



JOB DEMANDS ANALYSIS

Company: City of Burnaby

Location: Works Yard

Job Title: Parking Control

Classification: Regular/Modified

Purpose of Activities

The purpose of this position is to enforce the parking control bylaws within the City of Burnaby.

Tools and Equipment

The following tools and equipment are used to perform their duties:

- Pick-up Truck.
- Safety Vest.
- Cell Phone.
- Ticket Computer (20 x 7.5 x 5 cm).
- Ticket Printer.
- Uniform

Usual Methods – Non-metered Street Parking

At the beginning of each shift, the employee will pick up a computer and upload the current information from the mainframe computer. At the end of the day they will download the ticket information.

This job consists of driving from one location to another in a pick-up truck and then parking. Once parked, the individual will take their chalk out and mark vehicles as follows:

1. Walk up to vehicle.
2. Bend or squat down and place a mark on the driving surface of the back tire just under the fender.
3. Straighten up and continue walking (5 to 10 meters usually).
4. Repeat steps 1 to 3 up to 30 times before returning to the vehicle (mark time in notebook so that they can return and check for overtime parkers).
5. Drive away to check another spot.
6. Return to this spot at the appointed time and then follow the process outlined below in Metered Parking (giving tickets).

There is an alternative method which utilizes an extension bit for the chalk. This removes the requirement of having to bend over to mark the tire each time, but some individuals are not satisfied with the effect that it has.



Usual Methods – Metered Parking

The individual drives to an area where there are cars parked at meters, stops the vehicle and then gets out with the ticket computer and the printer in hand (printer may be slung over shoulder on a strap). They then proceed from one vehicle to another checking for expired meters. If they find one, they will hold the computer in the non-dominant hand and punch in the ticket information with the dominant hand (about 40 seconds unless computer malfunctions). They then print the ticket, tear it off and place it under the windshield wiper of the vehicle (by bending slightly over the edge of the car). This process is repeated and can take up to 30 minutes in busy areas. The computers also keep track of vehicles with unpaid tickets and the parking control worker is allowed to place a sticker on the window indicating this. They can also call for a tow truck to remove the vehicle. Often this will involve directing traffic for the truck while it takes the vehicle.

Whenever tickets are being given, there is always a risk of a confrontation. It happens quite frequently and in busy places, can occur in even more often. Usually, these cases involve individuals who express verbal displeasure of varying intensities, but it can escalate into threats and even a physical confrontation.

Administrative Issues

The hours of work in this position vary. It can be a shift from 0600 to 1400, 0830 to 1630 or 1000 to 1800. There is also a part-time running from 0800 to 1700 on Saturdays. They can take breaks at their discretion. Communication via cell phone to dispatch, towing company and the police (report stolen cars, plates, request assistance, etc.).

The environmental conditions can change this job appreciably. It is possible to be exposed to extreme hot conditions for brief periods of time. Wet weather is common and makes roadways more hazardous and the use of a raincoat preferable. Cold is also a possibility as is snow, although this is less likely than wet conditions.

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.

- Drive a vehicle through a variety of different traffic conditions.
- Walk over uneven ground, on steep slopes.
- Carry computer and printer.
- Manage confrontations with members of the public (potential for hostile situations).
- Carry out tasks under unpredictable outdoor conditions that often include steady rainfall.
- Work alone.
- Climb in and out of a truck cab many times each shift.



Worker Decision Variables

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

- Choose postures for carrying out duties (e.g. bend over to chalk tire vs. using extension bit).
- Planning of breaks and the cycle of the day's activities.
- Choose manner of conflict resolution.
- Interpret technicalities of vehicle placement with respect to the by-laws.

Accommodative Considerations

1. People with any hand/wrist problems may have difficulty with this position because of regular gripping, holding and carrying of the computer and printer.
2. Individuals who do not cope well in outdoor, high-autonomy work environments would have difficulty with this position.
3. People uncomfortable with confrontations and regular interaction with strangers would have difficulty with this position.
4. There is a slight significant learning curve associated with the tasks.

Prepared By: Greg Hart, Kinesiologist May 4, 1999



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 primarily composed of seated activity or light walking and standing. There is potential anaerobic power demand associated with climbing a steep roadway or sidewalk. Energy expenditure can be much higher in cases where individuals squat down each time they mark a tire with chalk since this movement requires large muscle mass to move the body back to the standing position.

Structural Stresses

Spine – there are a number of issues impacting the spine. While the individual is driving, the spine becomes flexed and the muscles do not act to support it. There is also increasing laxity of the rear ligaments and the outer ring of the disc with increased pressure on the disc nucleus. Further, if the individual chooses to bend down and mark with chalk, there are large, passive forces carried through the same structures.

Arms and Hands – frequent gripping, carrying and holding of the computer and the printer can be a concern for the muscles in the forearms and even into the neck (static load). Pushing the buttons on the computer while holding with the other hands contributes point load to the fingers.

Special Stresses

This job can expose the individual to verbal and perhaps physical insult. There is constant interaction with the public at times and it is rarely a pleasant discussion. Add to this the wearing of a uniform that has some similarities to a police uniform and there is potential for conflict. It can be an emotionally demanding job.

INTERVENTIONS

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

1. Encourage the workers to maintain an increased level of fitness away from work that will focus on cardiovascular endurance, anaerobic power, muscular strength, muscular endurance and flexibility. Especially cardiovascular endurance. Since the work tends to have low energy expenditure it is important that every opportunity is exploited outside of work to maintain good health.
2. Provide regular education in effective use of the body and neutral joint positions for this type of work.
3. Encourage individuals to utilize the chalk stick in order to reduce spinal flexion. Insure that this tool is effectively designed so that it is easy and attractive to use.
4. Be careful to not increase grip forces unnecessarily.



