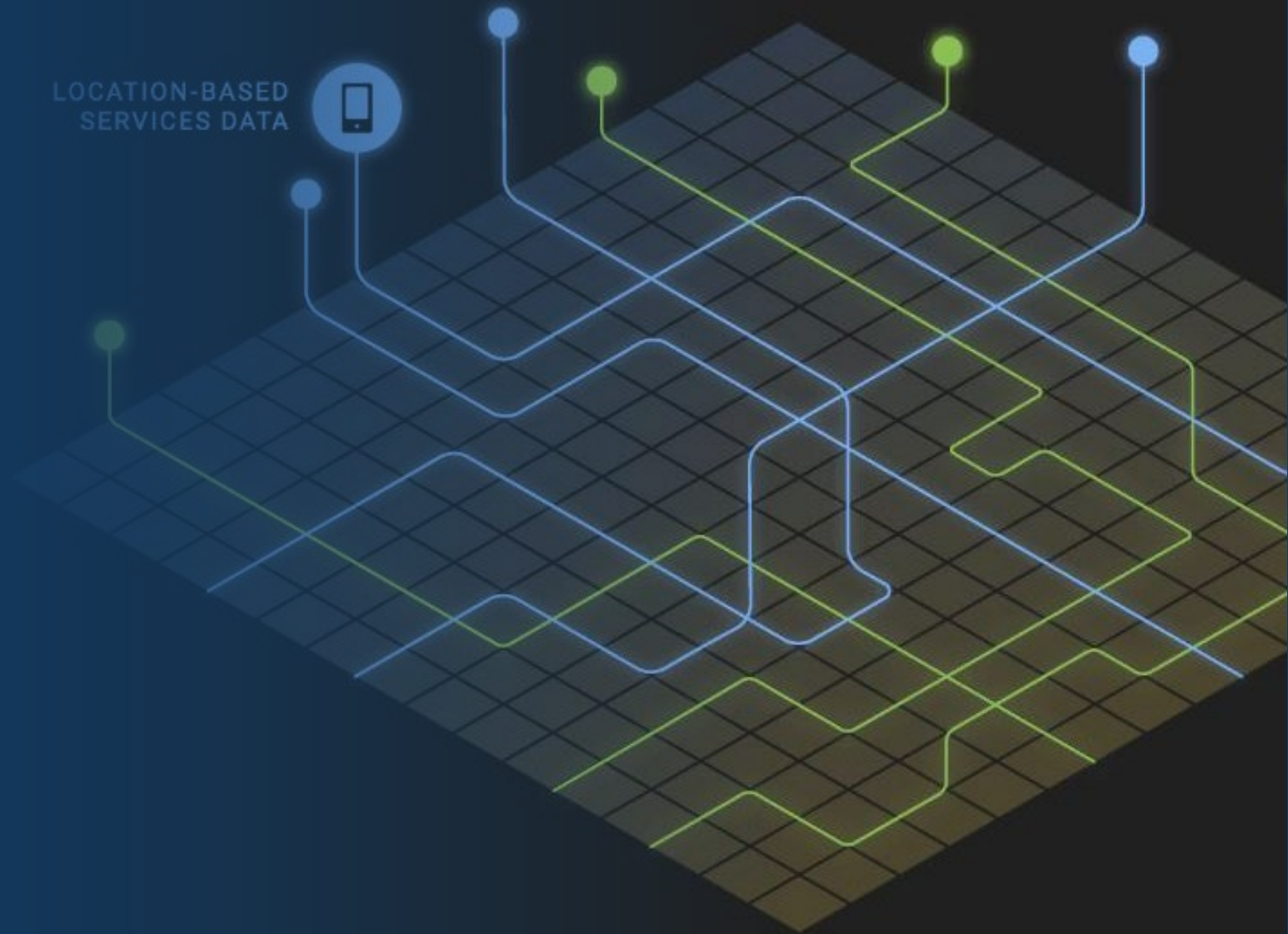


StreetLight Turning Movement Count Evaluation

Austin Stroming,
Transportation Planning

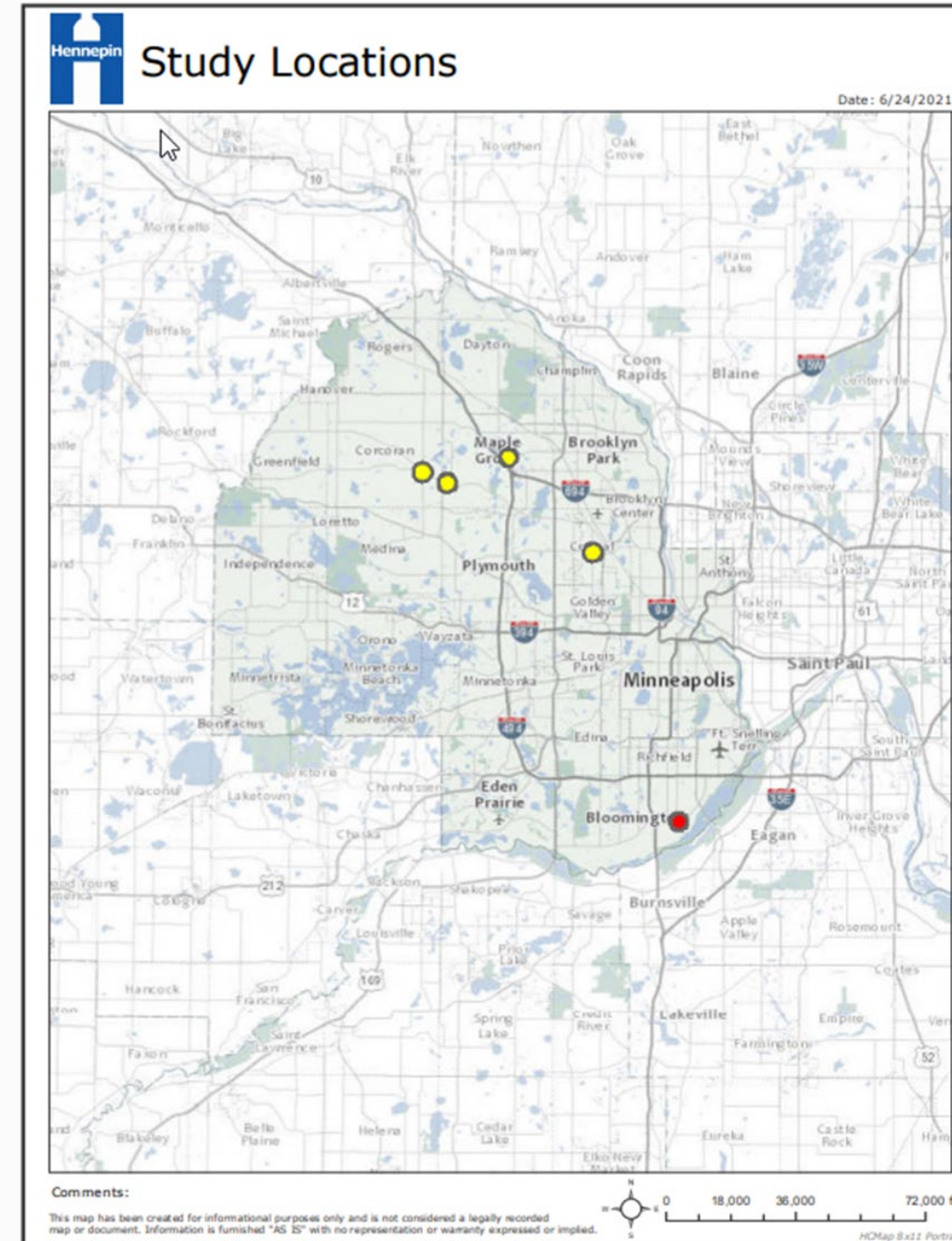
Hennepin County



Agenda

- 2017 Study
 - 4 locations
 - Identify most accurate StreetLight analysis for TMCs
 - 1 TMC per location
- 2019 Study
 - 5 locations
 - 4 TMCs per location within 2019
- Comparison of 2017 vs 2019 accuracy

