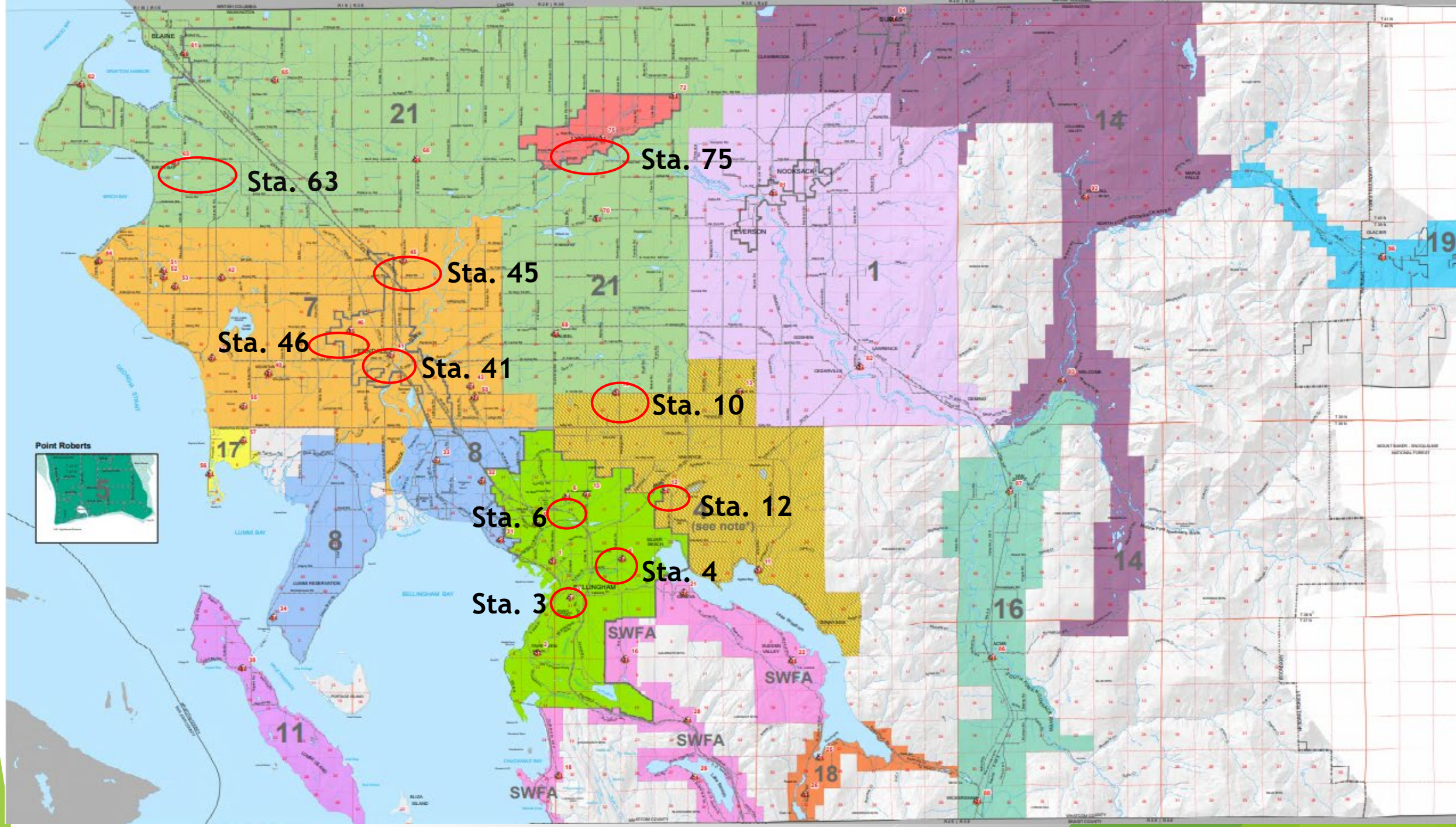
5th Medic Unit

Deployment Plan For 5th Medic Unit


Sta. 63
Sta. 75
Sta. 45
Sta. 46
Sta. 41
Sta. 10
Sta. 12
(see note*)
Sta. 6
Sta. 4
Sta. 3
Point Roberts
SWFA
SWFA
SWFA
SWFA
21
21
7
8
8
17
11
1
14
14
16
18
19

Goals of Implementation

Modify medic deployment to have a balance between the following:

1. Call distribution among medic units
   - Balanced call volume to best utilize resources
   - Equalize/Decrease Call Volume in the City
2. Improved response times to the largest amount of citizens
   - Improved response times to population clusters
   - Improve Unit Reliability in East County

Assumptions

Models incorporate the most recent dispatching optimizations.	• 26 Charlie modifications • M1 and M2 Split between St3 and St6
Model adds 10% call volume to ALS units for upgrades	• Historically ALS units are added to 9%-11% of calls that they are not initially dispatched on • Model adds 10% call volume to ALS units for upgrades
Drop in Center Move	• Center Moved to Cornwall Ave

Base Improvements

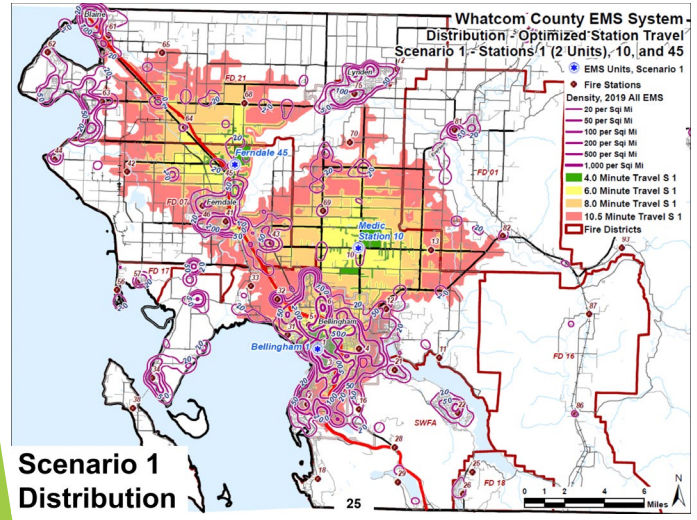
These are changes that if made improve all models.

