2



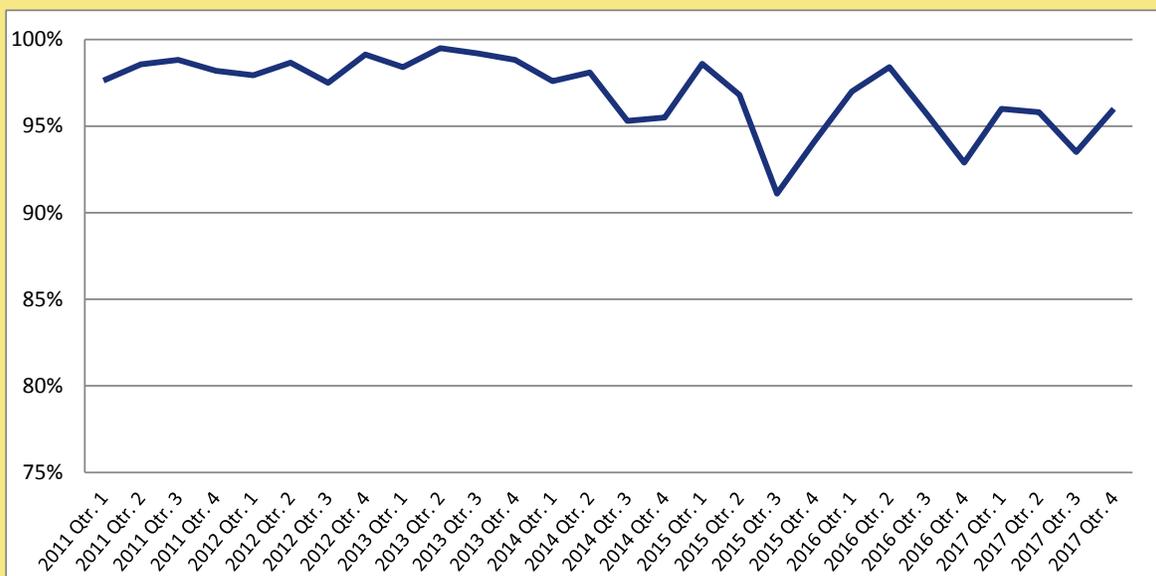
On Time Performance

	<u>2017 Qtr. 4</u>	<u>2017 Qtr. 3</u>	<u>2016 Qtr. 4</u>	<u>2017 - 2016</u> <u>Percent Pt. Change</u>
Fixed Route Bus	86.1%	84.2%	80.8%	5.3
MAX Light Rail	86.9%	84.3%	82.9%	4.0
WES Commuter Rail	96.0%	93.5%	92.9%	3.1