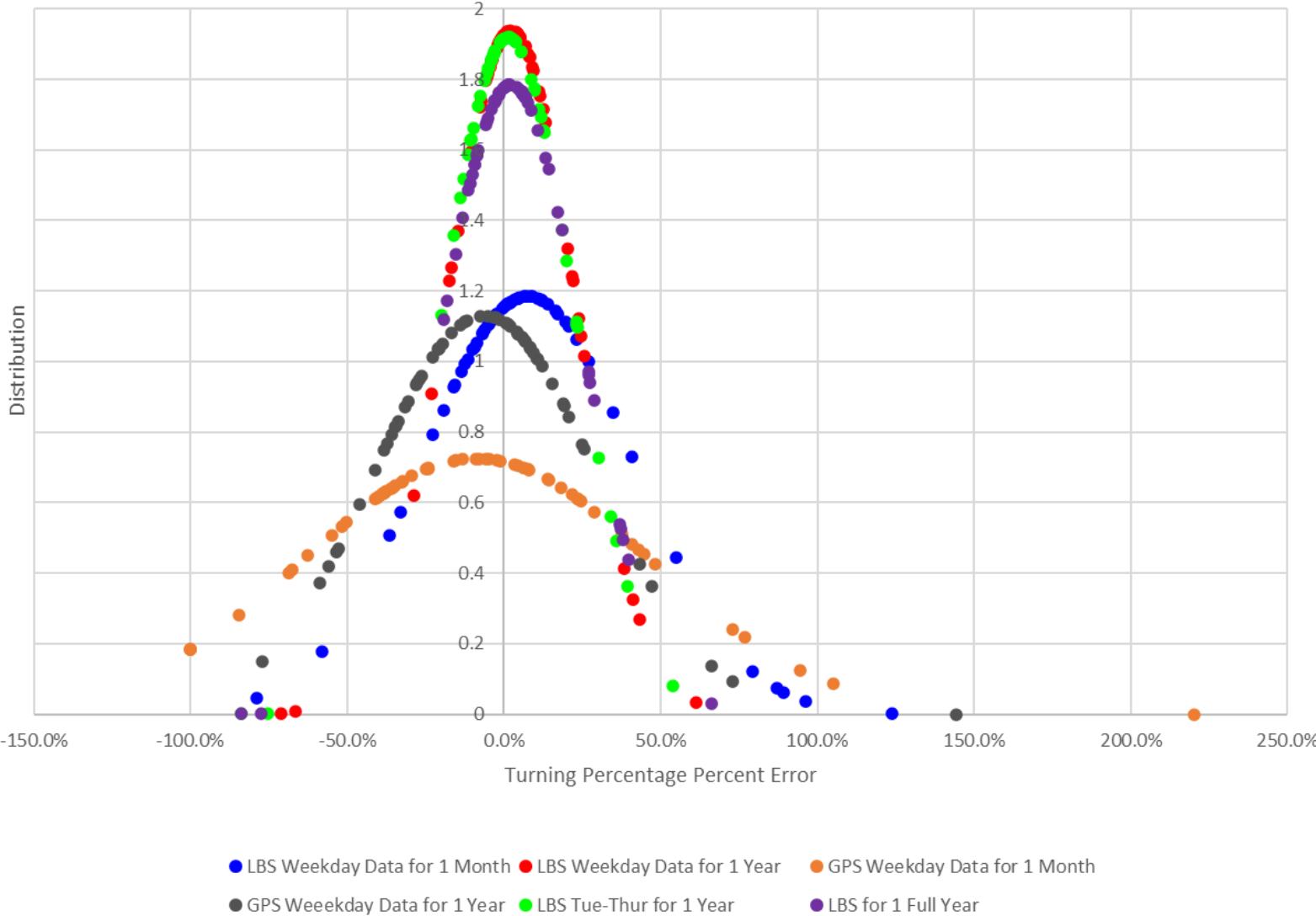
Hennepin County



2017 Methodology

- Identify most accurate StreetLight TMC analysis parameters
 - LBS data for 1 month
 - LBS data for 1 year
 - GPS data for 1 month
 - GPS data for 1 year
 - LBS Tue-Thur for 1 year
 - LBS for 1 full year

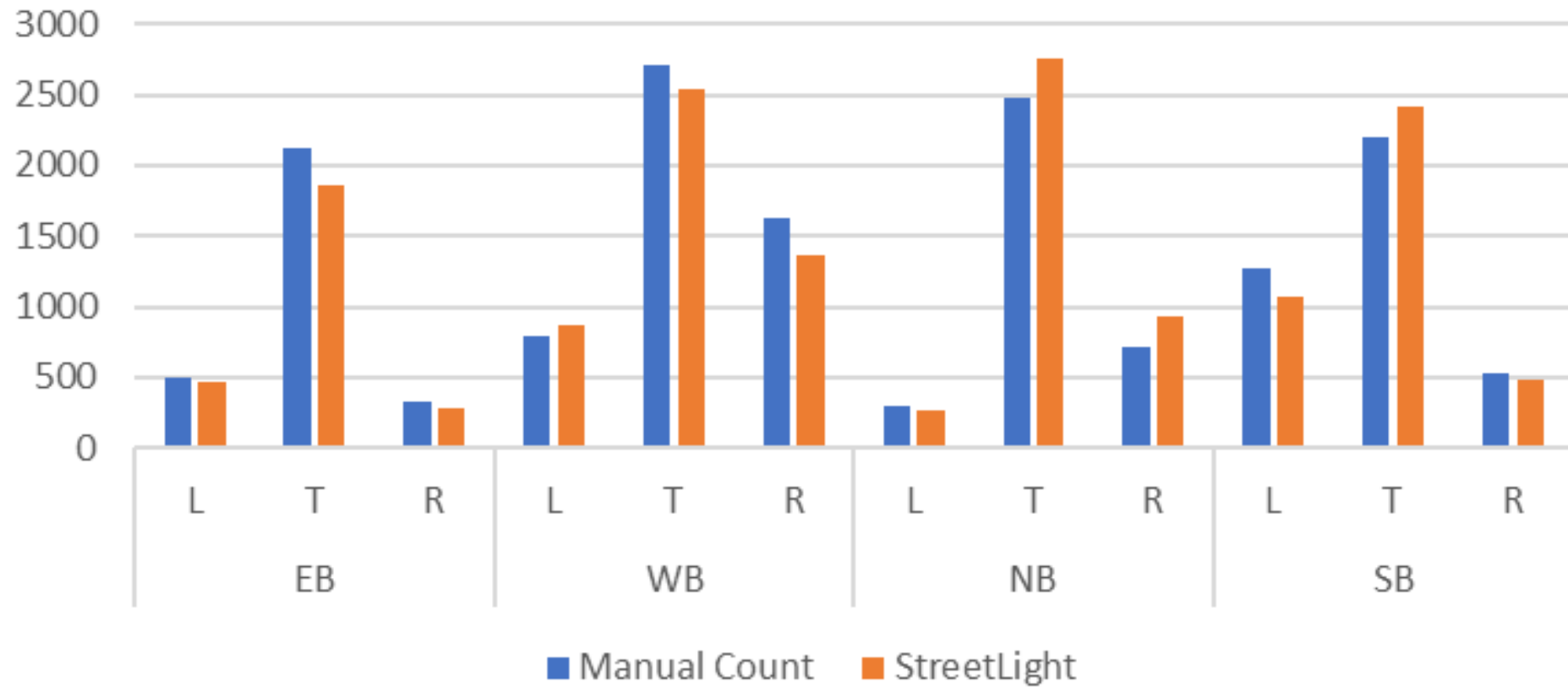
Percent Error of Turning Movement Percentages by Data Type