Restructure EMS Zones

Move Medic 45 to Station 41

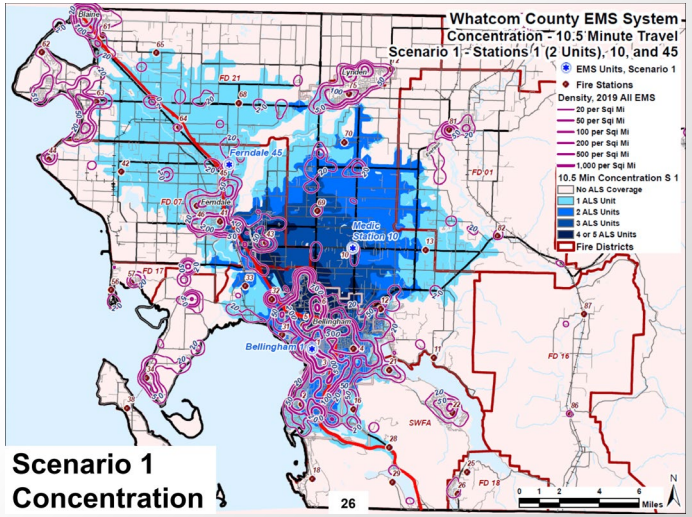
The models presented here assume these changes are made

The changes are not required to select deployment option.



Scenario 1 Distribution

25



Scenario 1 Concentration

26

Scenario 1 Statistics

Scenario Interval	Sta 01 First on Scene S01	Sta 10 First on Scene S01	Sta 45 First on Scene S01	All First on Scene S01	Sta 01 Transport S01	Sta 10 Transport S01	Sta 45 Transport S01	All Transport S01
4.0 Minutes	2,488	160	191	2,839	1,273	101	116	1,490
6.0 Minutes	6,215	401	569	7,185	3,282	229	316	3,827
8.0 Minutes	9,345	1,384	1,339	12,068	4,936	788	685	6,409
10.5 Minutes	10,944	1,857	2,349	15,150	5,789	1,055	1,226	8,070
Over 10.5 Minutes				6,302				3,183
0.0 - 4.0 Minutes	2,488	160	191	2,839	1,273	101	116	1,490
4.0 - 6.0 Minutes	3,727	241	378	4,346	2,009	128	200	2,337
6.0 - 8.0 Minutes	3,130	983	770	4,883	1,654	559	369	2,582
8.0 - 10.5 Minutes	1,599	473	1,010	3,082	853	267	541	1,661
Over 10.5 Minutes				6,302				3,183
0.0 - 4.0 Minutes	11.60%	0.75%	0.89%	13.23%	11.31%	0.90%	1.03%	13.24%
4.0 - 6.0 Minutes	17.37%	1.12%	1.76%	20.26%	17.85%	1.14%	1.78%	20.77%
6.0 - 8.0 Minutes	14.59%	4.58%	3.59%	22.76%	14.70%	4.97%	3.28%	22.94%
8.0 - 10.5 Minutes	7.45%	2.20%	4.71%	14.37%	7.58%	2.37%	4.81%	14.76%
Total	51.02%	8.66%	10.95%	70.62%	51.44%	9.38%	10.89%	71.71%
0.0 - 4.0 Minutes	11.60	0.75	0.89	13.23	11.31	0.90	1.03	13.24
4.0 - 6.0 Minutes	4.34	0.28	0.44	5.06	4.46	0.28	0.44	5.19
6.0 - 8.0 Minutes	1.82	0.57	0.45	2.85	1.84	0.62	0.41	2.87
8.0 - 10.5 Minutes	0.93	0.28	0.59	1.80	0.95	0.30	0.60	1.85
Total	18.70	1.88	2.37	**22.94**	18.56	2.10	2.49	**23.15**

Restructure EMS Zones

Base Improvements
EMS Zones

- Current EMS Zones
- EMS zones are not used for response times.
- EMS Zones are used to equalize calls among medic units

Base Improvements – EMS Zones

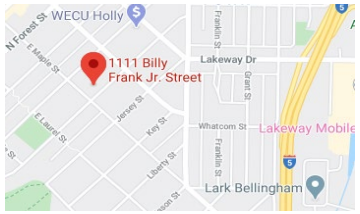
2019 Incident Count by Travel Area – Selected Stations

Station Number	Agency	Status	4 Minute Travel	4 Min Rank	8 Minute Travel	8 Min Rank	10.5 Min Travel	10.5 M Rank	Sum Score	Sum Rank
6	Bham FD	BLS	2,613	2	9,790	1	12,425	1	4.75	1
3	Bham FD	BLS	3,083	1	9,713	2	12,052	4	9.50	2
5	Bham FD	BLS	1,971	4	9,454	4	12,177	2	12.00	3
1	Bham FD	ALS/BLS	2,496	3	9,526	3	11,864	5	14.25	4
4	Bham FD	BLS	1,454	5	9,442	5	12,132	3	15.75	5
31	FD 8	BLS	478	10	6,667	6	10,092	6	26.50	6
2	Bham FD	BLS	842	7	4,074	7	8,459	9	29.25	7
12	FD 4	BLS	255	14	2,841	8	9,110	7	34.50	8
43	FD 7	BLS	317	12	2,634	10	6,167	11	41.00	9
41	FD 7	BLS	845	6	1,833	12	4,497	14	42.00	10
69	NWFR	BLS	217	15	2,801	9	5,224	12	44.25	11
10	WC EMS	ALS	160	18	2,553	11	6,314	10	46.75	12
45	FD 7	ALS	189	17	1,340	15	9,110	8	47.75	13
46	FD 7	BLS	420	11	1,348	14	1,959	15	51.00	14
21	SWRFA	BLS	194	16	1,454	13	5,185	13	51.75	15
63	NWFR	BLS	483	9	1,163	17	1,952	16	54.25	16
75	Lynden	BLS	518	8	1,184	16	1,475	18	55.00	17
61	NWFR	BLS	257	13	1,099	18	1,615	17	61.00	18
42	FD 7	BLS	43	19	482	19	1,294	19	71.25	19

EMS Zones - Changes

- Divide Bellingham into 4 quadrants
  - Quadrant
- Everything outside those quadrants first due medic is determined by closest ALS unit to that fireblock
- EMS Zones With Fireblocks
- Effectively improves ALS response times county wide ~20-30 seconds
- Equalizes calls between medics for north and west Whatcom county
- Provides flexibility for medic deployments

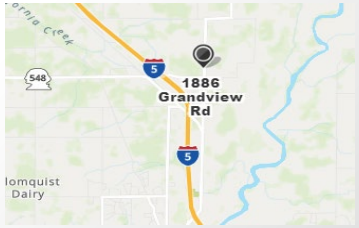
Current Locations



Station 3/ Medic 3

Station 6/ Medic 6

Station 10/ Medic 10



Station 45/ Medic 45

Models – What are they?