Bus and MAX Light Rail OTP



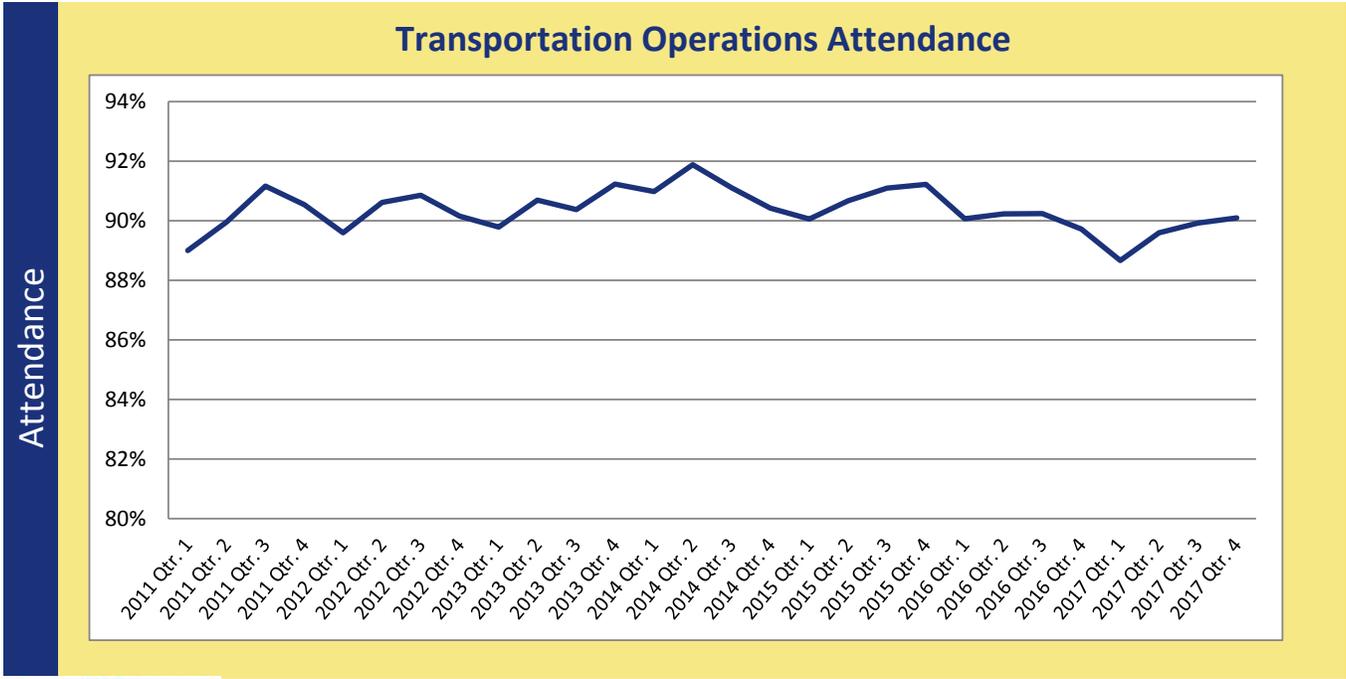
WES Commuter Rail OTP



On Time Performance

Transportation Operations Employee Attendance

	<u>2017 Qtr. 4</u>	<u>2017 Qtr. 3</u>	<u>2016 Qtr. 4</u>	<u>2017 - 2016</u> <u>Percent Pt. Change</u>
TransOps	90.1%	89.9%	89.7%	0.4

