



Mayo Clinic Rochester

Division of Facilities Operations

Stan Larson, Division Chair

February, 2019

Division of Facilities Operations



Stan Larson
Division Chair



Maint. Operations
Al Kubly
DTC/OFC



Maint. Operations
Mark Keller
SMC/RMC

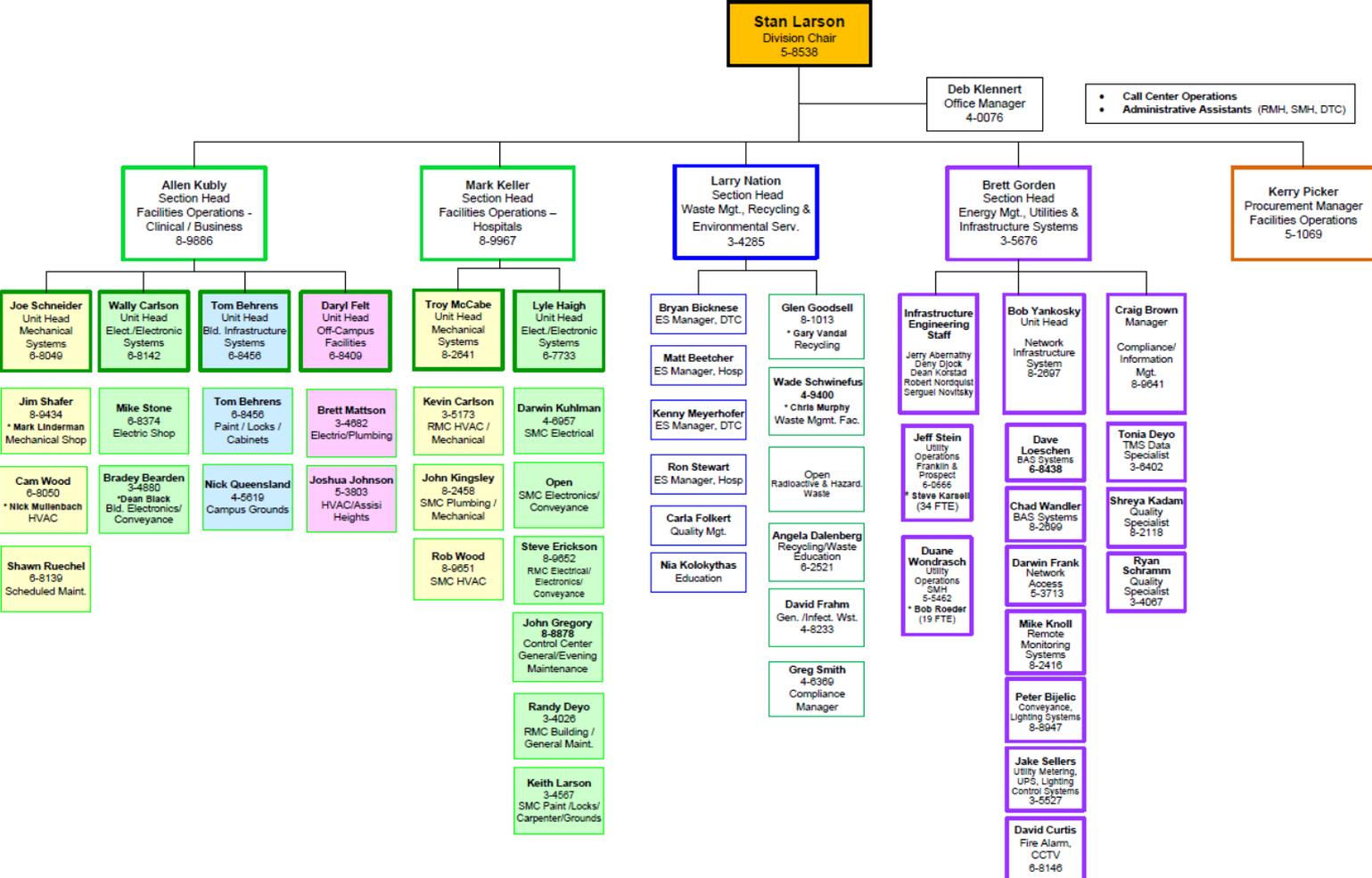


**Utility Operations
& Infrastructure**
Brett Gorden



**Waste/Environmental
Services**
Larry Nation

Division of Facilities Operations



Facilities Operations – Full Time Staff

Facilities Operations Administrative 18

Maintenance Operations 237

Union 122

Non-union 115

Utility Operations 55

Union 50

Non-union 5

Infrastructure Systems 13

Environmental Services 700

Union 360

Non-union 340

Waste Operations 27

Total FTE's 1050

Facilities Operations Cost of Services

Environmental Services	Target	Expense	%	Area	YTD \$/Sq.Ft.	Annual \$/sq.Ft.	FTE	GSF/FTE
Hospital	27,966,889	28,828,901	3.1%	4,819,324	\$5.98	\$5.98	359.81	13,394
Clinic/Admin	<u>26,758,942</u>	<u>25,717,402</u>	<u>-3.9%</u>	<u>9,953,237</u>	<u>\$2.58</u>	<u>\$2.58</u>	<u>338.62</u>	<u>29,393</u>
Subtotal	54,725,831	54,546,303	-0.3%	14,772,561	\$3.69	\$3.69	698.44	21,151

Facilities Operations	Target	Expense	%	Area	YTD \$/Sq.Ft.	Annual \$/sq.Ft.	FTE	GSF/FTE
Admin	4,252,401	4,083,475	-4.0%	14,772,561	\$0.28	\$0.28	22.60	653,557
Hospital	17,485,241	17,007,174	-2.7%	4,819,324	\$3.53	\$3.53	122.42	39,366