Based On Real Data

Real calls are used as the base then expanded on to fit future realities

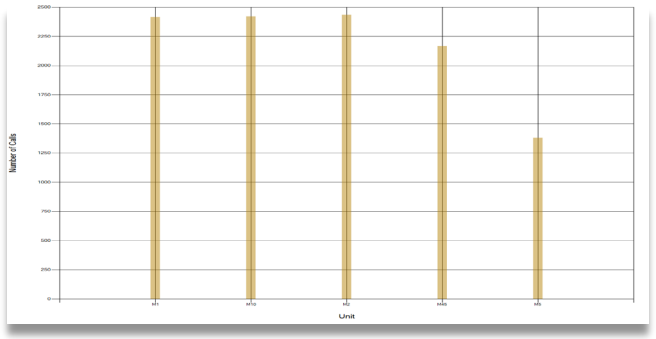
Simulation

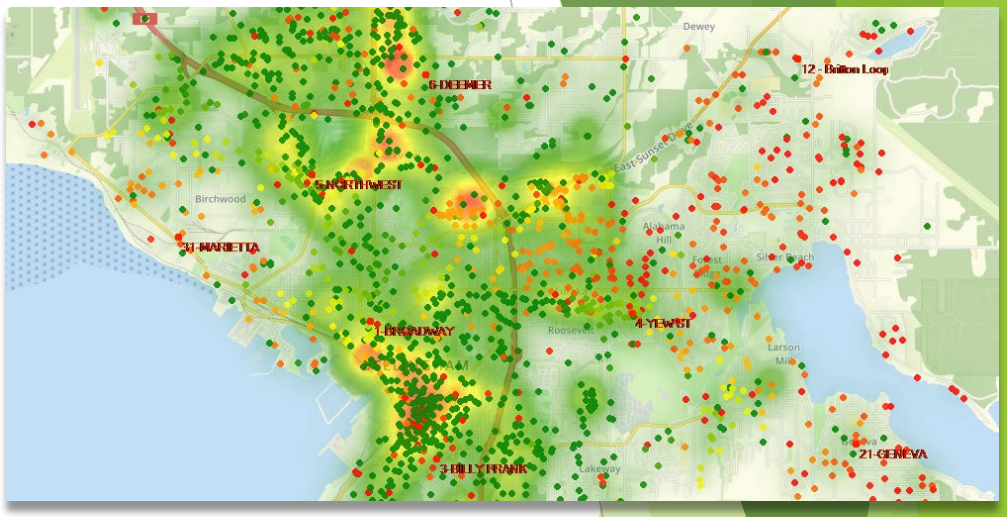
Using GIS, Routing, Dispatch Rules, Station locations, traffic, etc.

Model Accuracy

Models only match what *should* happen.

Models – What we compare





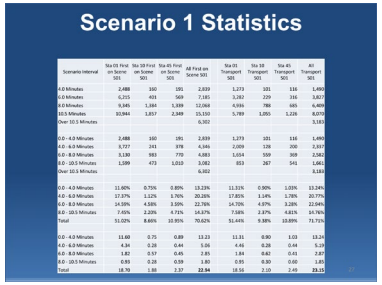
Call Volume

The number of calls individual medic units are dispatched to.

Delta: The difference between the busiest medic and the least busy medic

Response Time

The average response times for medics when they arrive.



Incident Response Map

A visual representation of change.

Maps show visual representation of 5.5-12.5-minute response for medics

- Medic Unit Base Response Times

- Average of All Calls/4 Medic Units.
- Goal is to reduce response times both locally and regionally. (System/vs/Individual Units)

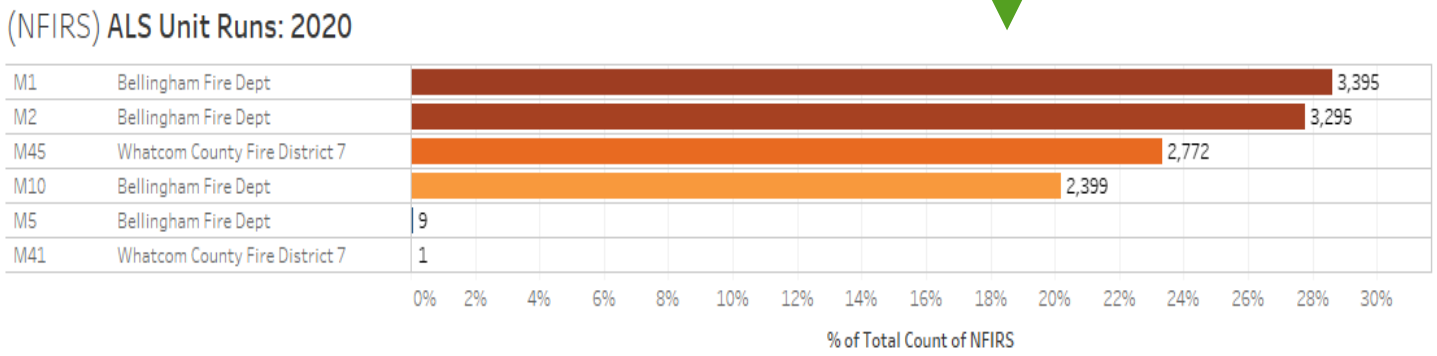
Unit	Response Time (Minutes)
M1	8.09
M2	10.07
M10	19.82
M45	17.84
Average	13.13