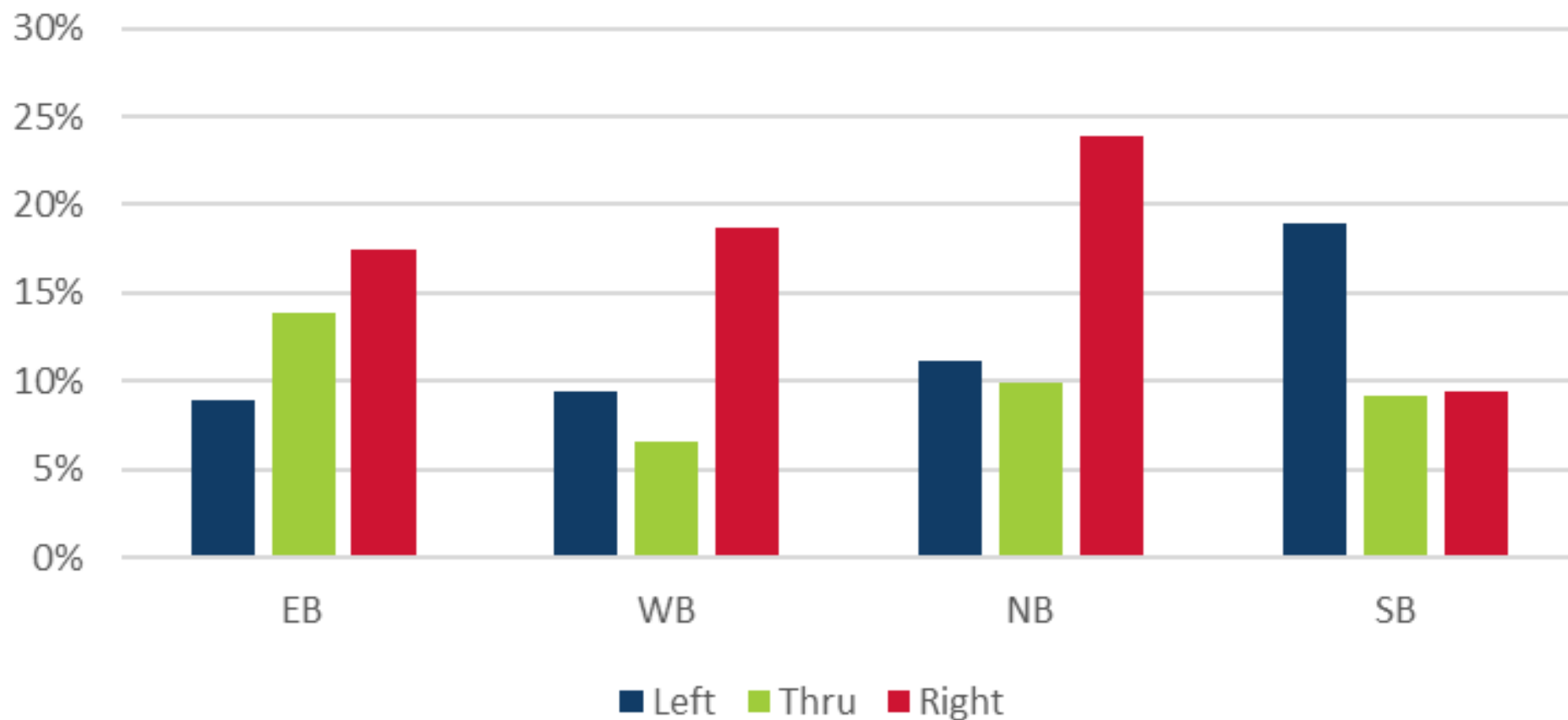
2019 Methodology

- Review accuracy using average of 4 TMC counts throughout one year
- Review accuracy for 6 am – 8 pm, peak 15 min interval, and peak hour for
 - Turning movement volumes
 - Approach volumes
 - Intersection volumes

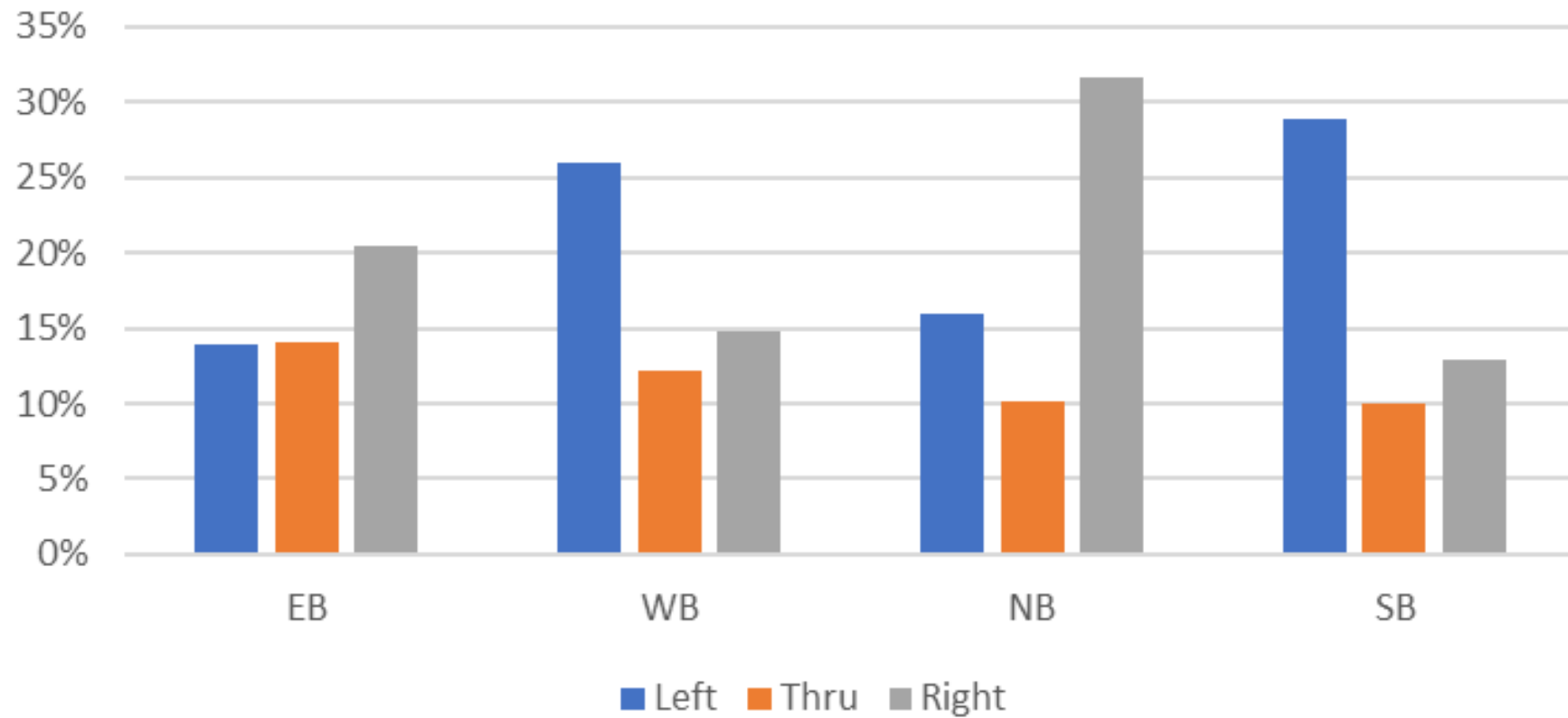
CSAH 10 & CSAH 101 - Volumes 6 AM - 8 PM



