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FACULTY OF ENGINEERING

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Systematic and Improvement Recommendations for HRFE Turnout Times

Scope of Work

To investigate turn out time for Halifax Regional Fire & Emergency by answering five questions. Turnout time is defined as the time period between when an emergency call comes in, and when the wheels on the apparatus are moving.

1.Station Selection?

Inputs
- Turn out time data, call frequency, and turn out time
- Research and expert knowledge

Method
- Ranked Order Structure of turn-out data for all stations in HRFE

Output

Weighted Rankings		24 hour career				
Priority	Station	Time	Total Calls	Call Weight	Time Weight	Total Rank
1	12 - Highfield Park	02:44	4694	0.145	1.098	0.159
2	03 - West Street	02:13	3472	0.107	0.892	0.095
3	02 - University Avenue	02:09	2733	0.084	0.867	0.073

2. Feasible Turn Out Times?

Inputs
- CAD Floor plans
- Distance measurement tools
- Observations

Method
- Observations
- Interviews/Expert Knowledge
- Work Measurement
- CAD Drawings
- Sequencing Models

Limitations
- Understanding of organization and turnout procedure
- Accuracy of information being collected and given

Output

University Avenue

University Turnout time	Weight Room Poles	Dorm Pole	Side Stairs	Back Stairs
Upstairs Kitchen	79	83	82	87
Dorms (asleep)	121	115	127	118
Bathroom	94	100	96	98
Gym	59	88	79	86
Captains Office	66	77	69	76
Rec Room	63	81	71	80
Female Room	61	84	73	82
Storage Room	70	82	66	81

Highfield Park

Highfield Turnout time	Same Floor	Back Stairs	Front Stairs
Kitchen	76	X	X
Gym	56	X	X
Captains Office	59	X	X
Rec Room	69	X	X
Dorms (asleep)	X	105	X
Bathroom Upstairs	X	91	86
Captains Office Upstairs	X	76	79

West Street

West Street Turnout Time	Same Floor	Fire Pole	Stairs
Kitchen	76	X	X
Rec Room	70	X	X
Gym	58	X	X
Captains Office	61	X	X
Dorms (asleep)	X	107	114
Female Dorms (asleep)	X	109	110
Bathroom (upstairs)	X	86	92

4. New Station Design Qualities?

Inputs
- Station room requirements: apparatus bays, kitchen, lounge, dorm rooms, bathrooms, gym, “dirty” room, offices
- Equipment, vehicles, appliances, and furniture dimensions.

Method
- Design with path to apparatus bay in mind.
- Design with minimum space requirements for equipment, furniture, vehicle, and appliances.

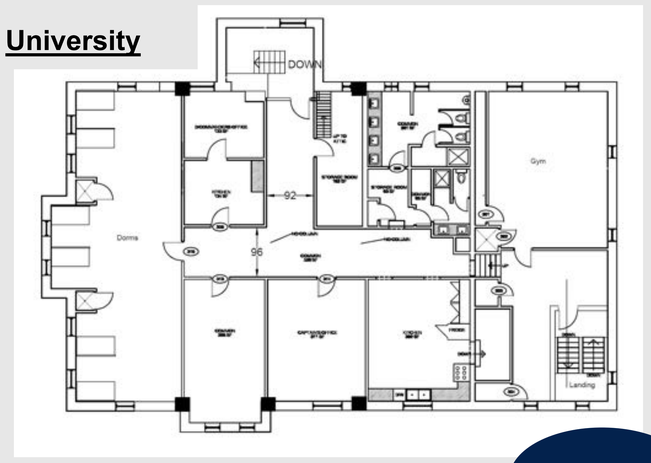
Output

28% Reduction in Walking Effort

Limitations
- Unknown facility location
- High level designs
- Unknown future requirements

3. Station Improvement?

University



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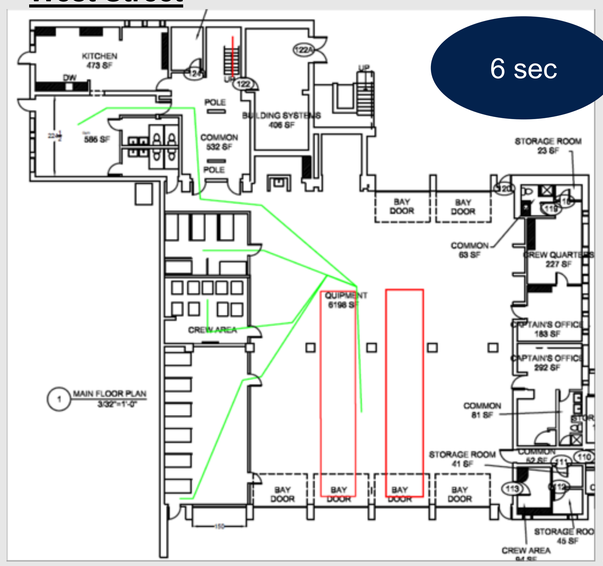
Inputs
- CAD Floor plans
- Doors
- Poles/Stairs
- Bunker gear

Method
- Sequencing Models
- Interviews
- Work Measurement
- Corelap

Output

West Street



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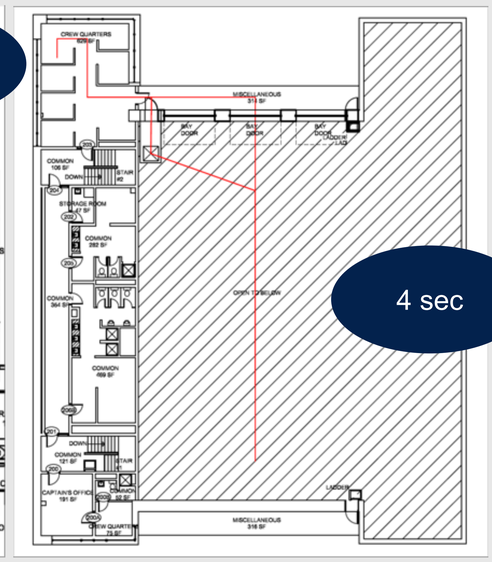
Highfield Park



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5. Organization Changes?

Inputs
- Turn out time data, call frequency, and turn out time
- Research and expert knowledge

Method
- Benchmarking best practices from high performance organizations
- Leveraging continuous improvement strategies

Output
- Standardized Station Clothing
- Standardize Sleepwear
- Twelve Hour Shift
- Doorway inconsistencies
- Encourage After Action Reports
- Inform crews of their worst turnout time

Up to 43 sec at night

Limitations
- Adoption of recommendations