Hospital MCR	1,655,671	2,237,744	35.2%	4,819,324	\$0.46	\$0.46		
Clinic/Admin	16,604,560	16,505,902	-0.6%	9,953,237	\$1.66	\$1.66	115.49	86,186
Clinic/Admin MCR	1,385,984	1,766,064	27.4%	9,953,237	\$0.18	\$0.18		
NIS	949,201	1,203,540	26.8%	14,772,561	\$0.08	\$0.08	7.92	1,865,222
NIS MCR	671,177	986,066	46.9%	14,772,561	\$0.07	\$0.07		
Waste Operations	<u>6,896,835</u>	<u>6,613,825</u>	<u>-4.1%</u>	<u>14,772,561</u>	<u>\$0.45</u>	<u>\$0.45</u>	<u>27.92</u>	<u>529,056</u>
Subtotal	49,901,070	50,403,790	1.0%	14,772,561	\$3.41	\$3.41	296.35	49,848

Utility Operations	Target	Expense	%	Area	YTD \$/Sq.Ft.	Annual \$/sq.Ft.	FTE	GSF/FTE
Franklin	11,501,456	12,465,111	8.4%	8,328,858	\$1.50	\$1.50	35.54	234,352
SMH	<u>4,377,095</u>	<u>3,542,795</u>	<u>-19.1%</u>	<u>3,028,278</u>	<u>\$1.17</u>	<u>\$1.17</u>	<u>19.86</u>	<u>152,520</u>
Subtotal	15,878,551	16,007,906	0.8%	11,357,136	\$1.41	\$1.41	55.40	205,021

Utilities	Target	Expense	%	Area	YTD \$/Sq.Ft.	Annual \$/sq.Ft.	FTE	GSF/FTE
Franklin	26,205,716	20,363,098	-22.3%	8,328,858	\$2.44	\$2.44		
300 Utilities	9,669,407	10,483,568	8.4%	14,772,561	\$0.71	\$0.71		
SMH	<u>4,856,403</u>	<u>5,385,406</u>	<u>10.9%</u>	<u>3,028,278</u>	<u>\$1.78</u>	<u>\$1.78</u>		
Subtotal	40,731,526	36,232,072	-11.0%	14,772,561	\$2.45	\$2.45		

Division	Target	Expense	%	Area	YTD \$/Sq.Ft.	Annual \$/sq.Ft.	FTE	GSF/FTE
Total	161,236,978	157,190,071	-2.5%	14,772,561	\$10.64	\$10.64	1,050	14,067

