

UPDATED JOB TASK ANALYSIS - PHYSICAL DEMANDS



JOB TITLE: Heavy Equipment Operator 1- Labor Crew Leader & Highway Maintenance Laborer

Company Name: RAMSEY COUNTY – PUBLIC WORKS DEPARTMENT

Date: June 2, 2014

Prepared by: Susan Unger OTR/L, CEAS sunger@summitortho.com

Phone: 651-968-5260

Employees who assisted Rich Kidman, Tony Vallenunva, Scott Janke and Bob Zak & several others.

JOB OVERVIEW FROM Dictionary of Occupational Titles Combined with Ramsey County Job Essential Functions

Asphalt-Paving Machine Operator	853.663-010	Strength: MEDIUM
Road-oiling-Truck Operator	853.663-018	Strength: LIGHT
Highway Maintenance Worker	899.684-014	Strength: MEDIUM
Maintenance Worker, Utility	899.684-046	Strength: HEAVY

Maintenance workers perform the manual tasks associated with roadway upkeep. They fill and repair potholes or broken places in roadways with asphalt or other bituminous material, spread it with rakes, and finish the final surface. They apply oil to the road surface with oil distributor truck. They clean and clear culverts, ditches, and other drain structures of debris, maintain road shoulders, berms and guard rails, and assist in removal of slides from roadways. They may drive trucks to bring personnel and repair equipment to the work site. They may occasionally operate heavy equipment such as rollers, tractors with mower attachments, snow removal equipment, and emergency service vehicles. Typical miscellaneous tasks assigned to maintenance workers include traffic control, litter pickup, minor tree trimming, and other maintenance of right-of-way. Maintenance workers perform landscaping tasks and clear weeds and brush from areas such as rights-of-way and roadside shoulders.

Maintains county roads/highways and municipal and rural roads, and rights-of-way in safe condition, performing combination of following duties: Erects and repairs guardrails, and snow fences, using handtools and nails, and power tools. Dumps, spreads, and tamps asphalt, using a tamper to patch broken or eroded pavement. Drives truck [TRUCK DRIVER, HEAVY (any industry)] to transport crew and equipment to work site. In winter with snowfalls workers drive snow-removal equipment, consisting of a truck equipped with adjustable snowplow and/or blower unit, and could be designated Snow-Plow Operator, Truck (government ser.); Snow-Plow Tractor Operator (government ser.).

Physical Demand Level : Medium-Heavy • CRT BODY INDEX MINIMUM SCORE = 201

* **Comments:** The United States Department of Labor defines the **medium** work as a exerting up to **36 to 50 pounds of force occasionally** (occasionally: activity or conditions that exist up to one-third of the time) and/or **22-30 pounds of force frequently** (frequently: activity or conditions that exist between one-third and two-thirds of the time), and/or greater than negligible up to **11-15 pounds of force constantly** (constantly: activity or condition exists more than two-thirds of the time) to move objects.

Work Hours: 6:30 am- 3:30pm

Breaks: 1-30 minute & 2-15 minute

Overtime: Occasionally in summer months (averages 1-5 hours per 2 week pay period). Could be frequently in winter during snowfalls; averages 3-5 hours of overtime per day on a "callout during a snow event" and up to a 12 hour day.

Personal Protective Equipment: Required: Steel toe boots/shoes, safety vest. As needed per job: safety glasses, hearing protection. Leather / cavalier/chemical resistant or nitro gloves. Hard hat, dusk mask (optional), fall harness (for confined space entry).

Special Training Requirements: commercial drivers' license

Equipment: Skid loader (with attachments), tandem single axel truck (1 ton), 18 wheeler truck, snow plow, dump truck, tractor trailer, asphalt roller, cement truck with mobile crane/boom, water and jetter truck, sewer truck, forklift, soil compactor,.

Tools: Chain/concrete/chop saws, asphalt routers, cutting torch, trenching, lawn mowers (push and walk behind), tampers (hand/power), weed whip, generators etc.