Baseline Model

- Call Volume by Medic Unit 2019

Unit	Calls
M1	3263
M2	3378
M10	2462
M45	2498

Call Volume by Medic Unit 2020



Model 1 – Magically Equal Units

- Modeled to demonstrate a perfect distribution of medic calls.
- Central location “near” Station 6
- This is not realistic but demonstrates where Whatcom County is at with regards to medic volume

Unit	Miles Traveled	Hours Committed	Utilization	Calls
M1	43832.38	2025.16	23.12	2342
M10	43618.21	2022.47	23.09	2343
M2	43903.03	2028.16	23.15	2342
M45	44303.45	2037.32	23.26	2342
M5	43694.67	2024.27	23.11	2343

M45 to St 41- Response Time

M45 at St 45 - Baseline Mode Performance
13.13 minute response county wide
17.8 minute average response time for M45

M45 at St41
12.8 Minutes county wide
16.04 minute average response time for M45

Impact Map by Drive Time to Call Density

Model 2 – M5 at St 75

M5 Placed at St 75

All other medics left in place

M45 : St 41
M10 : M10
M1 : St 3
M2 : St 6

Model 2 – M5 at Station 75

Hours and Utilization Details

Unit	Miles Traveled	Hours Committed	% Utilization	Utilization Details
M1	24496.07	1937.88	22.12	3149
M10	26069.54	1119.24	12.78	1160
M2	23815.22	1868.20	21.33	2887
M45	53333.8	2110.93	24.10	2015
M5	45286.38	1661.82	18.97	1585

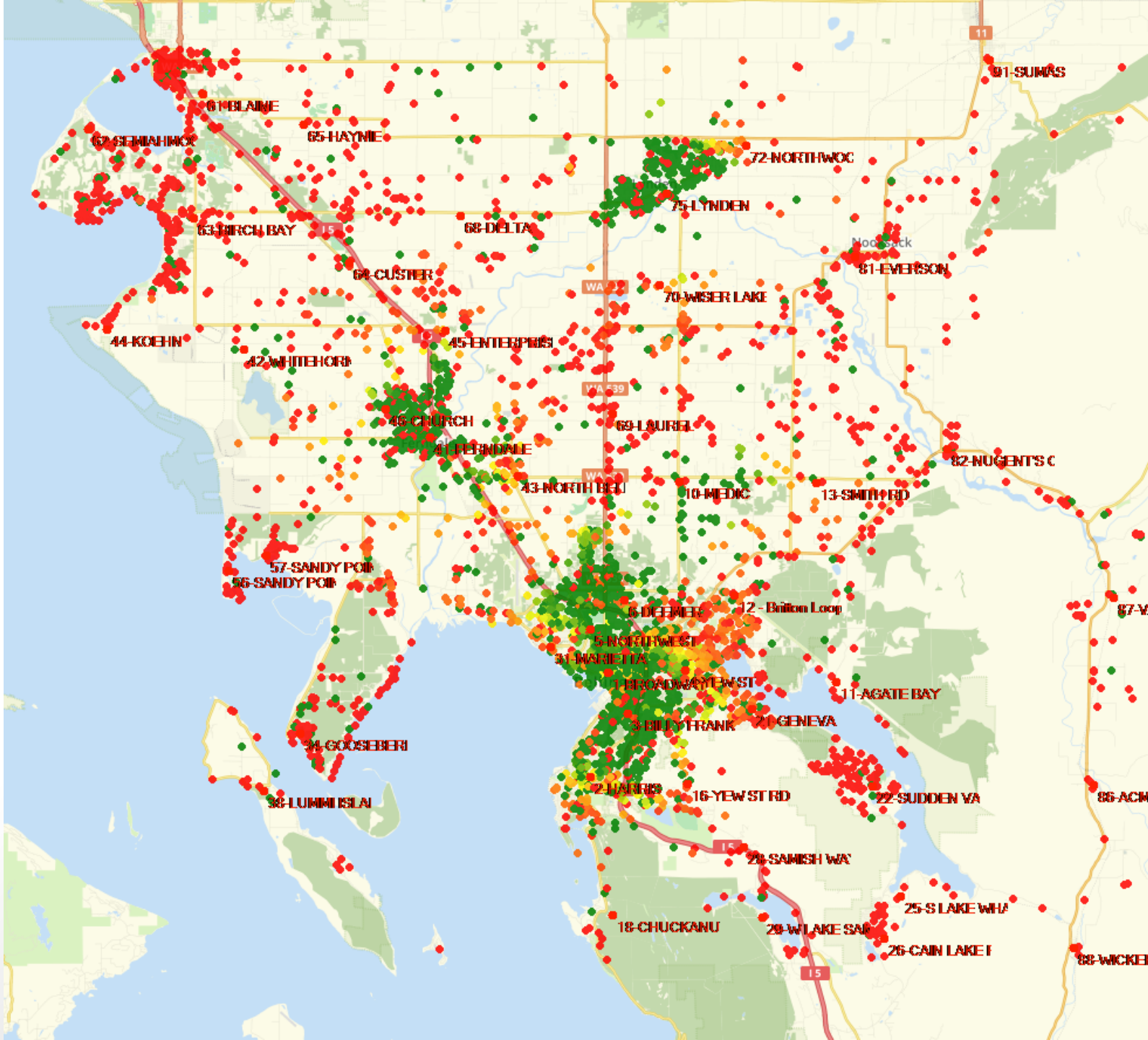
Model 2 Medic 5 at Station 75

Response Time Predictions

Unit	Response Time (Minutes)
M1	7.77
M10	17.33
M2	8.65
M45	15.38
M5	16.21
Average	11.70