Mechanical Systems

- HVAC – 256 AHU's
- Refrigeration – 5490 super colds, refrigerator, freezers
- Medical + Laboratory Gas – over 20,000 inlet/outlets
- Fire Suppression - 24 fire pumps
- Potable Water – Water Management
- Sewer
- Pumping – 1240 building system pumps
- Piping Distribution
- Biological Safety Cabinets - 725



Electrical/Electronic Systems

- Electrical Power Distribution – 212 Substations
- Interior/Exterior Lighting
- Power Doors
- Security Video – 1300 Cameras
- Card Access – 2000 Readers
- Fire Alarm Maintenance and Testing
- Intercom
- Patient Beds/Patient Lifts
- Non Medical Portable Equipment



Building Infrastructure Systems

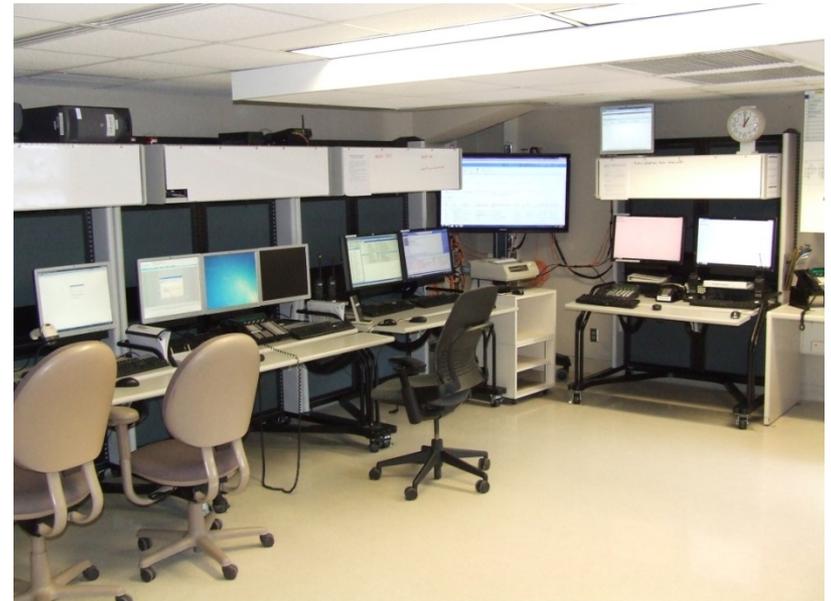
- General Maintenance
- Paint Interior/Exterior/Signage
- Carpentry
 - Misc. Shelving
 - Cabinetry
- Locksmiths, Key Management
- Grounds
 - Landscape
 - Lawn Management
 - Snow Removal
 - 52.9 acres of land
 - 4,275,122 SF parking lots



PHOTO: 1

Campus Monitoring

- Facilities Operations Control Center
 - 24/7 building/system monitoring of Mayo Rochester Facilities
 - 24/7 dispatch of maintenance staff to emergent situations
 - Respond to over 5,000 alarms per week
 - Building Automation has 1,500,000 Alarm Points



Work Distribution – Work Orders

- Planned Maintenance
 - Annual work orders: **180,000**
- Corrective Maintenance
 - Annual work orders: **220,000**
- Project Support (directly related to project work)
 - Annual hours: **10,000** hours (7 FTE's)



Utility Operations and Infrastructure Systems

Downtown Campus/Saint Marys Campus Utilities Include;

Steam

Chilled Water

Domestic Water

Electrical Power

Emergency Power

Steam Generation

Downtown Campus



Four Boilers

390,000 lbs. per hour

Saint Marys Campus



Four Boilers

264,000 lbs. per hour

- RPU can supply up to 150,000 lbs. per hour of steam to Mayo. Current contract is for 50,000 lbs. per hour, with option to request additional if needed.

