



## JOB DEMANDS ANALYSIS

**Company:** City of Richmond

**Location:** Lynas Lane Works Yard

**Job Title:** Dispatcher

**Classification:** Regular Duty

### Overview of Activities

This position primarily involves handling inquiries via phone or radio and directing people and resources to address ongoing issues in the field for the City of Richmond. There is a secondary element that involves monitoring alarms and system pressure for water and sewer as well as data entry work on the computer. It is a shift based job that requires 24 hour per day and seven day a week coverage by a single individual.

### Purpose of Activities

The purpose of the duties of the Dispatcher is to act as a filter and effectively direct inquiries and responses to trouble or other requests. They also act as part of the site security system by operating gates after hours. They assist with data entry work secondary to the above functions.

### Tools and Equipment

The operator will use the following tools and equipment to perform their duties:

- Radio (handset or gooseneck microphone)
- Computers (mouse and keyboard control)
- Three monitors (two 20 inch and one 15 inch)
- Fax machine and Printer
- Phone system involving handset and computer display
- One (1) Multi-adjustable task chair and one 24/7 control room chair
- Pens, pencils, paper
- Maps
- Keys
- Fridge, toaster oven and microwave oven

### Usual Methods

The Dispatcher works in the same room throughout the shift. They take calls on the phone and radio. The work involves holding the telephone handset, taking notes with pen and paper and then logging the information on the computer. They also



acknowledge alarms in the system and alert crews if an alarm is indicating serious trouble. The phone calls often come from the public with very general inquiries. The volume of radio and phone work varies dramatically with the nights being very quiet and the early mornings and late afternoons (crews booking on and off) being very busy. Many of the field crews will use dispatch as a place to find telephone numbers and other contact information.

The Dispatcher works almost entirely from a seated position, reaching to access controls or the phone and the radio. They do need to get out of the chair occasionally to deal with people coming to the door of the room, hand out and receive keys to vehicles and storage areas as well as sort the mail into slots once or twice each day.

### Administrative Issues

The Dispatcher works five days a week (Monday to Friday). Shifts are 8 hours in duration (0730 – 1530, 1530 – 2330, 2330 - 0730) and the employee will move clockwise into a new shift each rotation. The remainder of the shifts are covered by auxilliary workers. There is usually one Dispatcher working on each shift.

### Activity Demand Variables

These variables are tasks that must be carried out by the employee and are implicitly or explicitly required as objectives of the job:

- Respond to customers and colleagues on their initiative.
- Move between sitting and standing postures regularly.
- View monitor at set location.
- Respond to alarms.
- Use a keyboard and mouse to interact with computer.
- Use a radio and phone to interact with field personnel and customers.
- Work inside.
- Carry out most tasks from a seated position.
- Work off of surfaces that are at a fixed height.

### Employee Decision Variables

These variables are the sub-routines and cognitive/physical decisions made by the worker in carrying out the objectives of the job:

- Limited choice of postures for carrying out some duties (e.g. adjustment of chair, precise seated posture).
- Ability to stand and/or take a brief walk in the area if activity is quiet.



- Discretion in parceling time for computer and sorting tasks.

### **Accommodative Considerations**

- Individuals with spinal injuries, especially disc related, may have difficulty with this position because of the time spent in sedentary postures.
- Individuals suffering from systemic illness should be carefully screened for this work because of the time spent working in isolation, particularly at night. The shiftwork is also a concern for these individuals.
- Individuals with sleep difficulties would be poorly suited to this job because of the shiftwork element.
- Individuals with neck and shoulder difficulties may have some difficulty with reaching for and holding the telephone handset, operating the keyboard and mouse.
- Individuals who are not capable of clear speech, especially over radio and telephone would be inappropriate for this job.
- People who do not effectively manage high levels of demand may have difficulty with the busy stretches in this job.

Prepared By: Greg Hart, Kinesiologist

August 1, 2001



## Summary of Stresses

### Metabolic Stresses

The aerobic energy system supplies the vast majority of energy required to complete the tasks in this position since the work is very sedentary in nature (seated with brief standing and walking possible). The largest concern here is the low energy expenditure. Ongoing energy requirements are in the range of 6 to 10 ml/kg/min or 2 – 3 METS.

### Structural Stresses

**Spine** – any prolonged sitting in this job places constant compressive load on the spinal joints. This limits the opportunity for decompression which is vital for the exchange of nutrients between the intervertebral discs and the vertebrae. Most of the muscles in the trunk are unloaded in this posture which means that they lose some level of their function and are not able to manage the loading on the spine in sitting. This can be exacerbated significantly if the Dispatcher is spending time in a slouched posture or leaning forward to interact with the phone, radio or the computer systems.