M5 at St75

< 08 Min Call Clusters



Model 3 – M5 at St 75. M10 at St 4

M5 at Station 75

M10 Moved to Station 4

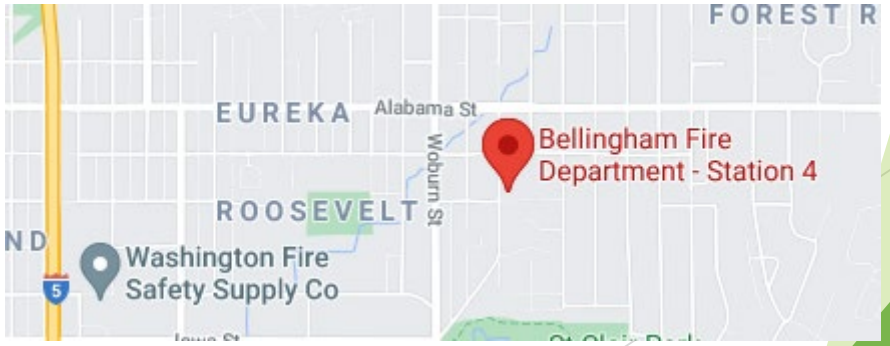
M1 : St 3
M2 : St 6
M45 : St 41

Model 3-Medic 5 at Station 75
Medic 10 at Station 4

Predicted Utilization and Call Volume

Unit	Miles Traveled	Hours Committed	% Utilization	Calls
M1	20253.87	1613.99	18.42	2659
M10	29103.16	1893.12	21.61	2773
M2	24345.42	1667.91	19.04	2423
M45	59073.86	2340.50	26.72	2241
M5	52654.18	1922.55	21.95	1808

2306 Yew Street



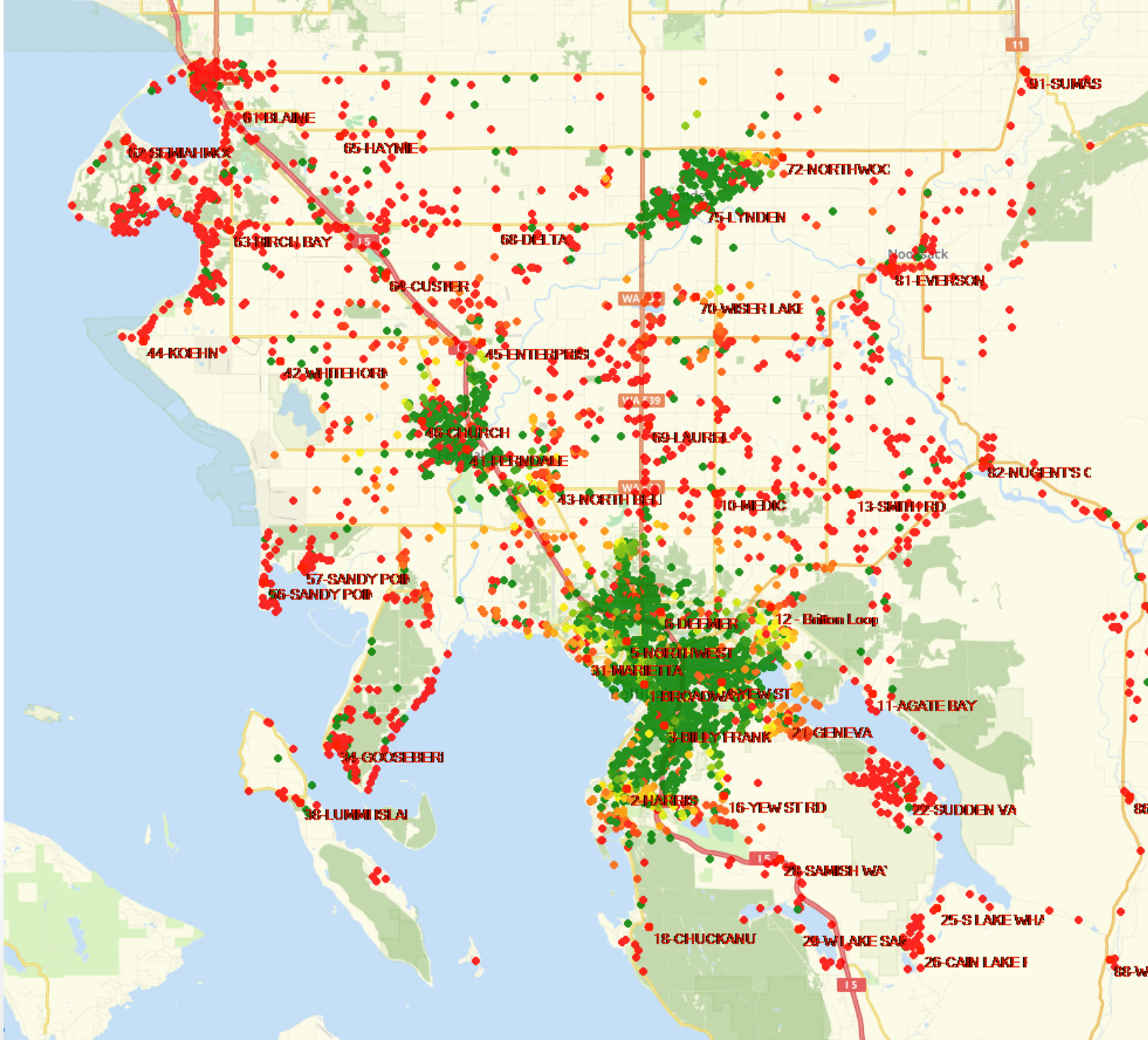
Model 3-Medic 5 at Station 75
Medic 10 at Station 4