Chilled Water

Building Cooling

Surgery Cooling

Data Center Equipment Cooling

Downtown Campus



Franklin Heating Station – 5 Chillers

13,300 tons



Prospect Utility Plant – 5 Chillers

13,600 tons

Total Capacity

26,900 tons

Saint Marys



Power Plant – 5 Chillers

12,000 tons

Mayo Campus Electrical Generators

Saint Marys



Solar Gas Turbine
4750 Kilowatts

Downtown Campus



Franklin
G.E. Steam Turbine
6300 Kilowatts



Franklin
G.E. Steam Turbine
2500 Kilowatts



Worthington Steam Turbine
3000 Kilowatts



Franklin
G.E. Steam Turbine
2500 Kilowatts



Prospect - Dresser Rand
Steam Turbine
6400 Kilowatts

Mayo's Normal Power Capacity

Downtown Electrical Generation 17,500 KW

Downtown Campus Peak Load: 37,710 KW

Saint Marys Electrical Generation 10,000 KW

Saint Marys Campus Peak Load: 12,880 kW

Mayo's Emergency Power System

Franklin Heating Station



2 – 2400 kW Fairbank
Morse Generators

Prospect Utility Plant



3 – 2000 kW Cummins
Generators
4th Generator Currently
Being Added

Saint Marys Power Plant



2 - 2400 kW Generators
Fairbanks & EMD
3rd Generator Currently
Being Planned

“N + 1” Redundancy

Mayo Clinic Enterprise Types of Techs

Facilities Operations		1/8/2019											
Service Line Comparison		Rochester				JAX		PHX		NWWI		SWWI	
Services Line Supported	FTE DTC	FTE OC	FTE SMC	FTE RMC	KSA's	FTE's	KSA's	FTE's	KSA's	FTE's	KSA's	FTE's	KSA's
General Maintenance	10	1	11	11	x	11	x	16	x	34	x	18	x
HVAC	7	4	11	5	x	1	x	1	x		x	2	x
Refrigeration Specialist	5	1			x	1	x	1	x				x
Building Automation Specialist	1		1	1	x	3	x	2	x		x		x
Plumbing	13	2	13	5	x		x		x		x	1	x
Licensed Plumber	1	1			x		x				x		x
ASSE Med Gas Certification	5				x				x		x		x
Electrical					x		x				x		x
Master Electrician	1	1			x		1	x			x		x
Journeyman Electrician	5	2	6	2	x		x				x	2	x
Maintenance Electrician	6				x	8	x		x				x
Electronics	10		11	5	x			1	x			1	x
NICET Low Voltage	5				x			3	x			1	x
Carpentry	1		5	1	x							3	x
Locksmith	4		2		x						x		x
Paint	4		4	1	x						x	1	x
Grounds	7		8		x	2	*	3		2	x	3	x
Lawn and Pesticide					x		*				x		x
Snow Removal					x						x		x
Metal Fab/Welding	1				x						x		
Cabinet Shop					x								x
Project Support	1				x				x				x
Utility Shutdown Planner					x				x				x
Contractor Interface					x					1			x
Central Plant					x	7	x		x		x		x
Chief Engineer	2.5		2.5		x								
Operator	26	1	15		x		x		x				x
Electrician	2		1		x								
Mechanic	2				x		x	12	x				x
Control Technician	2		1		x		x						x
Biosafety Cabinet Certifier	5				x								
Commissioning							x						
HVAC/Mechanical						1	x						
Electrical						1	x						
FTE's	126.5	13	91.5	31		35		52		37		32	
System Supported													
Building Automation					x		x		x	2	x		x
Temp Trak					x		x		x				x
Issensix					x				x				
Fire Alarm					x		x		x		x		x
Nurse Call					x				x		x		x
Pneumatic Tube					x		x		x		x		x
ETV					x		x						x
Card Access					x						x		x
CCTV					x								x
Media on Demand					x						x		x
Network Management					x				x				IT
Infant Alarm					x						x		
Public Address					x		x		x		x		
Security Cameras					x				x	1	x		
FTE's										3			
Services Supported													
Furniture Moves and Setup					x						x		EVS
Key Service					x				Security		x		x
Patient Equipment Delivery					x								CS
Refrigerator Alarms							x		Security		x		
Administrative													
Supervisors	13		8	4		3			4	3		3.6	
System Engineer						1							
Admin Assistants	6		1.8	1		3			0.5	2		2.8	
FTE's	19		9.8	5		7			4.5	5		6.4	