**Pelvis** – if there is prolonged sitting, it can generate a significant chronic shear force through the sacro-iliac joints potentially leading to muscle spasm and or joint dysfunction.

**Neck and Shoulders** – the heavy phone-answering component in this job will require regular elevation of the shoulder girdle and upper extremities to facilitate movement of the arms to hold the phone and arm. This can be further exacerbated by cradling the phone between the neck and shoulder. These postures are highly correlated with neck and upper back pain in the workplace. Regular reaching also places increased muscular requirements on the neck and shoulder structures.

### Other Stresses

Regular interaction with other people, meeting their demands.

Working alone for long periods of time including through the night.

Shiftwork with all of its attending issues such as impacts on sleep, normal socialization and healthy lifestyle.



## **INTERVENTIONS**

Recommendations that could be implemented to increase productivity and lessen the risk of injury are listed below:

1. Since this is a multiple user environment and these users represent a diverse range of body architecture, as many elements of the work should be adjustable as possible, especially monitor position, chairs and ideally work surfaces. Adjustable work surfaces would create alternatives to sitting for interaction with the radio, telephone and computers.
2. Reorient the work area so that the phone and the radio and the main computer are all in the same workspace. This will decrease twisting, reaching and time lost with the current set-up.
3. Examine the use of the computer phone system. It requires the use of an additional computer monitor when most of the information required is already stored on two pieces of paper. It may be possible to simplify the work layout if this is unnecessary or the interaction is modified.
4. The use of a headset (perhaps wireless) is important. It allows for a dramatic decrease in neck and shoulder tension as well as supporting more mobility while being in contact with the phone.
5. With the lights on in the room during hours of darkness, it is not possible to see outside while persons outside could see inside. There is a security issue with this particularly when the operation of the gates is considered. Task lighting should be added (small halogen lights near the work surface) to diminish reliance on large overhead light sources. Video link to the gate area could also be considered.
6. Conduct a participatory review of the workstation to determine the most effective ways of adjusting current work layouts. Several individuals have different ideas about how the work areas could function more effectively for themselves (in terms of productivity and comfort).
7. The phone number for dispatch is listed under "General Inquiries" in the phone book. This generates a wide variety of calls that fall outside the dispatcher's main job function and can interfere with operations during busy stretches. Consideration should be given to the appropriateness of this listing.
8. Take regular breaks to put hip, shoulder and torso structures through a momentary full range of motion to offset sedentary postures as much as possible.



9. Provide training in ergonomics and self-care (lifestyle, especially around shiftwork issues) to all operators.

Referral: Robb Armstrong		Organization: City of Richmond					Title: Dispatcher - Works Yard			
Dept.: Works Yard		Division: Lynas Lane					Contact: Karen Sinclair			
		FREQUENCY*					Max. Weight (kg)	Usual Weight (kg)	COMMENTS	
PHYSICAL DEMANDS		REQD	SIDE	Sel 1	Low 2	Mod 3	High 4			
S T R E N G T H	Lifting - Floor to Knuckle									
	Lifting - Knuckle to Waist									
	Lifting - Waist to Shoulder	█	D		X			arm+	arm+	pieces of paper, mail
	Lifting - Over Head									
	Carrying - With Handles									
	Carrying - Without Handles	█	B		X			5	<1	Papers, envelopes, stack of mail, keys <4 metre
	Pushing - Upper Extremity	█	D		X			8	3	Close door, cabinet, drawer, move chair away
	Pushing - Hip/Leg Assist									
	Pulling - Upper Extremity	█	B		X			8	3	Open door, cabinet, drawer
	Pulling - Hip/Leg Assist									
	Reach - Shoulder or Above		D	X				arm+	arm	Adjust alarm monitor, access binders
	Reach - Sho. or Above extnd		D	X				arm+	arm	Adjust alarm monitor, access binders
	Reach - Below Shoulder	█	D			X		arm+	arm	Papers, keyboard, mouse, phones, buttons
	Reach - Bel. Shoulder extnd							arm+	arm	Binders, Alarm monitor mouse, gate buttons
E N R G	Handling	█	B				X	3	<1	Papers, keys, mouse, binders, phone, mic
	Gripping (mostly pinch)		B				X	mod.	min.	Mouse, pen/pencil, paper, mic, phone
	Fine Finger Movements		B				X	mod.	min.	Computer keys, keys, buttons, sort paper
P O S T U R E	Aerobic (percent)	█					100	All activities are low energy demand and long duration		
	Anaerobic (percent)									
M O B I L I T Y	High Energy Expenditure									
	Low Energy Expenditure	█					X	For almost all activities including sitting and light walking		
	Neck - Static Flexion	█				X		Working on low level issues, checking samples/water		
	Neck - Static Neutral									
	Neck - Static Extension				X			Short duration to check system monitor		
	Neck - Rotation	█	B			X		Looking around obstacles, work at main control with computers		
	Throwing									
	Sitting	█					X	Most duties including radio and computer interactions		
	Standing	█			X			To exchange materials at the door, place mail		
	Walking	█			X			Concrete floor covered with carpet to read maps, handout keys		
	Running/Jumping									
	Climbing - Arms and Legs									
	Climbing - Legs Only	█			X			Stairs in the building, one floor only		
	G E N	Bending/Stooping								
Crouching										
Kneeling										
Crawling										
Twisting			L		X			Reaching for phones/mics when on computer from sitting		
Balancing										
Traveling										
Work Alone		█					X	Probable for most elements of the day, always radio contact		
Interact with Public				X				Via telephone and occasionally in person		
Operate Equip/Machinery		█				X		Computers, phones, fax, radio equipment		
Irregular/Extended Hours	█					X	5 on/2 off shifts, 8 hour covering all 24 hours in clockwise rotation			