Predicted Response Times

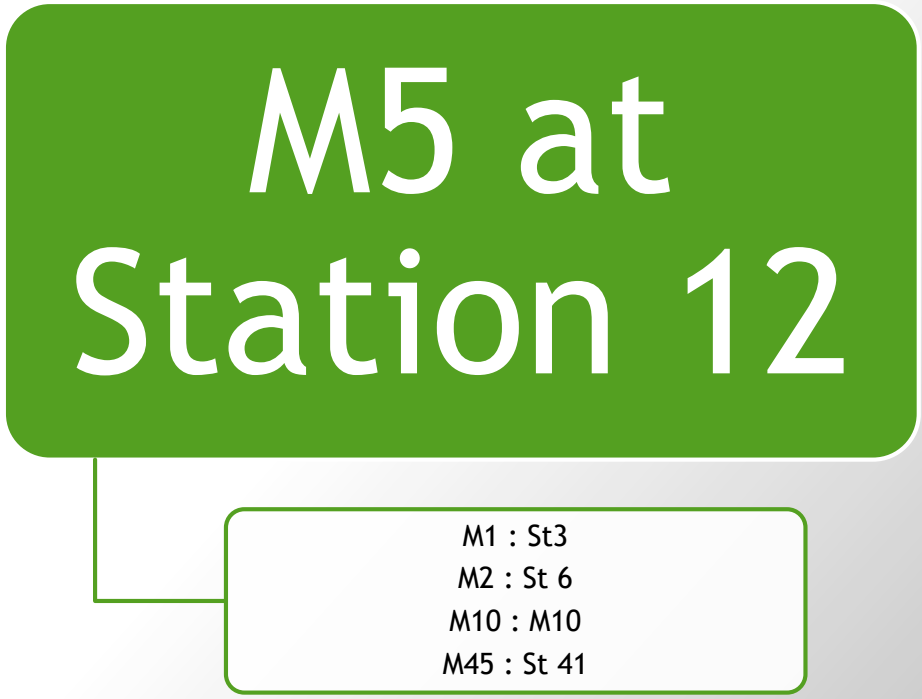
Unit	Response Time (Minutes)
M1	7.45
M10	9.98
M2	9.00
M45	15.41
M5	16.98
Totals:	11.30

M5 at St75
M10 at St4

Map



Model 4 – M5 at St 12.



Medic 5 at Station 12

Predicted Utilization

Unit	Miles Traveled	Hours Committed	% Utilization	Calls
M1	19369.61	1654.50	18.89	2809
M10	59169.66	2221.69	25.36	2099
M2	22349.21	1536.10	17.54	2265
M45	63240.57	2487.53	28.40	2360
M5	30692.19	1762.37	20.12	2366

Medic 5 at Station 12

Predicted Response Times

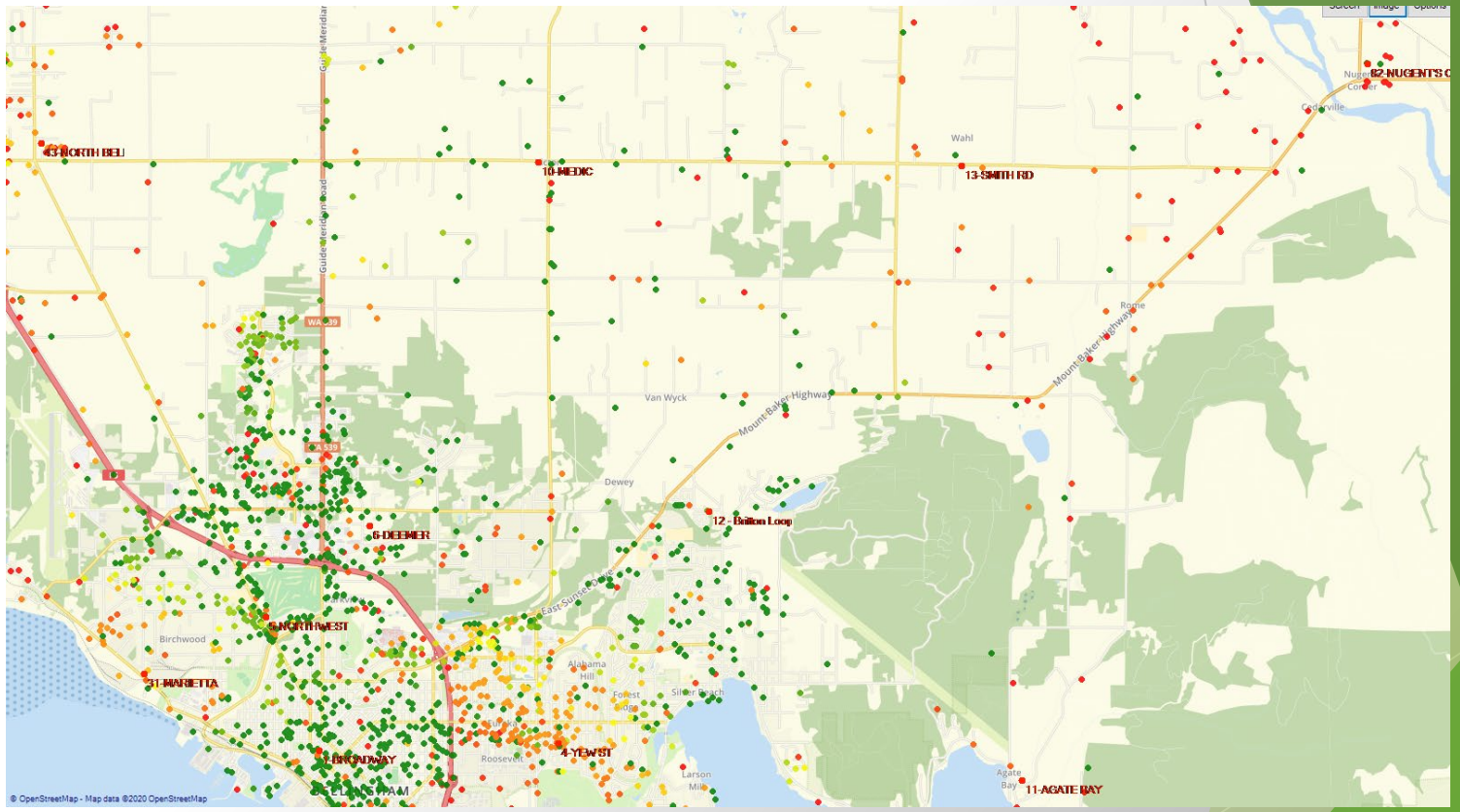
- M1 : St3
- M2 : St 6
- M10 : M10
- M45 : St 41

Unit	Response time (Minutes)
M1	6.85
M10	20.67
M2	8.60
M45	15.72
M5	12.56
Average	12.51