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JOB TITLE: Heavy Equipment Operator 1 - Labor Crew Leader and Highway Maintenance Labor

Company Name: Ramsey County Public Works Department Site: Shoreview Date: 06/02/2014

Employees observed, interviewed or who completed questionnaires pertinent to job physical demands:

Rich Kidman, Tony Vallenunva, Scott Janke and Bob Zak & several others.

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ADDENDUM

A meeting was held on June 2, 2014, at the Ramsey County Public Works Department. Specifically the meeting was held to address concerns related to the job task analysis and if we needed to update the overall strength of this position as it is felt that the position might be rated too light. After discussions with those at the meeting, it was determined that we would revise the physical demands report and some measurements were taken today related to the overall types of job tasks that were not appropriately represented on the job task analysis dated September 8, 2011.

The following weights and measurements were done:

1. Pneumatic chipping hammer – 20 pounds.
2. Jackhammer with bit (pneumatic) – 70 pounds.
3. Derry rubber crack sealant for asphalt – 30 pounds (box).
4. Large cone – 6 pounds.
5. Sandbags – 37 to 42 pounds (estimate 30 to 50 pounds); handled occasionally to frequently.
6. Z-base 4-foot sign – 55 pounds.
7. H-base 4-foot sign – 59 pounds.
8. Block for guardrail – 12 pounds.
9. Six-foot post-guardrail – 55 pounds; handled occasionally to frequently.
10. Temporary manhole cover – 90 to 110 pounds (2-man lift is encouraged).
11. Curved catch base and block – 48 pounds.
12. Square 2-inch surround ring – 47 pounds.
13. Square 4-inch surround ring – 95 pounds.
14. Cement block (8 inches x 8 inches x 16 inches) – 75 pounds.
15. Three-foot cement ring (2-inch thick) – 88 pounds.
16. Manhole lift ring – 82 pounds.
17. Manhole lid – 190 pounds.
18. Steel guardrail post (6 feet) – 52 pounds.

Shovels Full Of Product As Follows:

1. Hot asphalt – 16 to 23 pounds.
2. Sand – 13 to 18 pounds.
3. Half-inch gravel or rock – 13 to 15 pounds.
4. Clay – 18 to 20 pounds.
5. Class 7 rock – 15 to 18 pounds.
6. Millings – 14 to 15 pounds.

It should be noted that when shoveling, product is handled frequently.



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Department: Public Works

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Job Task Analysis - Physical Demand Checklist

Key

Never (0%)	Rarely (1 - 10%)	Occasionally (11 - 33%)	Frequently (34 - 66%)	Continuously (67 - 100%)
Not at all (0%)	0-24 min./day 0-5 reps/ in 8 hour day	25 min. to 2.5 hours/day 6-100 reps in 8 hour day	2.51 to 5 hours/day 101-300 reps in 8 hour day	5.01 hours and over 301 to 500 + reps in 8 hr. day

Site: Ramsey County						Location: Arden Hills
Employees Observed or Interviewed: Scott Jahnke and Scott Humphreys						
Posture, Movement:	Never (0%)	Rarely (1 - 10%)	Occasionally (11 - 33%)	Frequently (34 - 66%)	Continuously (67 - 100%)	Comments
Sitting			x -summer	X-	-X	Driving trucks (tandem single axel, 18 wheeler, pickup), heavy equipment operation (i.e.: bobcat, asphalt roller, skid loader)
Standing			X			On even and uneven ground/surfaces to dig trenches, direct traffic, flagging, paving and repairing road surfaces.
Walking			X			On even ground/surfaces and uneven ground/surfaces. To operate push and walk behind mowers, for grade marking, to load/unload equipment or materials, patching potholes & crack sealing
Bending / Stooping			X-	-X		Shoveling,/digging, loading/unloading, to do chain saw work, crack sealing/ pothole patching, mowing, landscaping , placing retaining block
Twisting			X-	-X		Same as above + washing station
Low Level Position (kneel/squat/1/2 kneel)			X			Laying sod, landscaping, concrete work (trolling cement), patching and pipe work, culvert work to work with paver block
Crawling		X				LP4, inspect confined spaces, guard rail repair, for curb and sidewalk work, to troll cement
Crouching		X				To get in and out of bobcat, washing station work,
Climb (stairs/ladder)			X			To get in and out of trucks/ heavy equipment. There are ladders on the sides of trucks/equipment as well as 2-4 steps to get inside to drive equipment/truck
Balancing		X				On even and uneven surfaces/ground, on trailers. On moving equipment such as asphalt roller/curbing machine. To perform safety harness work.