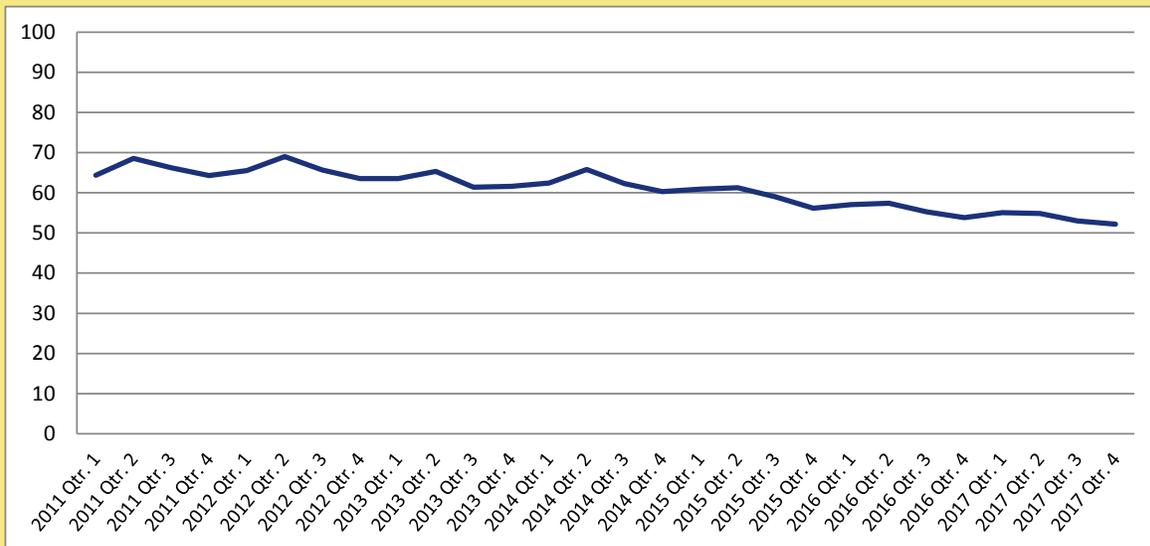


Boarding Rides Per Revenue Hour

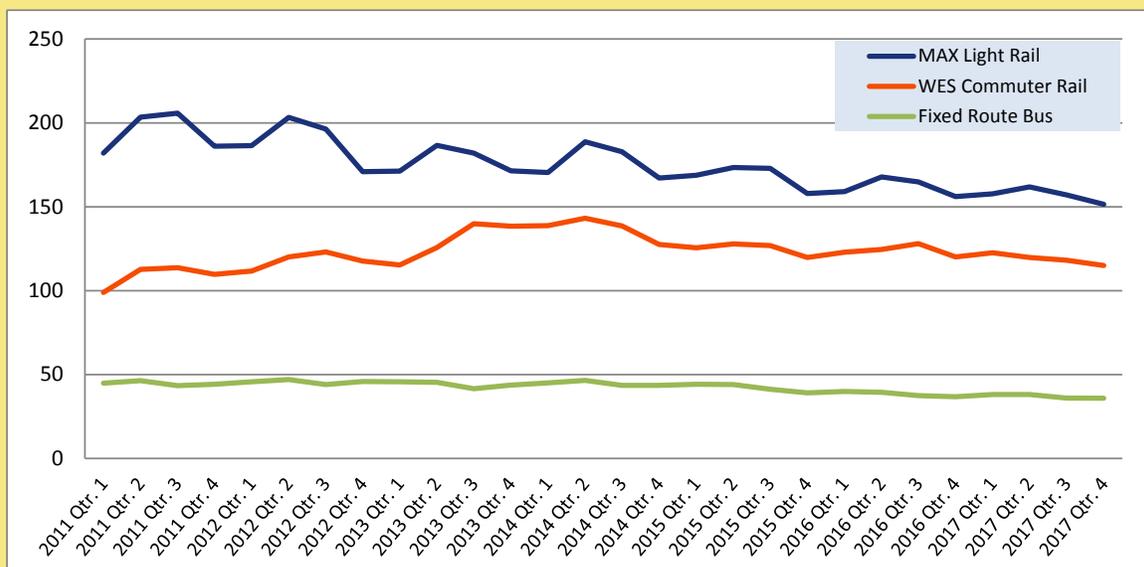
	<u>2017 Qtr. 4</u>	<u>2017 Qtr. 3</u>	<u>2016 Qtr. 4</u>	<u>2017 - 2016</u> <u>Percent Change</u>
Total	52.2	53.0	53.8	-3.0%
Fixed Route Bus	35.9	35.9	36.7	-2.3%
MAX Light Rail	151.5	157.1	156.1	-3.0%
WES Commuter Rail	115.0	118.2	120.1	-4.3%