CSAH 10 & CSAH 110- Streetlight Error 6AM-8PM



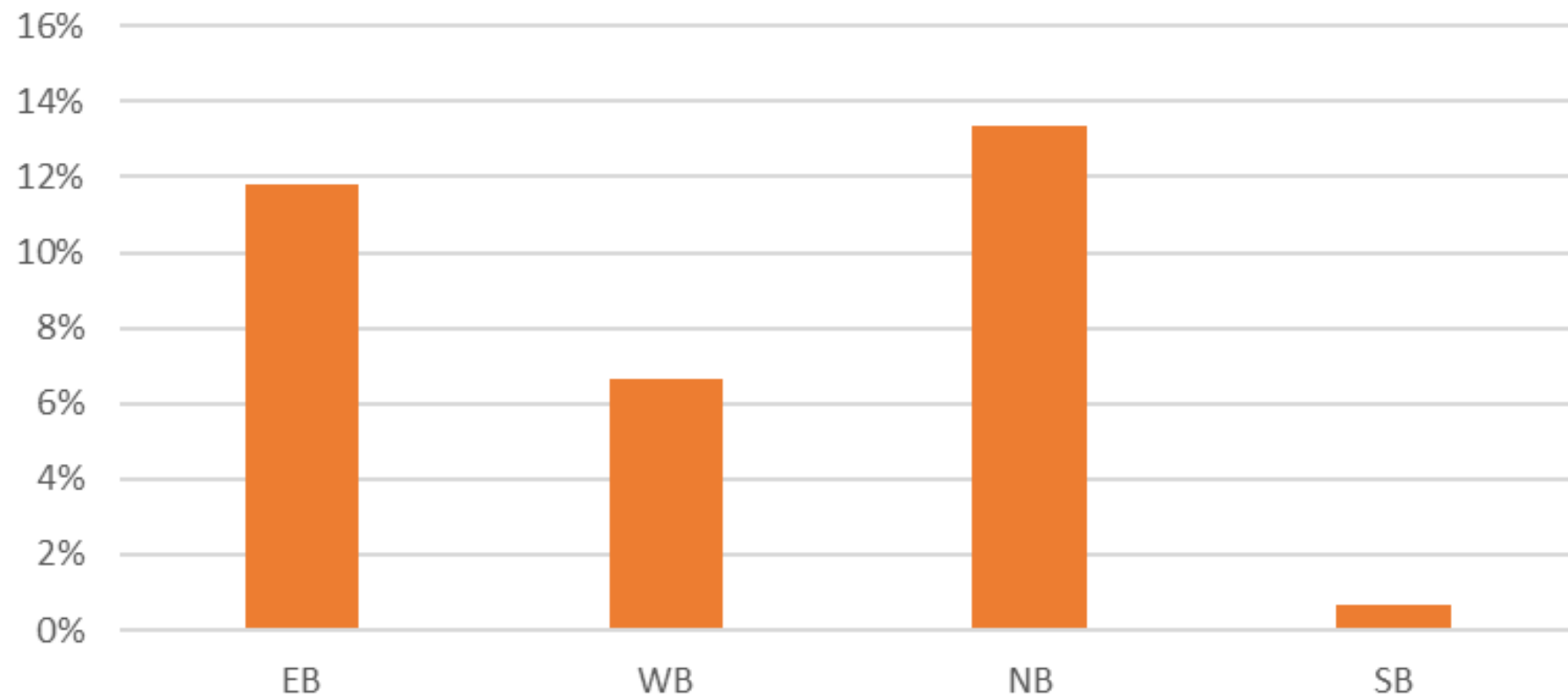
Average Intersection Abs % Error 6 AM - 8 PM



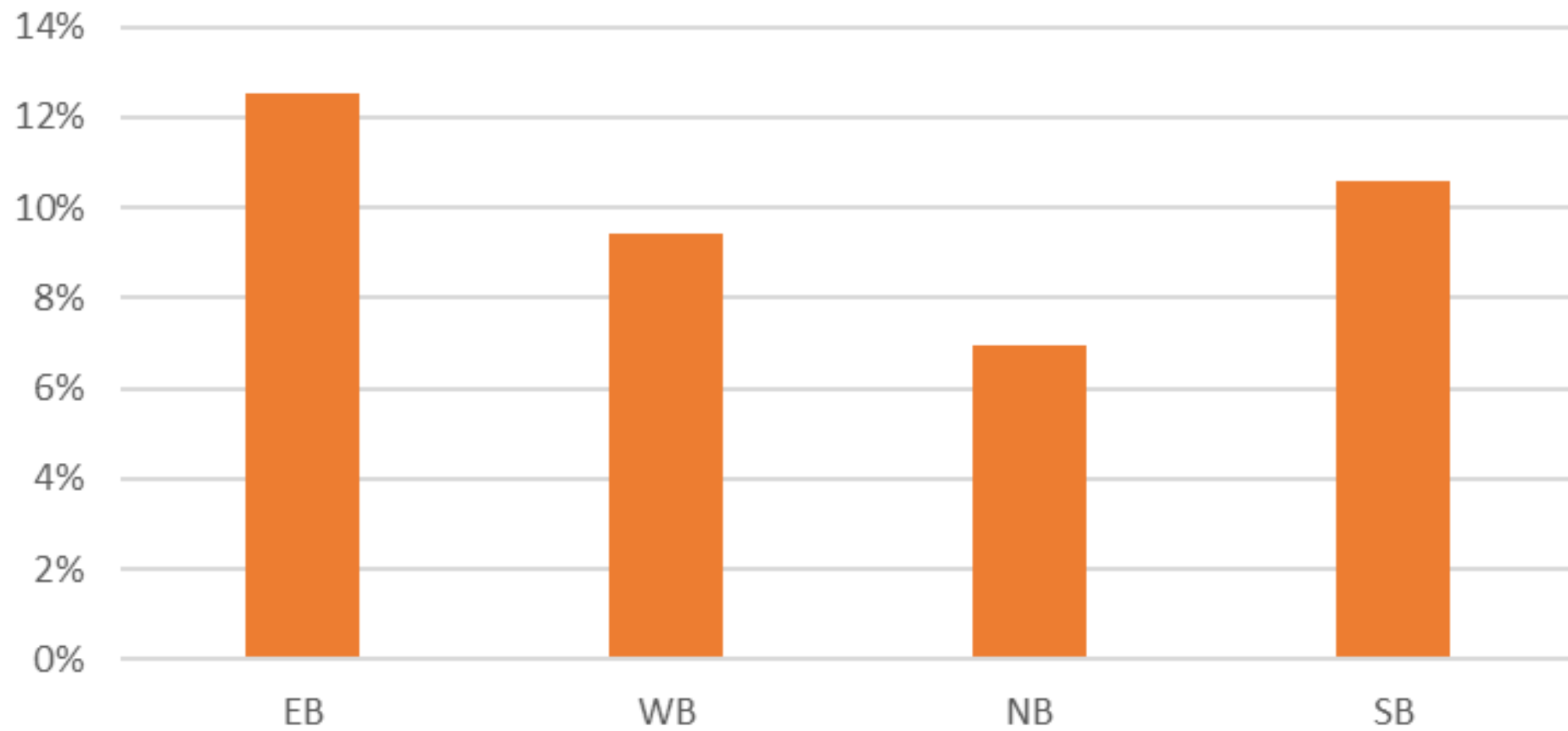
Average Turning Movement Absolute % Error