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Job Task Analysis – Physical Demand Checklist (Continued)

Reach – forward					X	Tool use (chain /concrete/ chop saw) asphalt router, to drive/steer/operate machines/trucks. Washing truck/heavy equipment.
Reach – overhead		X				Marking lines, operation of truck, etc.
Reach – low level			X			Smaller tool use, hand tools, shovels.
Reach – behind/across		X				Lever operation (bobcat) to steer asphalt roller.
Push / Pull *			X-	-X		Hydraulic lever operation, stick shift, Jet truck, tail gate, moving ramps on trailers, driving, steering, opening closing doors, pry bar use, raking/shoveling sand/dirt/rock/

* Static Force Weights:

Lifting: & Carrying	Never	Rarely	Occasionally	Frequently	Continuously	Comments
Up to 10 pounds				X-	-X	Materials, rakes, smaller hand tools, cones, dirt
11 – 24 pounds			X-	-X		Sludge hammer, water hose, grass seed
25 – 34 pounds			X			Concrete work (demo/repair)
35 – 50 pounds			X-	-X		Same as above + water and other liquids in 5 gal. bucket, boxes of rubber
51 – 74 pounds			X			Build catch basin, materials, retaining block (82 lbs.),
75 – 99 pounds			X			Bag of Portland cement mix (94 lbs),
Over 100 pounds		X				Construction materials such as chunks of concrete, asphalt, fallen trees, etc.

Other/Comments: See addendum for added weights and measurements done on 6-2-2014. Ramsey County does encourage 2 person lifts for heavier or more awkward items which are moved or lifted. Also mechanical lifting devices are also encouraged when possible.

Additional Postures/Movements

Other /Activity	Never	Rarely	Occasionally	Frequently	Continuously	Comments
Lateral/Side Bend of Trunk			X -	-X		Driving and operating truck/plows (especially during snowfall) and heavy equipment (asphalt roller)



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Job Task Analysis – Physical Demand Checklist (Continued)

Physical Demand Checklist – Head & Neck - Upper & Lower Extremities

Repetitive use of Arms/hands/fingers	Never	Rarely	Occasionally	Frequently	Continuously	Comments
	Bend/Twist/Rotate arm/wrist/ forearm				X	
Elbow Flex/Ext Right:				X-	-X	Same as above
Left:				X-	-X	Same as above
Simple grasping: Right					X	Truck/snowplow controls are right hand operated. Radio operation.
Left:				X		
Firm grasping: Right:			X			Heavier hand tool use, shoveling, loading equipment (tie downs), mowers, skid loaders, small equipment use and jack hammering.
Left:			X			Same as above
Fine hand work: Right:		X				Writing in daily log, hand radio use (both of these with the dominant hand).
Left:		X				See above
<u>Pinch (see below)</u>						
Lateral Right:		X-	-X			Writing and radio use
Left:		X				Same as above
3- point Right:		X				Same as above
Left:		X				Same as above
2-point Right:		X				Same as above
Left:		X				Same as above
Other/Comments: Frequent vibration exposure through driving and operating truck/heavy equipment						
Repetitive use of the feet (ex., using foot controls)						
Right	Yes	Frequently – Driving trucks/plows. Equipment operation-bobcat.				
Left	Yes	Rarely				
Both	Yes	Rare- clutch operation (left foot) of Tandem 70 trucks				
Posture of the head and neck:						
Static position	Yes	Sweeper operation				
Frequent Flexing	Yes	Digging, controls				
Occasional/Rare extending	Yes	Controls				
Frequent rotating (right/left)	Yes	Driving and equipment operation (checking mirrors and peripheral road conditions) Needed especially for plowing/asphalt/ sweeper/skid steering				
Frequent side bending (right/left)	Yes	Same as above				



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Job Task Analysis - Environmental Exposure Checklist

The environmental exposure information was reviewed or completed by the human resources department of this company.