TriMet Boarding Rides Per Revenue Hour

Total Fixed Route Rides Per Revenue Hour



Rides Per Revenue Hour By Mode

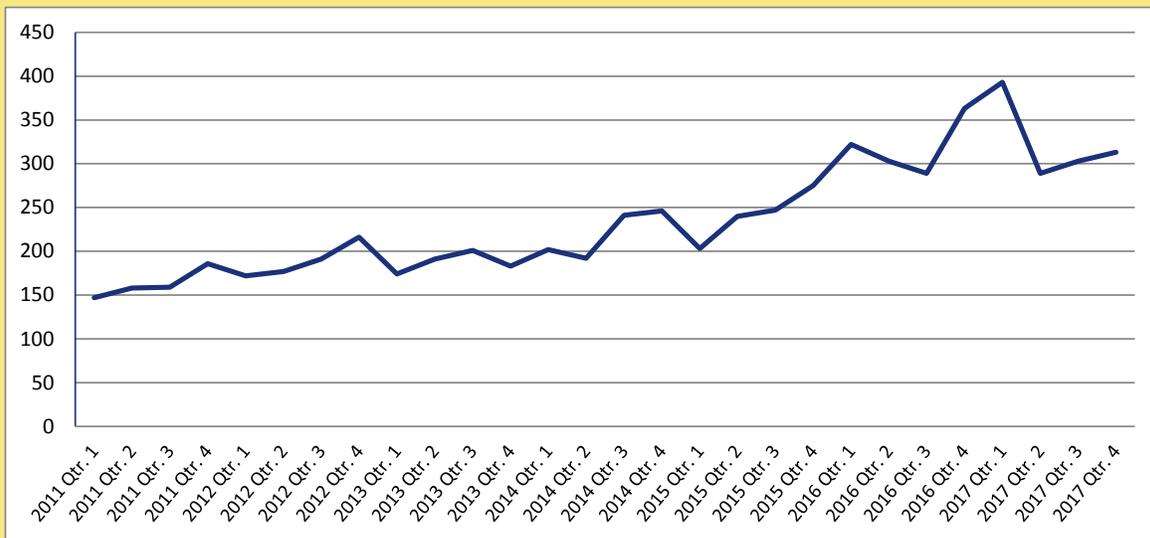


Fixed Route Bus Collisions

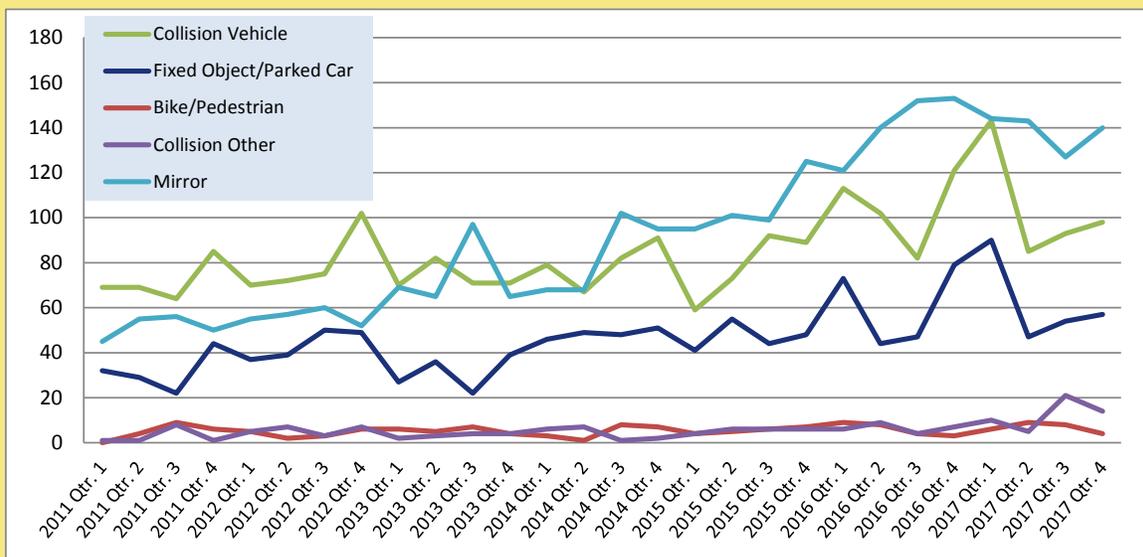
	<u>2017 Qtr. 4</u>	<u>2017 Qtr. 3</u>	<u>2016 Qtr. 4</u>	<u>2017 - 2016</u> <u>Percent Change</u>
Total	313	303	363	-13.8%
Collision Vehicle	98	93	121	-19.0%
Fixed Object/Parked Car	57	54	79	-27.8%
Bike/Pedestrian	4	8	3	33.3%
Collision Other	14	21	7	100.0%
Mirror	140	127	153	-8.5%