	Left	Thru	Right
EB	14%	14%	20%
WB	26%	12%	15%
NB	16%	10%	32%
SB	29%	10%	13%

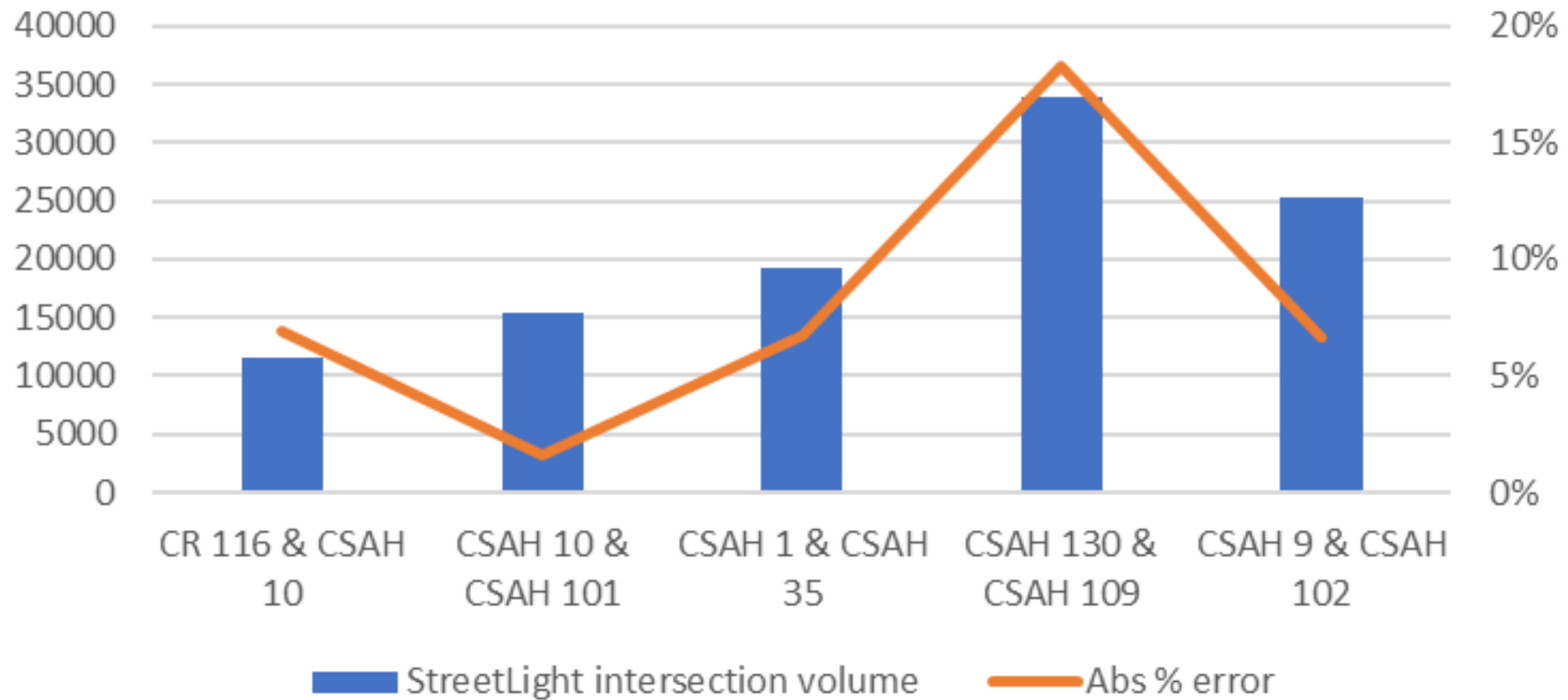
CSAH 10 & CSAH 101 Approach Volume Abs % Error 6 AM - 8 PM



Average Approach Abs % Error 6 AM - 8 PM



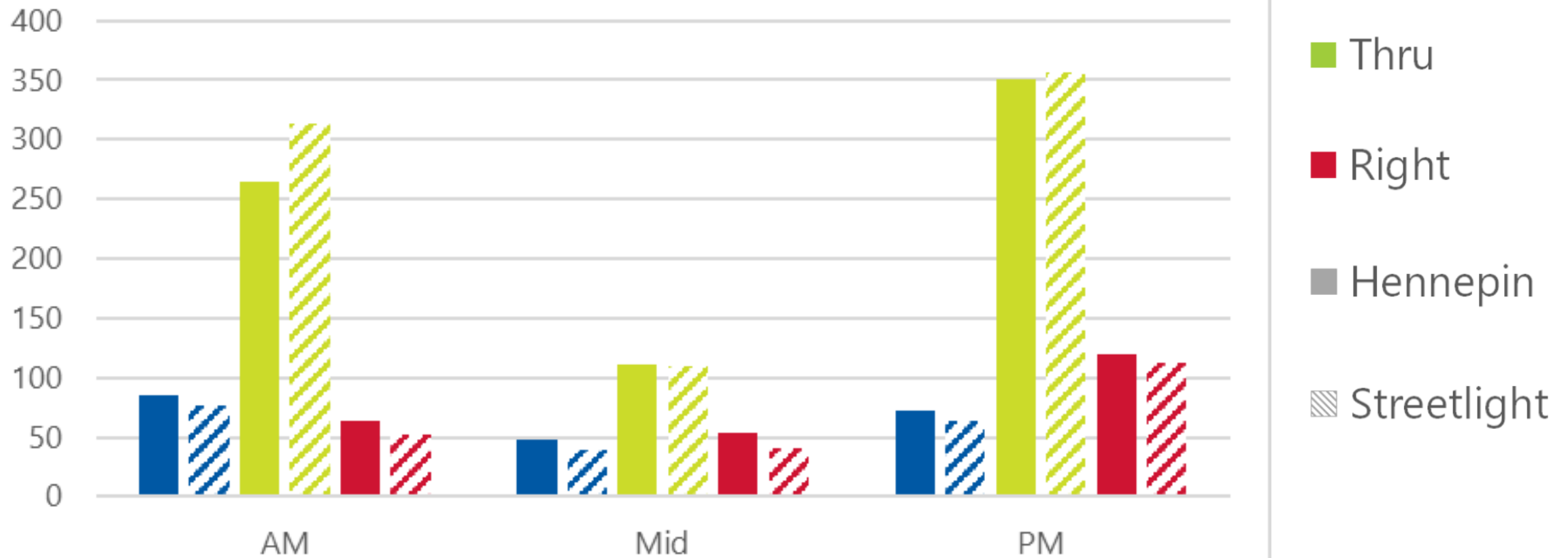
Total Intersection Volume % Error 6 AM - 8 PM



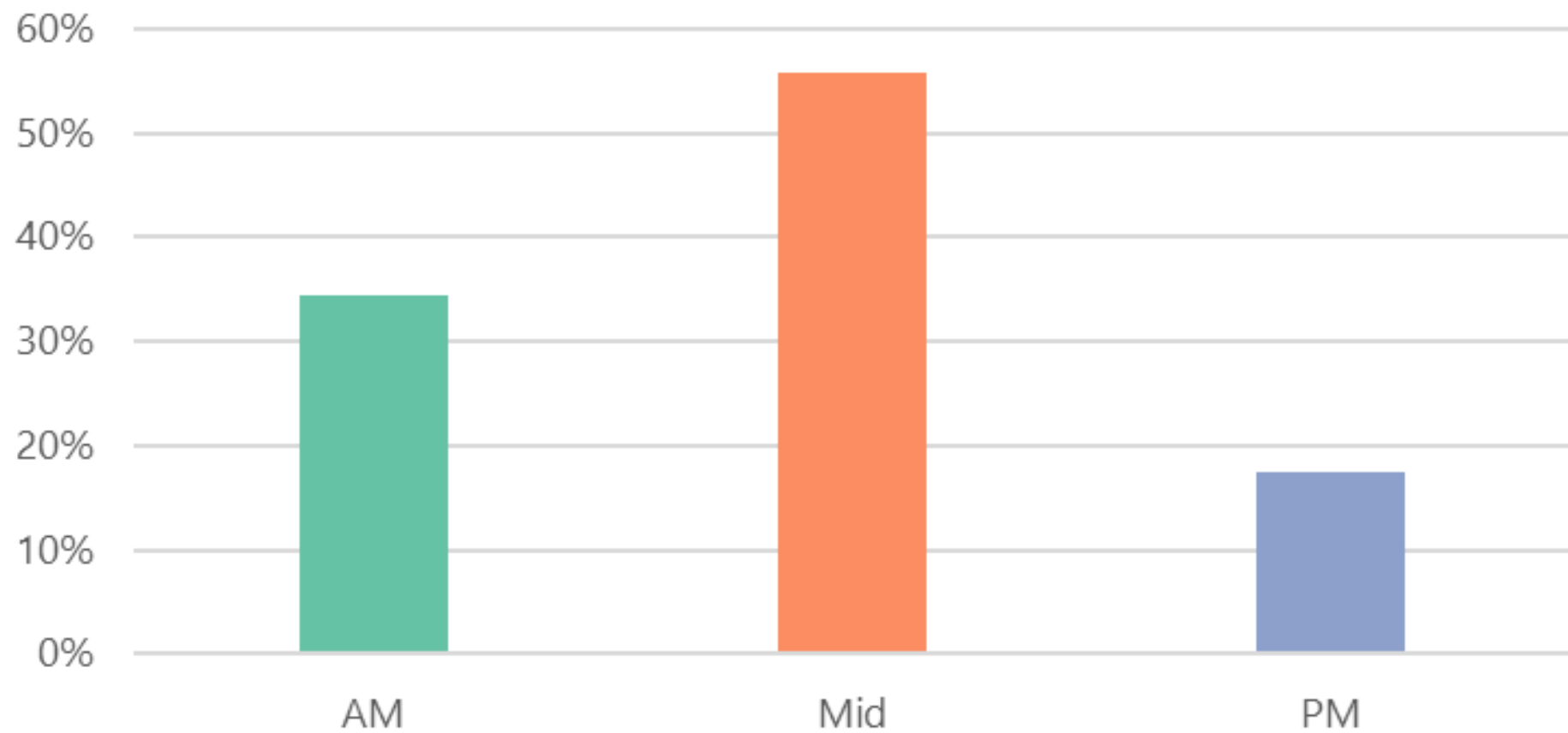
Streetlight Abs Error by Intersection and Leg