Mayo Clinic Enterprise Types of Space

Location	Business	%	Ambulatory	%	Hospital	%	Research	%	Total	%
Rochester	3,880,072	28%	3,917,596	29%	3,749,919	28%	2,086,994	15%	13,634,581	100%
NWWI	985,564	43%	23,540	1%	1,270,459	56%	0	0%	2,279,563	100%
SWWI	389,069	27%	361,281	25%	711,700	49%	0	0%	1,462,050	100%
Arizona	258,592	12%	1,051,491	49%	635,334	30%	194,865	9%	2,140,282	100%
Florida	584,456	23%	836,143	33%	904,438	36%	190,335	8%	2,515,372	100%
SWMN	226,532	12%	261,252	14%	1,346,519	73%	0	0%	1,834,303	100%
Total	6,324,285	26%	6,451,303	27%	8,618,369	36%	2,472,194	10%	23,866,151	100%

Mayo Clinic Enterprise Rochester Service Model

			Total FTE	GSF/FTE		FTE	Adjusted %	GSF/FTE
Rochester	SQFT	%	216					
Business	3,880,072	28%	61.5	63,123		41	19.0%	94,636
Ambulatory	3,917,596	29%	62.1	63,123		47	21.8%	83,353
Hospital	3,749,919	28%	59.4	63,123		91.5	42.4%	40,983
Research	2,086,994	15%	33.1	63,123		36.5	16.9%	57,178
Total	13,634,581	100%	216	63,123		216	100.0%	63,123

Mayo Clinic Enterprise Northwest Wisconsin Service Model

			Total FTE				Adjusted	
NWWI	SQFT	%	37			FTE	%	
Business	985,564	43%	16.0	61,610		9	24.3%	109,507
Ambulatory	23,540	1%	0.4	61,610		0.25	0.7%	94,160
Hospital	1,270,459	56%	20.6	61,610		27.75	75.0%	45,782
Research	0	0%	0.0					
Total	2,279,563	100%	37	61,610		37	100.0%	61,610

Mayo Clinic Enterprise Southwest Wisconsin Service Model

			Total FTE			Adjusted		
SWWI	SQFT	%	32			FTE	%	
Business	389,069	27%	8.5	45,689		4.1	17.0%	95,000
Ambulatory	361,281	25%	7.9	45,689		4.3	17.6%	85,000
Hospital	711,700	49%	15.6	45,689		15.8	65.5%	45,000
Research	0	0%	0.0					
Total	1,462,050	100%	32	45,689		24.2	100.0%	61,610

Mayo Clinic Enterprise Arizona Service Model

			Total FTE			Adjusted		
Arizona	SQFT	%	52			FTE	%	
Business	258,592	12%	6.3	41,159		2.7	8.3%	95,000
Ambulatory	1,051,491	49%	25.5	41,159		12.4	37.9%	85,000
Hospital	635,334	30%	15.4	41,159		14.1	43.3%	45,000
Research	194,865	9%	4.7	41,159		3.4	10.5%	57,000
Total	2,140,282	100%	52	41,159		32.6	100.0%	65,593

Mayo Clinic Enterprise Florida Service Model

			Total FTE			Adjusted		
Florida	SQFT	%	35			FTE	%	
Business	584,456	23%	8.1	71,868		6.2	15.6%	95,000
Ambulatory	836,143	33%	11.6	71,868		9.8	24.9%	85,000
Hospital	904,438	36%	12.6	71,868		20.1	51.0%	45,000
Research	190,335	8%	2.6	71,868		3.3	8.5%	57,000
Total	2,515,372	100%	35	71,868		39.4	100.0%	63,798

Maint. Operations – Staff to Supervisor Ratio

Clinical/Business

- Electric + Conveyance 19:1
- Electronics + Life Safety 11:1
- Paint/Lock/Cabinetry 9:1
- Mechanical 20:1
- HVAC 15:1
- Scheduled Maintenance 16:1
- Off-Campus 7:1
- Grounds 8:1

Hospitals

- SMC Electric 6:1
- SMC Electronics 15:1
- Paint/Lock/Carpenters 18:1
- SMC Mechanical 12:1
- SMC HVAC 12:1
- Control Ctr. 8:1
- RMH Mechanical 10:1
- RMH Elect/Electronic 8:1
- RMH Scheduled Maint. 13:1