Environmental Exposures		Comments:
Working around moving machinery	Yes	Trucks, construction areas/ road traffic
Working at heights	Yes	Rare-vertical ladder on Oil Distributor truck is an example.
Congested area	Yes	Work is outside
Working outside	Yes	50% = New employee - 10 yr. employee 30-50% = 10-20 year employees 0-10% = 20+ year employee (they mostly drive trucks or vehicles).
Inadequate lighting (task)	Yes	Snowplowing (nighttime and poor driving visibility conditions).
Glare	Yes	Sunny weather, driving
Exposure to heat and humidity	Yes	See working outside
Exposure to cold	Yes	See working outside
Using powered equipment	Yes	Jack hammering, trenching,
Vibration	Yes	Jack hammering, driving and steering truck
Slippery surfaces	Yes	Ground/weather/rain, snow and ice
Chemical exposure: (specify)		Gasoline, diesel, oils, biodiesel additive, cleaning chemicals (orange citrus cleaner), degreasers
Inhalation	Yes	
Ingestion	Yes	
Skin contact	Yes	
Noise- interfering w/ communication	Yes	Plowing, trenching, blowing, bobcat operation, etc.
Radiation (ionizing/non-ionizing)	No	
Hazardous waste/agents	Yes	Roadside clean up – exposures vary greatly
Airborne infectious agents	No	
Blood and/or bodily fluids	Yes	Rare – ex: assisting co-worker with bleed while providing first aid
Risk - physical violence/aggression	Yes	Rare - traffic situations- road rage from motorist

Sensory Demands (Check all that apply)

Hearing Speech Near vision Far vision Color vision Spatial perception
 Tactile Smell Taste

* Must be able to smell burning wires in mechanical overheat situation.

Additional Comments:

The physical and environmental demands of this job position were reviewed by these individuals for accuracy. It is recommended that at least two employees who perform the job and a supervisor (per facility) review this document. This document was reviewed by:

	Name & Title	Date
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____

**Photos of Heavy Equipment Operator 1- Labor Crew Leader Highway Maintenance Labor
RAMSEY CTY PUBLIC WORKS 09/08/2011**

VARIOUS EQUIPMENT DRIVEN, MOVED, IN AND OUT OF, LOADED, UNLOADED FOR JOB.



Dump truck has plow attachment for winter.



Oil distributor truck. Note vertical ladder climb.



Water truck.



Trailer (flat bed). Loading equipment on and off.



Driving forklift.



Asphalt roller.

**Photos of Heavy Equipment Operator 1- Labor Crew Leader Highway Maintenance Labor
RAMSEY CTY PUBLIC WORKS 09/08/2011**



Driving – frequent/constant levels (3-8 hours/day).



Hand operation of the control mechanism for dump box and snow plowing.



Climbing in/out of truck or heavy equipment/truck to drive.



Climb onto or off of heavy equipment for supplies, tools, etc. Steps from 11"-24" off ground.



Tools: Shovels, wheel barrels, buckets for gravel, rock or dirt.



Example of climbing on and in truck to locate supplies or tools needed or the job.

**Photos of Heavy Equipment Operator 1- Labor Crew Leader Highway Maintenance Labor
RAMSEY CTY PUBLIC WORKS 09/08/2011**



Occasional/frequent standing on even/uneven surfaces.



Ratcheting tie downs (grip/bend) to transport heavy equipment.



Bobcat operation and direction of crew lead at jobsite.



Loading/unloading, steering climbing with heavy equipment.



Hoses for vacuum excavator machine (used with gas/utility).



Example of trenching forward bent, twist, grip and push/pull to insert/remove equipment.

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1. Job Task Analysis - Environmental Exposure Checklist

The environmental exposure information was reviewed or completed by the human resources department of this company.

2. Job Task Analysis – Physical Demands Checklist Validation

Additional Comments:

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Name & Title	Date
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____

***Once signed and validated return this page to MOH to: sunger@summitortho.com or fax to: (651)730-3990**