Location	EB	WB	NB	SB	Average
CR 116 & CSAH 10	5%	4%	1%	22%	8%
CSAH 10 & CSAH 101	12%	7%	13%	1%	8%
CSAH 1 & CSAH 35	8%	10%	4%	2%	6%
CSAH 130 & CSAH 109	18%	23%	21%	12%	18%
CSAH 9 & CSAH 102	12%	5%	11%	12%	10%

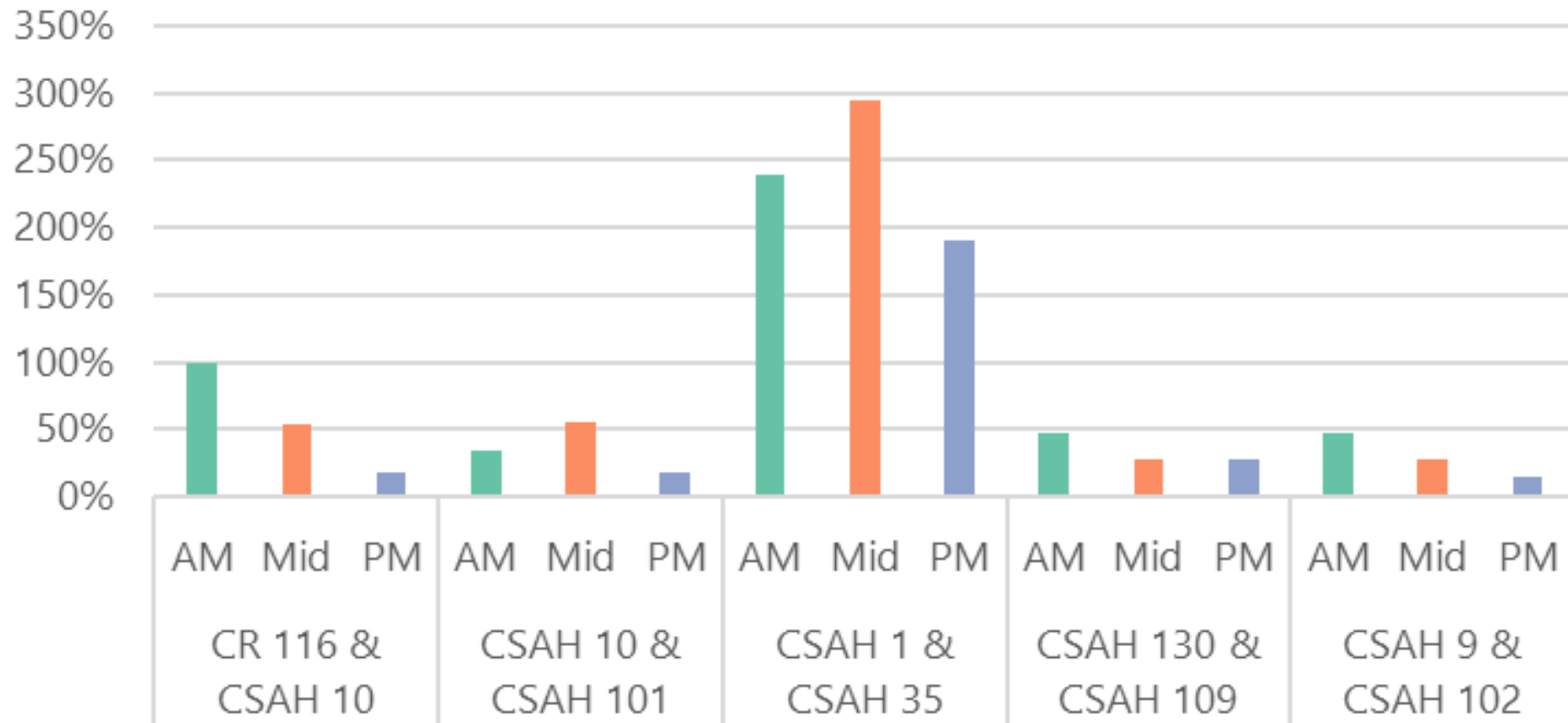
CSAH 10 & CSAH 101 Peak 15 Minute Intervals



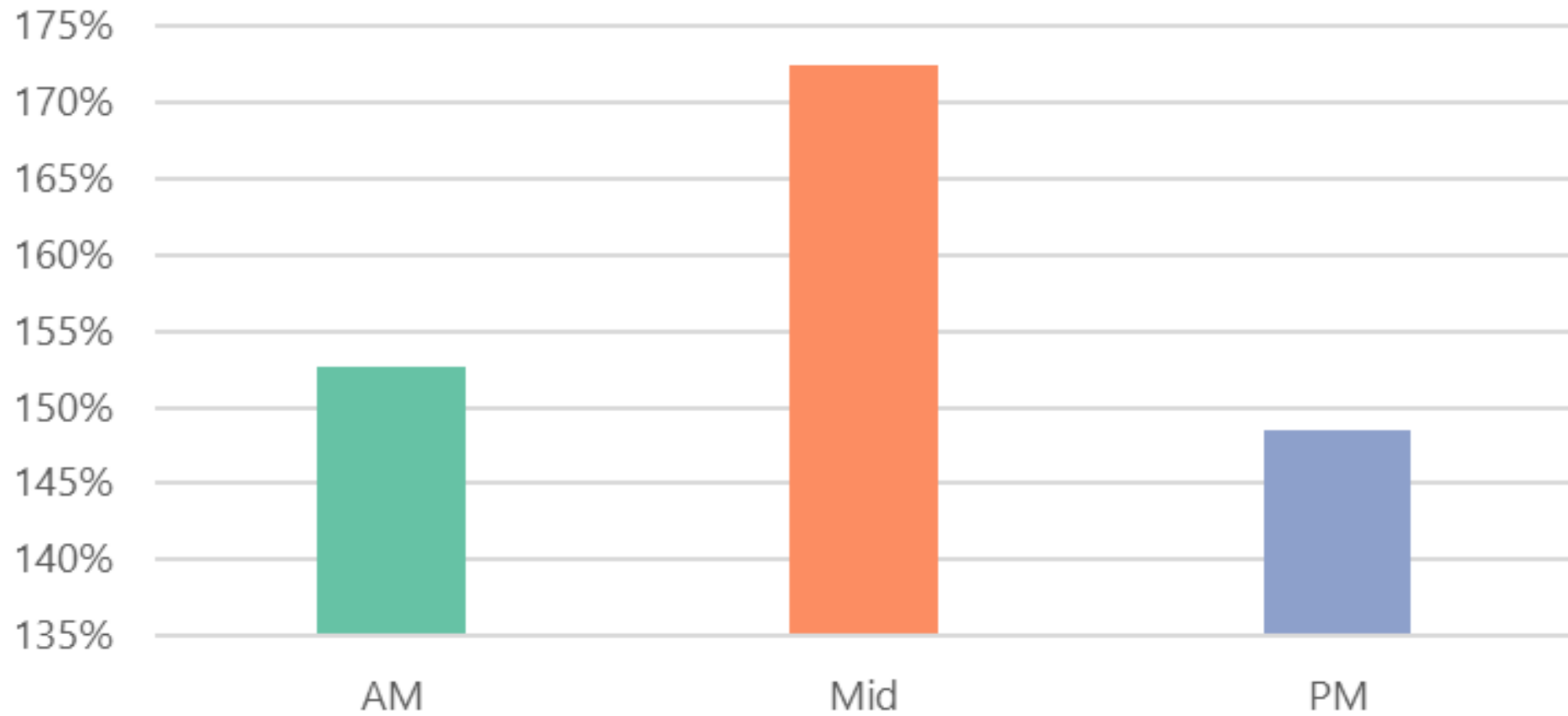
CSAH 10 & CSAH 101 Average Error Peak 15 Minute Intervals