Fixed Route Bus

Total Bus Collisions



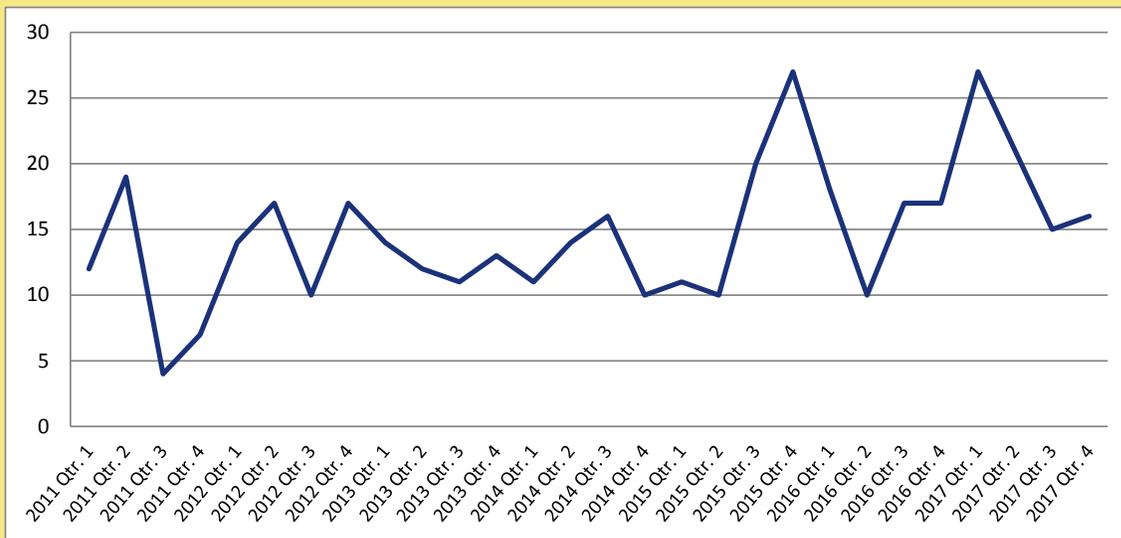
Bus Collision Types



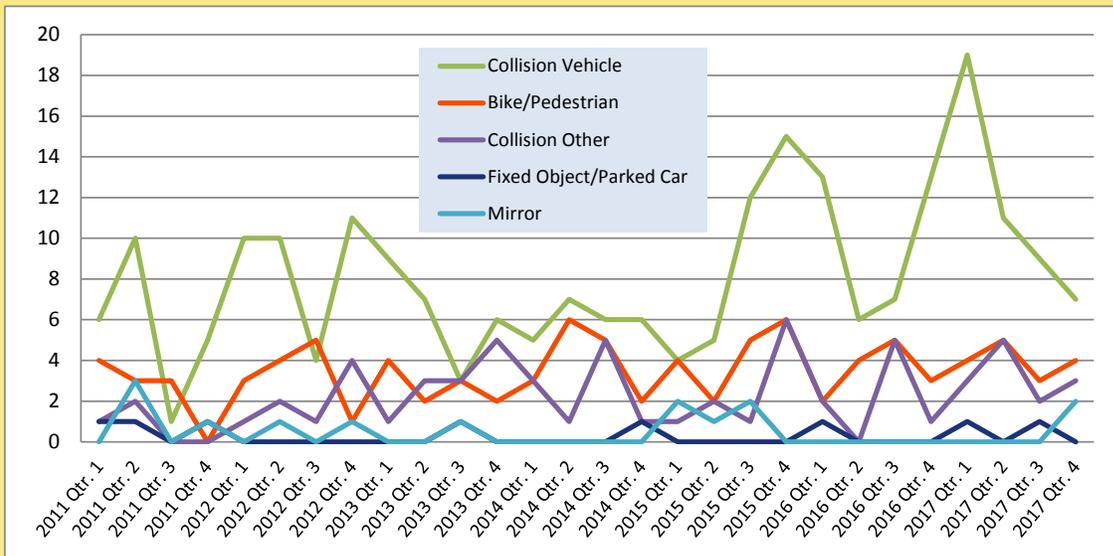
MAX Light Rail Collisions

	<u>2017 Qtr. 4</u>	<u>2017 Qtr. 3</u>	<u>2016 Qtr. 4</u>	<u>2017 - 2016</u> <u>Percent Change</u>
Total	16	15	17	-6%
Collision Vehicle	7	9	13	-46%
Fixed Object/Parked Car	-	1	-	0%
Bike/Pedestrian	4	3	3	33%
Collision Other	3	2	1	200%
Mirror	2	-	-	-