Facilities Operations Budget and FTE Request

Environmental Services	Target	Expense	%	Area	YTD \$/Sq.Ft.	Annual \$/sq.Ft.	FTE	GSF/FTE	Area Added	Additional \$	Additional FTE
Hospital	27,966,889	28,828,901	3.1%	4,819,324	\$5.98	\$5.98	383.71	12,560	81,000	\$484,537	6.4
Clinic/Admin	26,758,942	25,717,402	-3.9%	9,953,237	\$2.58	\$2.58	340.24	29,254	95,300	\$246,238	3.3
Subtotal	54,725,831	54,546,303	-0.3%	14,772,561	\$3.69	\$3.69	723.95	20,405	176,300	\$730,775	9.7

Facilities Operations	Target	Expense	%	Area	YTD \$/Sq.Ft.	Annual \$/sq.Ft.	FTE	GSF/FTE	Area Added	Additional \$	Additional FTE
Admin	4,252,401	4,083,475	-4.0%	14,772,561	\$0.28	\$0.28	22.61	653,340	176,300	\$48,733	0.3
Hospital	17,485,241	17,007,174	-2.7%	4,819,324	\$3.53	\$3.53	125.37	38,440	81,000	\$285,845	2.1
Hospital MCR	1,655,671	2,237,744	35.2%	4,819,324	\$0.46	\$0.46			81,000	\$37,611	
Clinic/Admin	16,604,560	16,505,902	-0.6%	9,953,237	\$1.66	\$1.66	118.74	83,825	95,300	\$158,040	1.1
Clinic/Admin MCR	1,385,984	1,766,064	27.4%	9,953,237	\$0.18	\$0.18			95,300	\$16,910	
NIS	949,201	1,203,540	26.8%	14,772,561	\$0.08	\$0.08	7.92	1,865,222	176,300	\$14,363	0.1
NIS MCR	671,177	986,066	46.9%	14,772,561	\$0.07	\$0.07			176,300	\$11,768	
Waste Operations	6,896,835	6,613,825	-4.1%	14,772,561	\$0.45	\$0.45	28.43	519,688	176,300	\$78,931	0.3
Subtotal	49,901,070	50,403,790	1.0%	14,772,561	\$3.41	\$3.41	303.07	48,743	176,300	\$652,202	3.9

Utility Operations	Target	Expense	%	Area	YTD \$/Sq.Ft.	Annual \$/sq.Ft.	FTE	GSF/FTE	Area Added	Additional \$	Additional FTE
Franklin	11,501,456	12,465,111	8.4%	8,328,858	\$1.50	\$1.50	36.66	227,207	0	\$0	0.0
SMH	4,377,095	3,542,795	-19.1%	3,287,129	\$1.08	\$1.08	20.11	163,491	81,000	\$87,300	0.5
Subtotal	15,878,551	16,007,906	0.8%	10,866,398	\$1.47	\$1.47	56.76	191,433	81,000	\$87,300	0.5

Utilities	Target	Expense	%	Area	YTD \$/Sq.Ft.	Annual \$/sq.Ft.	FTE	GSF/FTE	Area Added	Additional \$	Additional FTE
Franklin	26,205,716	20,363,098	-22.3%	8,328,858	\$2.44	\$2.44			0	\$0	
300 Utilities	9,669,407	10,483,568	8.4%	14,772,561	\$0.71	\$0.71			95,300	\$233,739	
SMH	4,856,403	5,385,406	10.9%	3,287,129	\$1.64	\$1.64			81,000	\$132,705	
Subtotal	40,731,526	36,232,072	-11.0%	14,772,561	\$2.45	\$2.45			176,300	\$366,443	

Division	Target	Expense	%	Area	YTD \$/Sq.Ft.	Annual \$/sq.Ft.	FTE	GSF/FTE	Division	Additional \$	Additional FTE
Total	161,236,978	157,190,071	-2.5%	14,772,561	\$10.64	\$10.64	1,088	13,572		\$1,836,721	14.2

Type	New Space Added 2016	Area
Clinic/Admin	Valley High	7,500
	SDSC Fit Out	17,800
	Supply chain Warehouse	20,000
	Discovery Square	30,000
	Breckenridge Pharmacy	20,000
		95,300
Hospital	3 patient floors	81,000
		81,000



Questions & Discussion