Intersection Percentage Error 15 Minute Peak Intervals



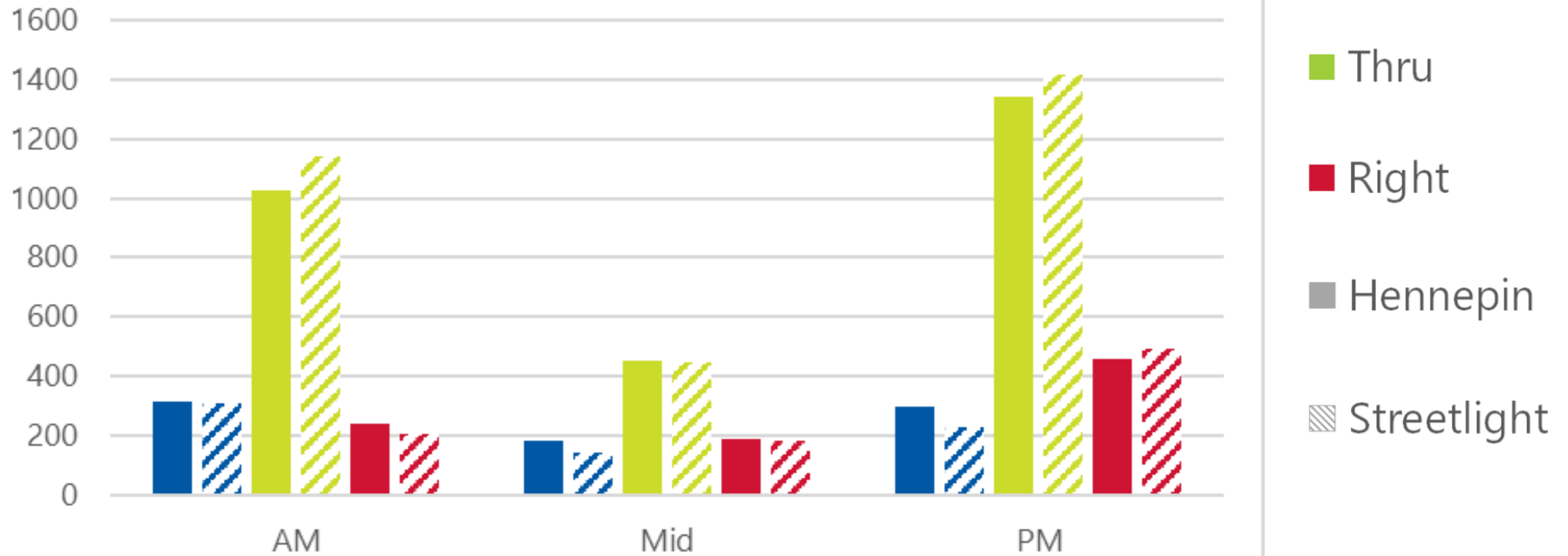
Average Peak Error 15 Minute Intervals



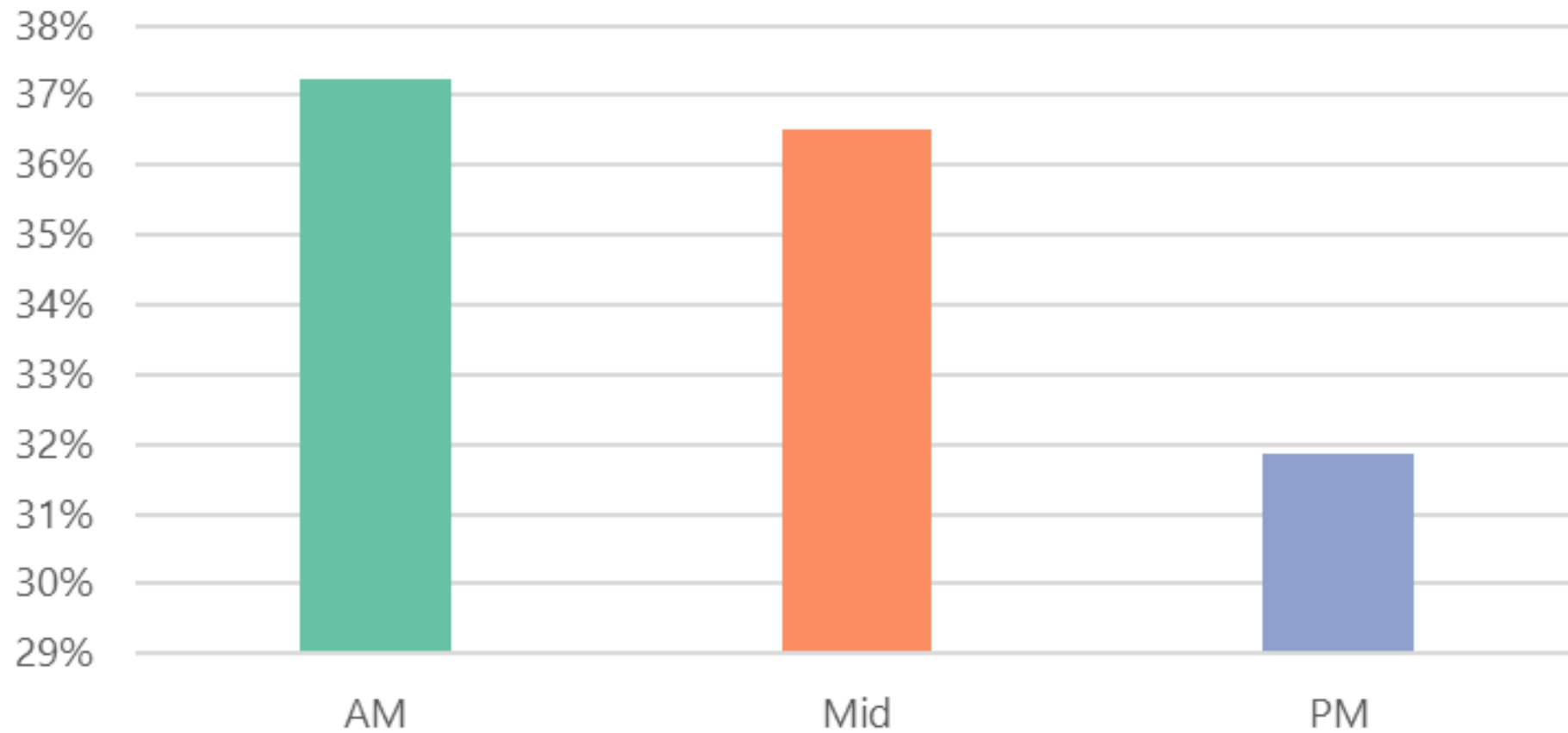
Streetlight Error by 15 Minute Peak Interval

Location	Period	Average
CR 116 & CSAH 10	AM	99%
	Mid	54%
	PM	18%
CSAH 10 & CSAH 101	AM	34%
	Mid	56%
	PM	18%
CSAH 1 & CSAH 35	AM	239%
	Mid	295%
	PM	190%
CSAH 130 & CSAH 109	AM	47%
	Mid	28%
	PM	28%
CSAH 9 & CSAH 102	AM	48%
	Mid	29%
	PM	16%