MAX Light Rail Collisions



MAX Collision Types

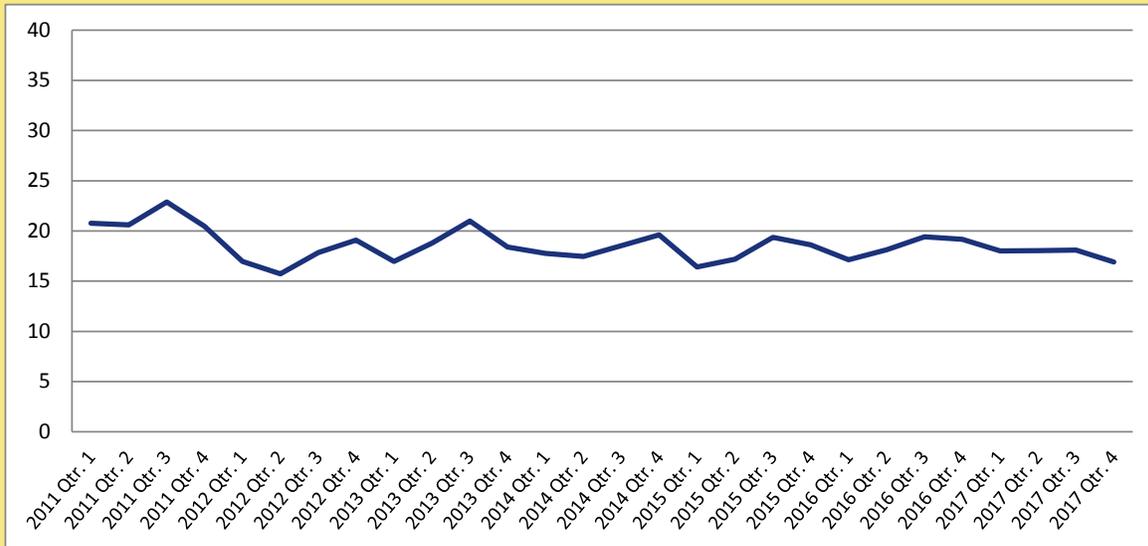


MAX Light Rail

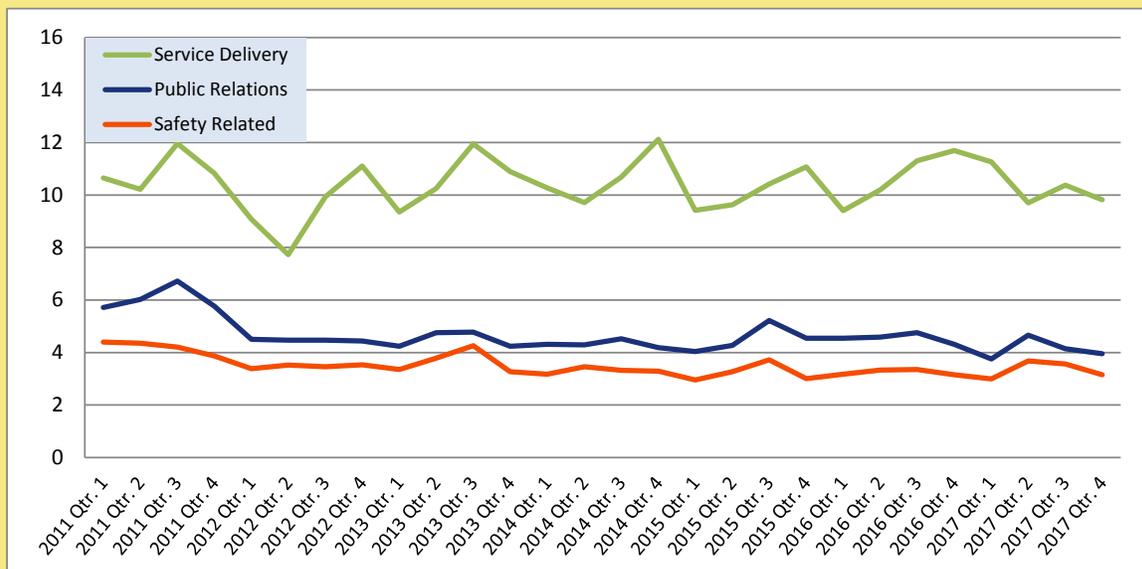
Fixed Route Bus Complaints Per 100,000 Boarding Rides

	<u>2017 Qtr. 4</u>	<u>2017 Qtr. 3</u>	<u>2016 Qtr. 4</u>	<u>2017 - 2016 Percent Change</u>
Total	16.9	18.1	19.2	-11.7%
Service Delivery	9.8	10.4	11.7	-16.0%
Public Relations	4.0	4.1	4.3	-8.5%
Safety Related	3.2	3.6	3.2	0%