\* Frequency Legend 1 = Seldom; Not Daily 2 = Low Daily Activity; < 1hr  
 3 = Moderate Demand; Repetition 1 - 3 hrs daily 4 = High Frequency Demand; Repetition > 3 hrs daily  
 The following shading denotes a HIGH RISK TASK: █ Modifications should be considered

**REQD** is marked if the particular demand or category is relevant to the purpose of the job.  
**SIDE** refers to the side or limb required to execute a task. If it is marked **E**, it indicates either side, the most common choice is listed first. **D** refers to dominant and **B** to both sides.

Referral:		Organization:		Title: see 1st page header				
Dept.:		Division:		Contact:				
PHYSICAL DEMANDS		REQD	SIDE	FREQUENCY*				COMMENTS
				Sel. 1	Low 2	Mod. 3	High 4	
PERCEPTION	Hearing - Conversations		B				X	Colleagues/public in person, via phone, via radio
	Hearing - Other Sounds		B				X	Alarms
	Vision - Far						X	Most activity including looking outside day or night
	Vision - Near							
	Vision - Colour							
	Vision - Depth					X		Must be able to grasp objects in space (eg., keys, microphone)
	Perception - Spatial				X			Sorting mail and issuing keys
	Perception - Form							
	Feeling (Tactile)							
	Reading						X	Computer screens, instructions, correspondence in English
WORK ENVIRONMENT	Writing		D			X		Short notes/logs
	Speech						X	Talking with public/colleagues in person and via radio or phone
	Inside Work						X	In buildings and galleries
	Outside Work						X	On grounds, to include rain and wind (unlikely snow)
	Hot Conditions >25 deg. C							
	Cold Conditions <10 deg.C							
	Humid							
	Dust			X				Possible in some parts of the room
	Vapor Fumes							
	Hazardous Machines							
PSYCH	Proximity to Moving Object							
	Noise							
	Electrical Hazard							
	Sharp Tools			X				Scissors, letter opener
	Radiant/Thermal Energy			X				From windows, microwave oven, toaster, fridge
	Slippery Conditions							
	Vibration and Related							
	Chemical Irritants							
	Organic Substances							
	Medical Waste							
PSYCH	Blood Products							
	Congested Worksite							
	Lighting						X	Daylight, indoor fluorescent and incandescent
	Lighting - Indirect						X	Reflected off of equipment and computer screens
PSYCH	Consequences of Error						X	Unrelayed or unclear trouble call could result in serious crisis
	Competence Challenge			X				Activities static and largely unchanging
	Autonomy				X			Reacting to calls, very little proaction, some control over time
PSYCH	Relatedness			X				Very limited personal interaction

\* Frequency Legend 1 = Seldom; Not Daily 2 = Low Daily Activity; < 1hr  
 3 = Moderate Demand; Repetition 1 - 3 hrs daily 4 = High Frequency Demand; Repetition > 3 hrs daily  
 The following shading denotes a HIGH RISK TASK: [shaded box] Modifications should be considered

**REQD** is marked if the particular demand or category is relevant to the purpose of the job.

**SIDE** refers to the side or limb required to execute a task. If it is marked **E**, it indicates either side, the most common choice is listed first. **D** refers to dominant and **B** to both sides.

For detailed descriptions of each of the different categories, please refer to the reference guide or inquire with Human Effort at 1-888-4EFFORT