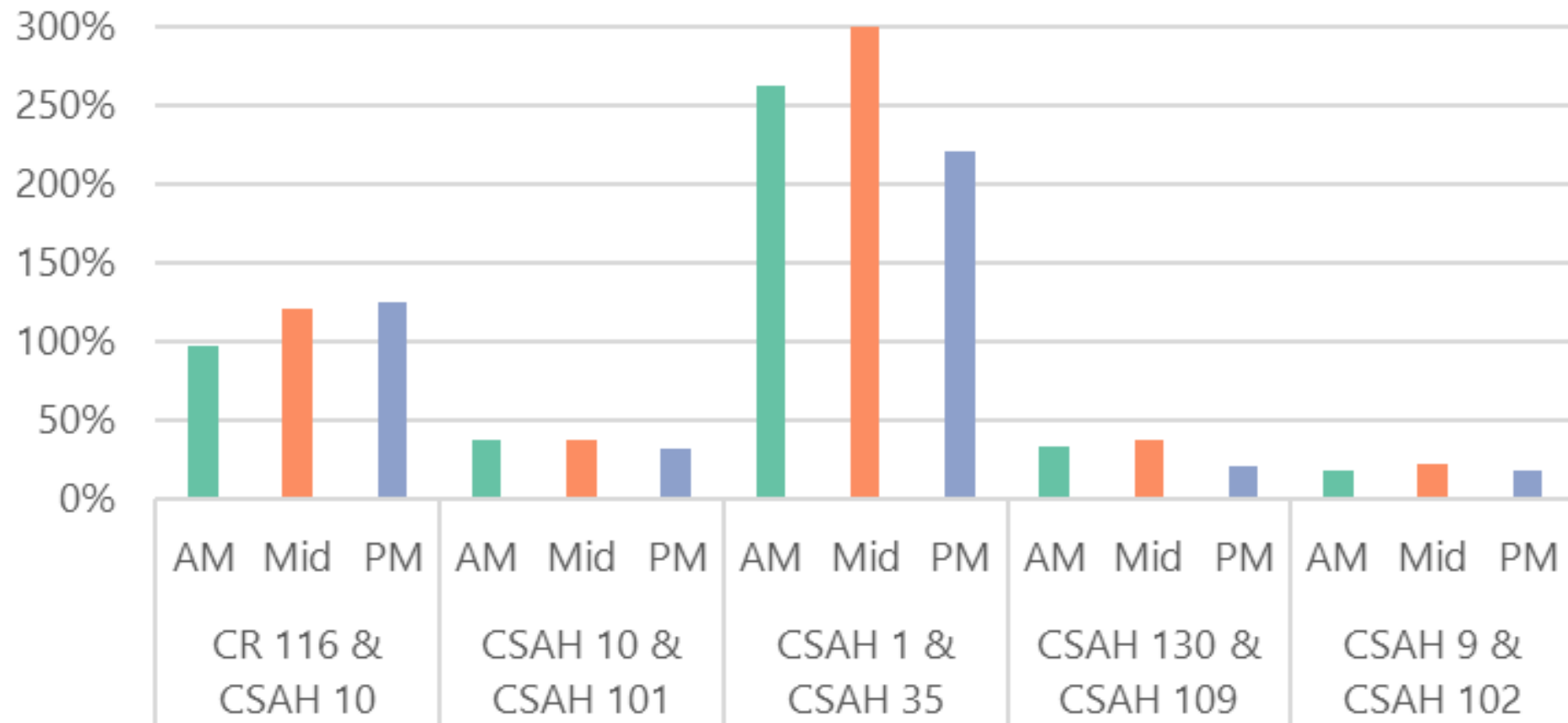
CSAH 10 & CSAH 101 Peak Hour Intervals



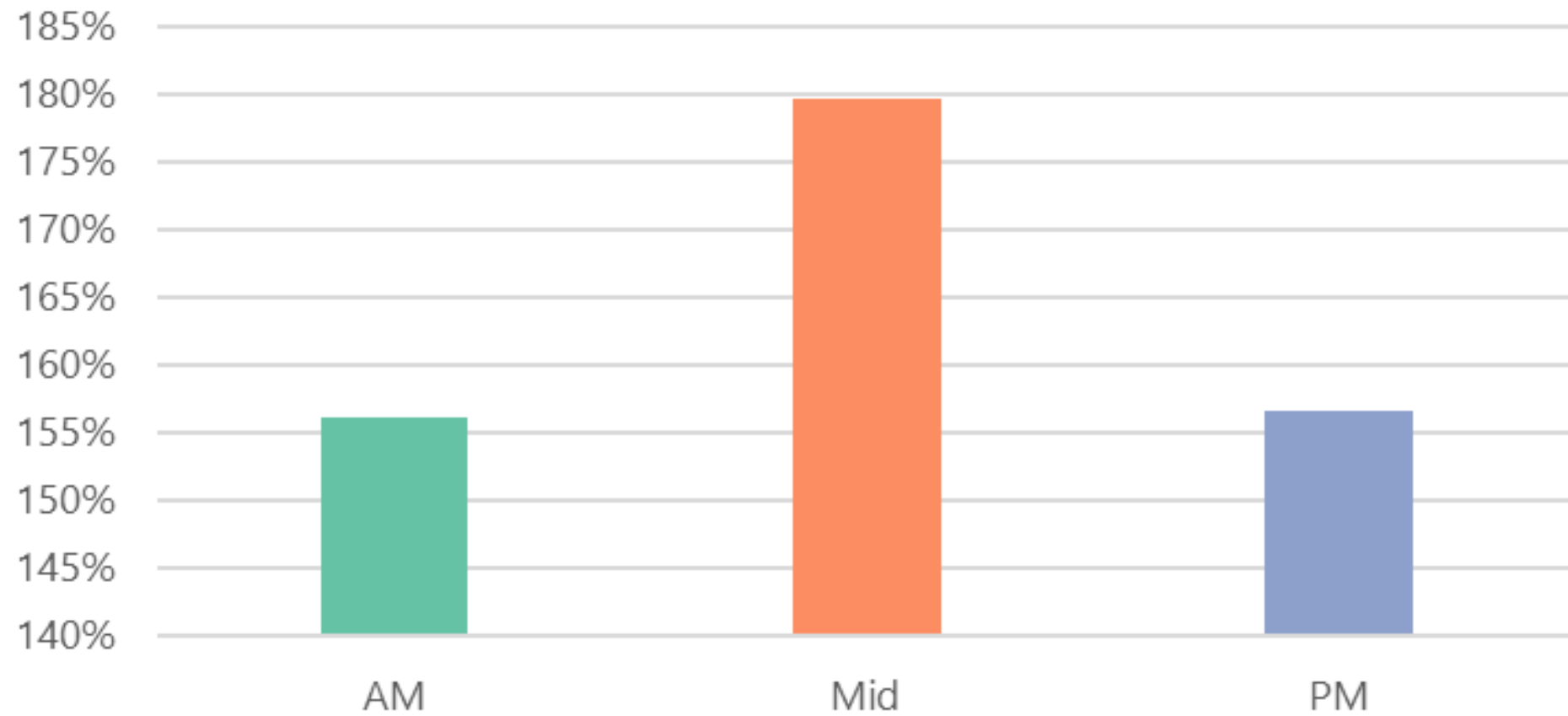
CSAH 10 & CSAH 101 Average Error Peak Hour Intervals



Intersection Percentage Error Peak Hour Intervals



Average Peak Error Hour Intervals



Streetlight Error by Peak Hour Interval

Location	Period	Average
CR 116 & CSAH 10	AM	97%
	Mid	120%
	PM	124%
CSAH 10 & CSAH 101	AM	37%
	Mid	37%
	PM	32%
CSAH 1 & CSAH 35	AM	263%
	Mid	326%
	PM	221%
CSAH 130 & CSAH 109	AM	33%
	Mid	37%
	PM	20%
CSAH 9 & CSAH 102	AM	17%
	Mid	21%
	PM	17%

Improvement 2017 and 2019

Location	2017 Avg TMC Error	2019 Avg TMC Error	Difference
CR 116 & CSAH 10	10%	26%	16%
CSAH 10 & CSAH 101	32%	13%	-19%
CSAH 130 & CSAH 109	14%	25%	11%
CSAH 9 & CSAH 102	14%	15%	1%

Location	2017 Avg Approach Error	2019 Avg Approach Error	Difference
CR 116 & CSAH 10	7%	8%	1%
CSAH 10 & CSAH 101	20%	8%	-12%
CSAH 130 & CSAH 109	2%	18%	16%
CSAH 9 & CSAH 102	12%	10%	-2%

Location	2017 Avg Intersection Error	2019 Avg Intersection Error	Difference
CR 116 & CSAH 10	1%	7%	6%
CSAH 10 & CSAH 101	15%	2%	-13%
CSAH 130 & CSAH 109	0%	18%	18%
CSAH 9 & CSAH 102	11%	7%	-4%

Questions?

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