M5 at Station 12

Predicted Call Clusters

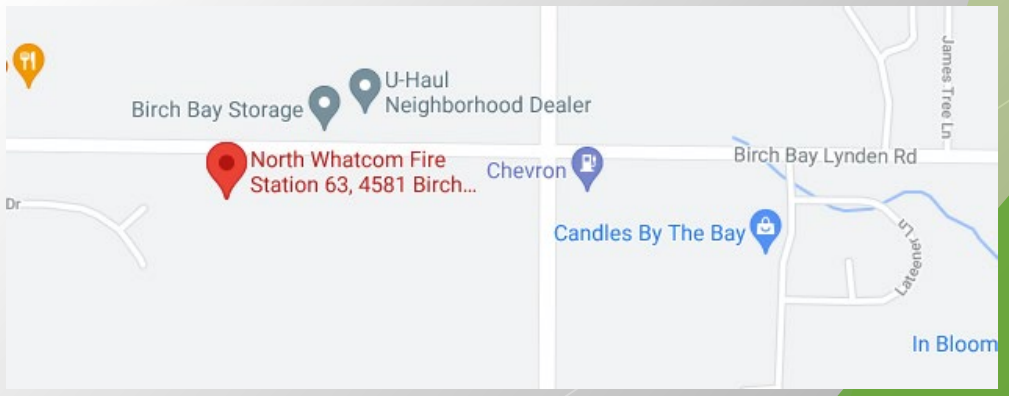
- M1 : St3
- M2 : St 6
- M10 : M10
- M45 : St 41



Model 6 – M5 at 63

M5 at Station 63

M1 : St 3
M2 : St 6
M10 : M10
M45 : St 41



Medic 5 at Station 63
Predicted Utilization and Call Volume

Unit	Miles Traveled	Hours Committed	% Utilization	Calls
M1	29643.11	2206.52	25.19	3508
M10	54046.48	2138.33	24.41	2122
M2	29873.12	2180.51	24.89	3282
M45	38495.23	1690.11	19.29	1760
M5	38082.38	1393.90	15.91	1200

Medic 5 at Station 63

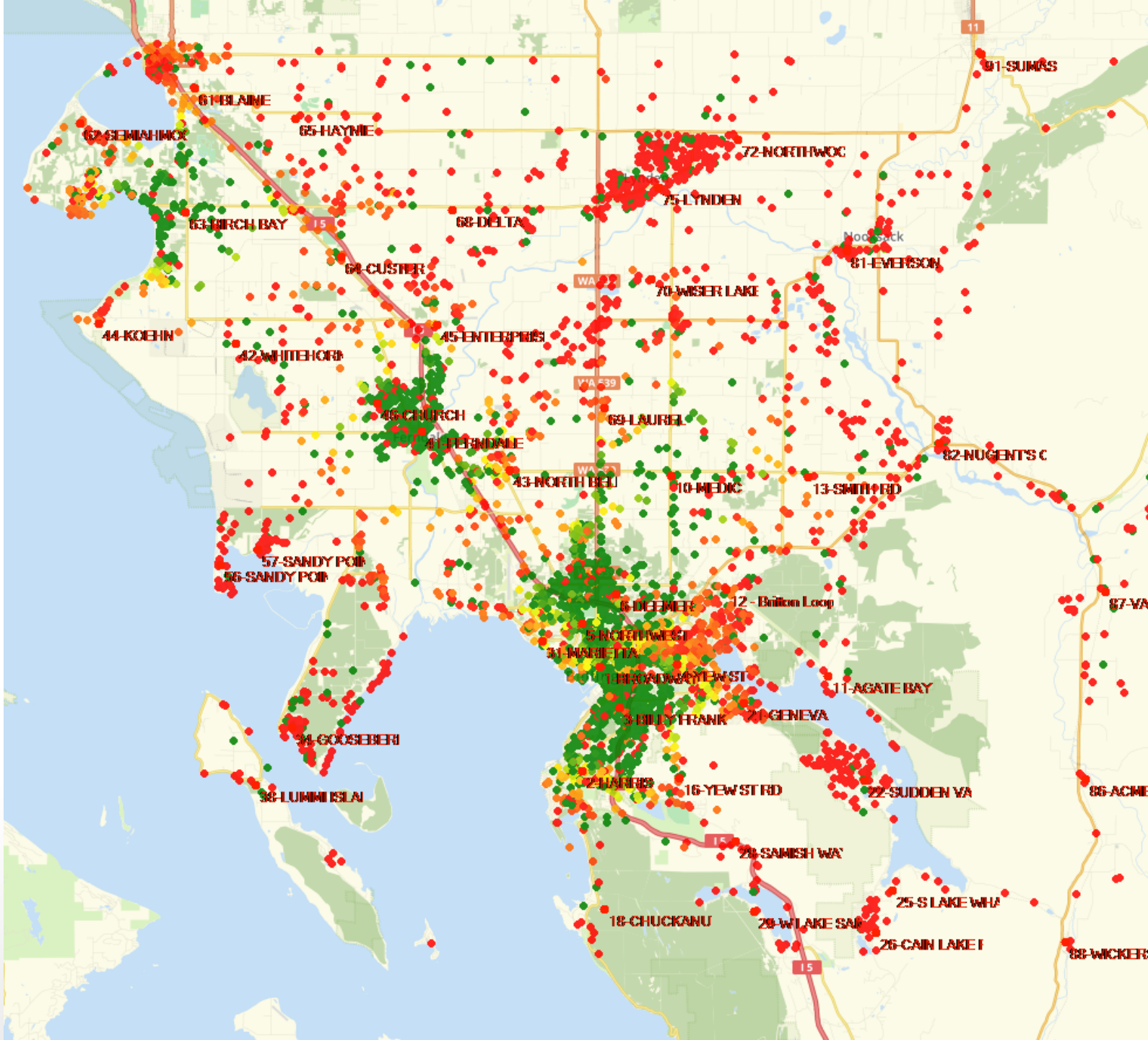
Predicted Response Times

Unit	Response Time (Minutes)
M1	8.28
M10	19.41
M2	9.25
M45	12.68
M5	13.50
Average:	11.72

M5 at St63

Call Clusters

M1 : St 3
M2 : St 6
M10 : St 10
M45 : St 41



Model 5 – M5 at 75. M10 at St 12

M5 at Station 75

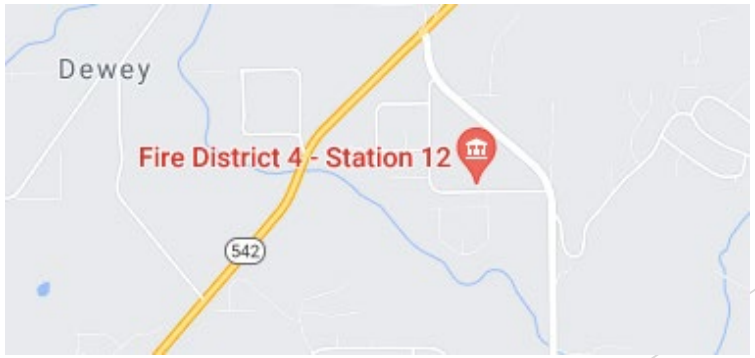
M10 at Station 12

- M1 : St 3
- M2 : St 6
- M45 : St 41

Medic 5 at Station 75/Medic 10 at Station 12 (Britton Loop Rd.)