Total Operator Complaints Per 100,000 Boarding Rides



Type of Operator Complaints Per 100,000 Boarding Rides

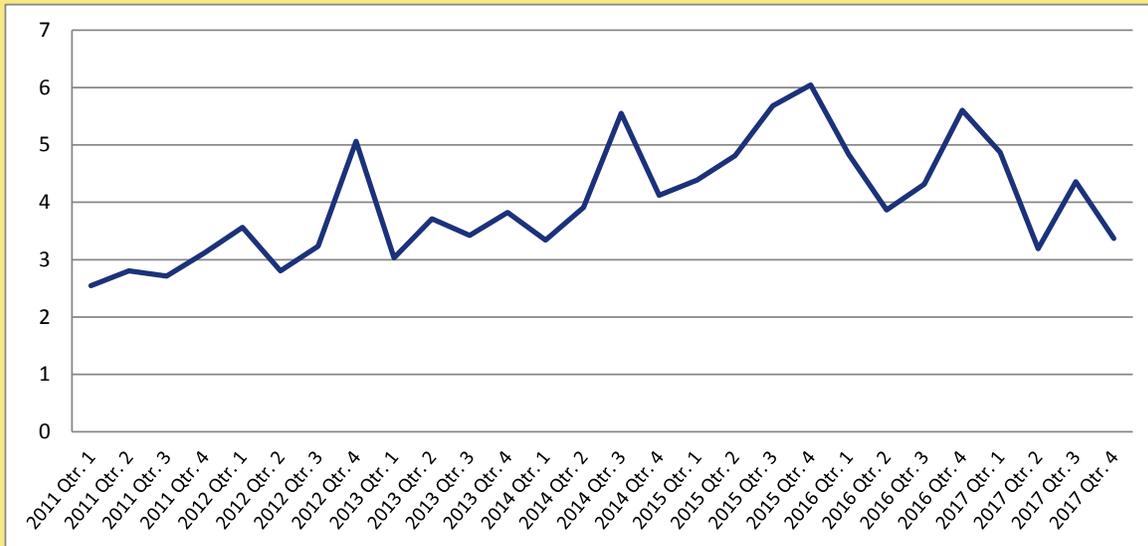


Fixed Route Bus

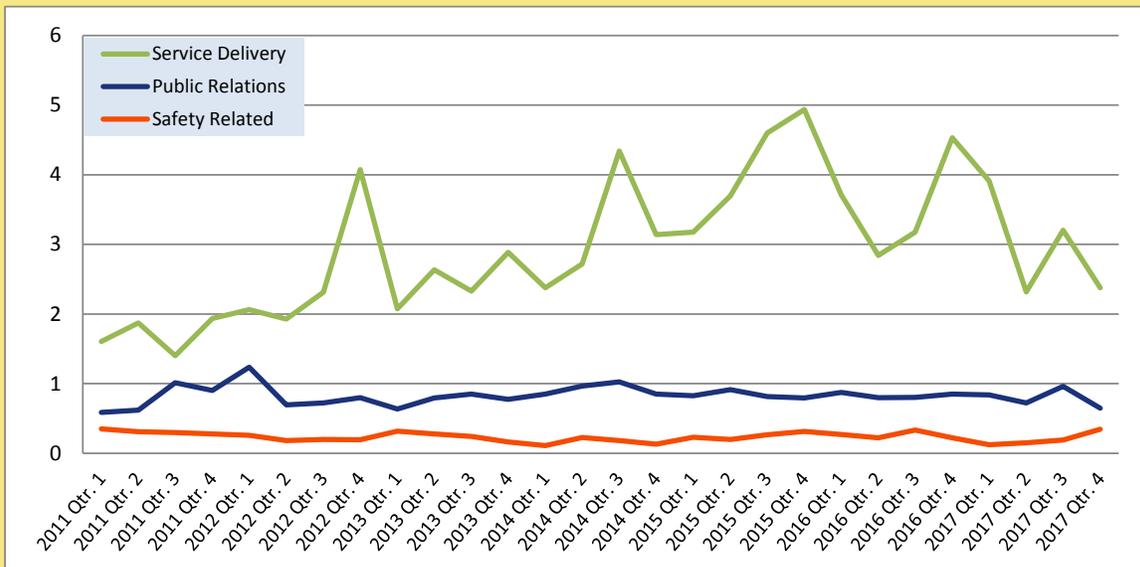
MAX Light Rail Complaints Per 100,000 Boarding Rides

	<u>2017 Qtr. 4</u>	<u>2017 Qtr. 3</u>	<u>2016 Qtr. 4</u>	<u>2017 - 2016</u> <u>Percent Change</u>
Total	3.4	4.4	5.6	-39.9%
Service Delivery	2.4	3.2	4.5	-47.5%
Public Relations	0.6	1.0	0.9	-24.0%
Safety Related	0.3	0.2	0.2	54.4%