5. Review footwear to insure that safety wear also is as light as possible with excellent heel and forefoot support.
6. Consider reviewing uniform selection so that it is clear that these individuals are not connected with the police force. There may be a benefit of reduced risk of confrontation.
7. Review computer system for weight and effectiveness as I saw it malfunction several times.
8. Provide training in conflict resolution and self-defense to decrease the risks associated with the frequent confrontations. Make it an annual requirement.
9. Develop an alternative method of carrying the printer and computer (belt-based perhaps) that doesn't involve running a strap anywhere since a strap could be used against an individual in a confrontation.

PJDC - Parking Control

REFERRAL: Lana Ho			ORGANIZATION: City of Burnaby			TITLE: Parking Control Officer			
DEPT: Engineering			DIVISION:			DATE: May 4/99		CONTACT: David Kilpatrick	
PHYSICAL DEMANDS	REQ D	SIDE	FREQUENCY*				Max. Weight (kg)	Usual Weight (kg)	COMMENTS
			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		8	1	Picking up gear in morning, bicycle
	Lifting - Over Head								
	Carrying - With Handles								
	Carrying - Without Handles		B			X	2	2	Handheld computer, printer
	Pushing - Upper Extremity								
	Pushing - Hip/Leg Assist								
	Pulling - Upper Extremity								
	Pulling - Hip/Leg Assist								
	Reach - Shoulder or Above								
	Reach - Sho. or Above extnd								
	Reach - Below Shoulder		D			X	arm	arm	Mark tires with chalk, place ticket on car
	Reach - Bel. Shoulder extnd		D			X	arm	arm	Mark tires with chalk, place ticket on car
	E N R G	Handling		B			X	8	2
Gripping			D			X	mod.	mod.	Holding computer (power), chalk(pinch)
Fine Finger Movements			B			X	mod.	mod.	Pressing buttons on computer, phone
Aerobic (percent)						90			Standing, sitting, light walking (low power requirement)
P O S T U R E +	Anaerobic (percent)			5					Walking up hills
	High Energy Expenditure			X					Longer walking, up hills, squatting down to mark tires
	Low Energy Expenditure					X			Driving in vehicle, brief walking and standing
	Neck - Static Flexion					X			Looking at computer, license plates (<20 seconds)
M O B I L I T Y	Neck - Static Neutral								
	Neck - Static Extension								
	Neck - Rotation		B			X			Shoulder check, direct traffic
	Throwing								
	Sitting					X			While driving vehicle (max. 20 minutes/time)
	Standing					X			Briefly while punching up ticket, direct traffic
	Walking					X			Usually less than a 500 metres each time
	Running/Jumping								
	Climbing - Arms and Legs								
	Climbing - Legs Only				X				Walking up hills, can be steep (<200 metres)
	Bending/Stooping					X			To mark tires with chalk (can be done standing)
	Crouching					X			To mark tires with chalk (can be done standing)
	Kneeling								
	Crawling								
	G E N	Twisting		D			X		
Balancing									
Traveling						X			Throughout Burnaby in a small truck
Work Alone						X			Not often isolated, but no colleague working with them
Interact with Public						X			Often hostile(physically) public when dealing with tickets
N	Operate Equip/Machinery		B			X			Computer, printer, small truck, cell phone
	Irregular/Extended Hours					X			Some Saturday work and early mornings

* 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 listed first. **D** refers to dominant and **B** to both sides.

REFERRAL:		ORGANIZATION:		TITLE: see 1st page header				
DEPT.:		DIVISION:		DATE:		CONTACT:		
PHYSICAL DEMANDS		R E Q D	S I D E	FREQUENCY*				COMMENTS
				Sel. 1	Low 2	Mod. 3	High 4	
P E R C E P T I O N	Hearing - Conversations		B				X	Colleagues, members of the public in person/on phone
	Hearing - Other Sounds		B				X	Phones, vehicle traffic
	Vision - Far		B				X	Driving, reading license plate numbers
	Vision - Near		B			X		Details on the computer screen/tickets
	Vision - Colour							
	Vision - Depth		B				X	Seeing and reaching under and around cars
	Perception - Spatial		B				X	Placing tickets under windshield wipers, chalking tires
	Perception - Form							
	Feeling (Tactile)		D			X		Holding computer, tickets, wipers, etc.
	Reading						X	License plates, computer display, complaints
W O R K E N V I R O N M E N T	Writing		D			X		Filling out short forms and writing notes
	Speech						X	Talking with colleagues and public in person/phone
	Inside Work				X			Trailer building, brief meetings and administration
	Outside Work						X	On the streets
	Hot Conditions >25 deg. C					X		In the summer months
	Cold Conditions <10 deg.C					X		In the fall, winter and early spring
	Humid						X	Often rains, can be humid in summer months
	Dust				X			Especially near construction sites and when windy
	Vapor Fumes						X	Vehicle exhaust
	Hazardous Machines							
	Proximity to Moving Object						X	All manner of traffic on the streets
	Noise					X		Traffic noise can be significant in heavy situations
	Electrical Hazard							All equipment is grounded and conventional
	Sharp Tools							
	Radiant/Thermal Energy					X		Through windshield, off of other cars and pavement
	Slippery Conditions				X			Heavy rain, ice and snow (infrequent)
	Vibration and Related				X			Light jarring while driving
	Chemical Irritants		B			X		Toner, possible treatments of book pages
	Organic Substances							
	Medical Waste							
	Blood Products							
	Congested Worksite							
	Lighting - Direct						X	Overhead
	Lighting - Indirect						X	Reflections off of vehicles and buildings
	Lighting - Adjustable							
	Lighting - Fluorescent							
	Lighting - Incandescent							
	Lighting - Shadows etc.					X		Early and late in the day, around obstacles

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

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