Predicted Utilization and Call Volume

Unit	Miles Traveled	Hours Committed	% Utilization	Calls
M1	20692.15	1705.68	19.47	2857
M10	35358.71	1943.86	22.19	2537
M2	24716.01	1678.87	19.17	2440
M45	59406.83	2352.23	26.85	2248
M5	52477.91	1922.76	21.95	1817



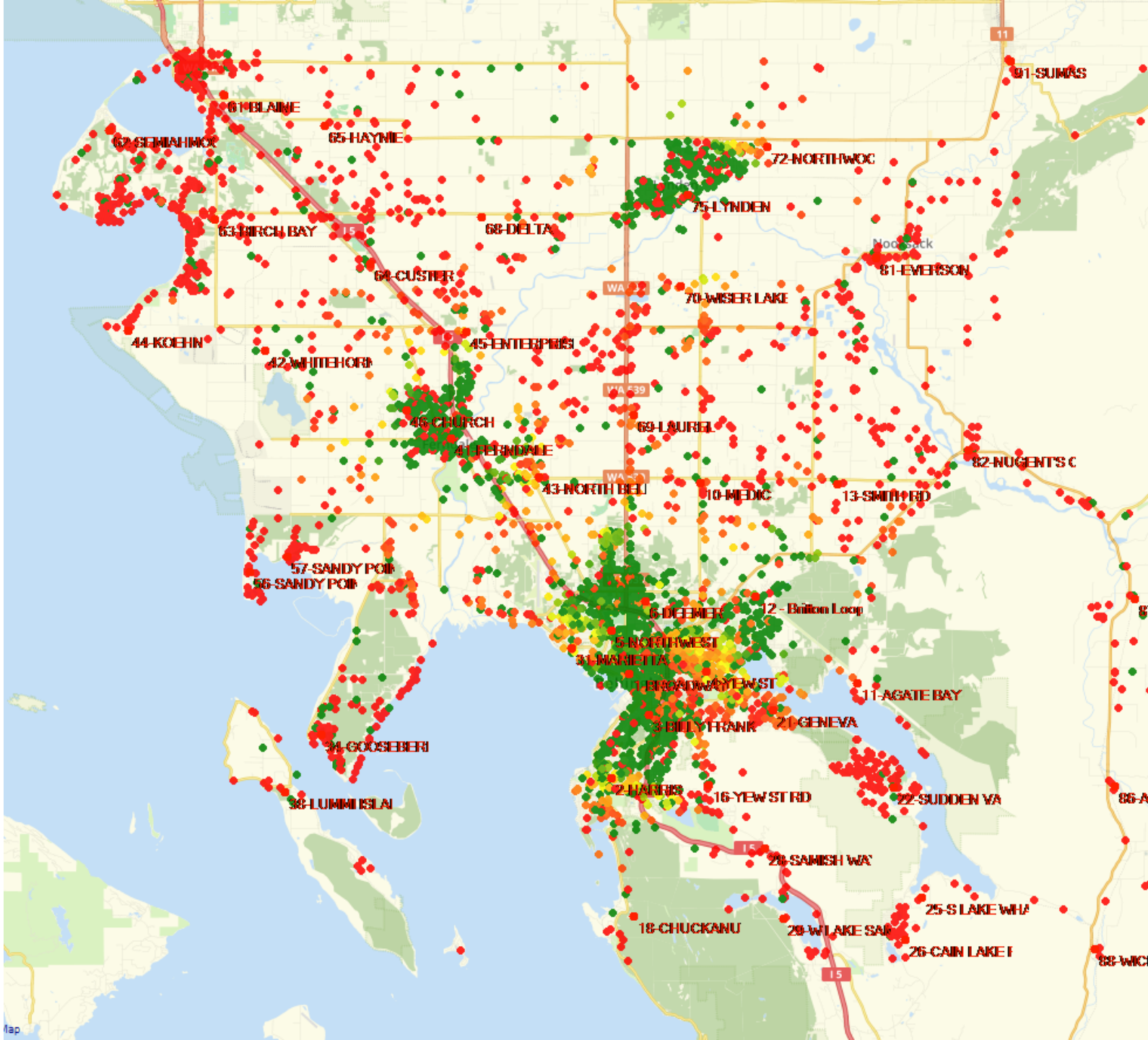
Medic 5 at Station 75/Medic 10 at Station 12 (Britton Loop Rd.)

Predicted Response Times

Unit	Response Time (Minutes)
M1	7.16
M10	13.09
M2	9.06
M45	15.44
M5	16.83
Average:	11.86

Medic 5 at St75
M10 at St12

Call Clusters



EOB Recommendation

- **Preferred Option 5** – This scenario supports the goal of reducing call volume for M1 and M2 and decreased travel time for Medic 10 when responding to the central Bellingham areas. Medic 10 provides better coverage to the Cordata region and Mt. Baker in the winter from the Britton Loop Station. Medic 45 at Station 46 provides optimal coverage to the Lummi Reservation and will gain call volume where M1 and M2 previously responded. A Medic unit at Station 75 will provide quicker service to the Everson, Sumas and Kendall areas (Peaceful Valley). Call volume for the north unit will be slightly less than other Medic Units however it does create capacity for the reasons noted. This also locates M45 and M10 at a Fire Station with upgrades to living quarters along with other efficiencies. (Consider a 12-Hour Unit)