Total Operator Complaints Per 100,000 Boarding Rides



Type of Operator Complaints Per 100,000 Boarding Rides

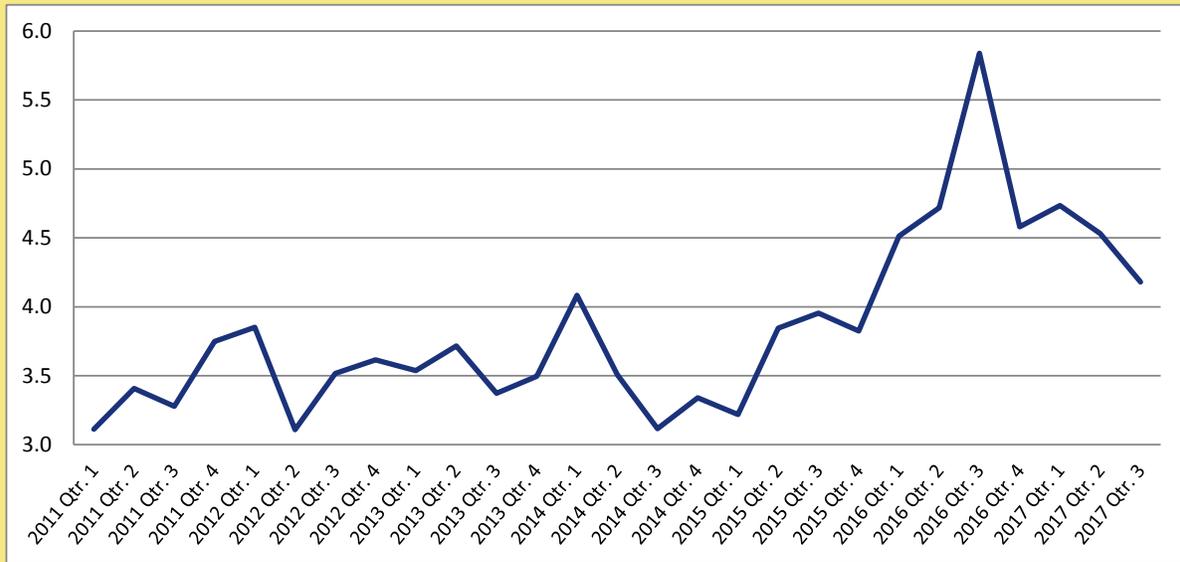


MAX Light Rail

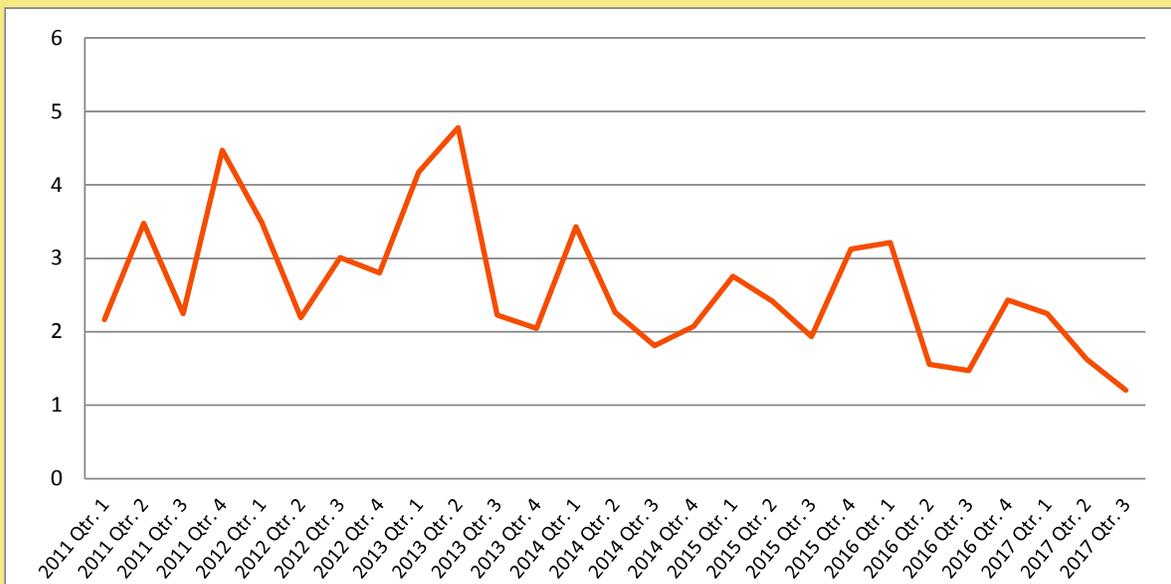
Fixed Route Bus and MAX Light Rail Commendations

	<u>2017 Qtr. 4</u>	<u>2017 Qtr. 3</u>	<u>2016 Qtr. 4</u>	<u>2017 - 2016 Percent Change</u>
Fixed Route Bus Per 100,000 Boardings	3.4	4.2	4.6	-26.7%
MAX Light Rail Per Million Boardings	1.3	1.2	2.4	-48.5%

Total Bus Operator Commendations Per 100,000 Boarding Rides



Total MAX Light Rail Commendations Per Million Boarding Rides



TriMet Bus and MAX Commendations

Rail Rule Violations per Million Miles

	<u>2017 Qtr. 4</u>	<u>2017 Qtr. 3</u>	<u>2016 Qtr. 4</u>	<u>2016-2017 Percent Change</u>
Rail Rule Violation Rate	140.9	83.6	174.5	-19.3%

