



## FUNCTIONAL JOB ANALYSIS

**DEPARTMENT:** Highway

**POSTION TITLE:** Maintenance I  
Maintenance II  
Maintenance II Foreman  
Shop Foreman  
Assistant Shop Foreman  
Traffic Services Technician

**Key:**

Never (0%)	Rarely (1-5%)	Occasionally (6-33%)	Frequently (34-66%)	Continuously (67-100%)
Not at all	1-24 minutes in an 8 hour work day	.5 hours-2.5 hours in an 8 hour work day	2.75- 5.25 hours in an 8 hour work day	5.5 – 8hours in an 8 hour work day

**Functional job demands:**

- 1. Standing:** **Frequently (36-66%)**  
Prolonged standing, of up to 5.25 hours, may be required for traffic control.
- 2. Sitting:** **Continuously (67-100%)**  
Heavy equipment operation, driving trucks (hand and foot operation), plowing snow, blading roads. 8 hour shift, with occasionally longer duration.
- 3. Floor lift:** **Occasionally (6-33%)**  
Lift with hook/fist grasp from floor 2 foot cutting edges weighing 44# (This completed twice a year).  
Lift with hook/fist grasp from floor 3 foot cutting edges weighing 46#, load onto bobcat fork by lifting to adjustable height no greater than 36 inches.  
Lift with hook/fist grasp from floor 4 foot cutting edges weighing 60#, load onto bobcat fork by lifting to adjustable height no greater than 36 inches.  
Lift and carry 55# tire chains, 20# cables from floor and carry 25 feet using a full grasp.  
Heavy lifts of cutting edges longer than 4 feet are completed by two employees.  
Remove 66# floor grates to access floor drain using a hook grasp with forward bend at waist, 10 grates in section.
- 4. Lifts from various heights:** **Occasionally (6-33%)**

Under 10#: Misc. hand tools located with an extended horizontal reach of 36 inches over a work bench of 37.5 inches.

Power tools: 20# saws all, 13# drill; 12# impact wrench; 13# grease gun.

Power tools: 12# air impact wrench to remove/tighten bolts to secure cutting edges to blades when in a kneeling position.

Chain saw use: 20# used at variety of heights.

Limb saw: 20# Saw length is 16 feet.

**5. Single hand Carry and lift: Occasionally (6-33%)**

Carry 40# bucket 20 feet to load onto flatbed truck with a height of 45.5 inches, lifting by handle up to 65 inches (ground to handle height at end of lift).

Stack/unstack buckets weighing 40# up to handle height of 49 inches.

Crack sealing: **Frequently (34-66%)**

Carry 40# bucket 20 feet to load onto flatbed truck with a height of 45.5 inches, lifting by handle up to 65 inches (ground to handle height at end of lift).

Stack/unstack buckets weighing 40# up to handle height of 49 inches.

**6. Two handed carry and lift: Occasionally (6-33%)**

Unload 50# bag of crack sealer off a flatbed truck, by lowering from a height of 57.5 inches up to 45.5 inches. Forward bending or partial squat required.

Carry 55# barricade with two hands from storage rack and transport by carrying 10 feet to load on flat bed at 45.5 inches. Longer distance (20-30 feet) to carry barricade may be required in the field to put in place.

Lift and position a 75# tire rim. Tires weighing 127# are rolled. Two person lift for mounted tires weighting 202# or more.

**7. Push/pull Occasionally (6-33%)**

Push a barrel of fluid 20 feet using 53 force pounds.

Push/pull with hands to use a wrench to tighten/loosen bolts.

Push up side of flatbed truck: 85 force pounds.

Pull open hood of truck: 125 force pounds: this task usually completed by two workers.

Push open fender 122 force pounds from a 49 inch height using an open palm with up upward force.

Pull self with arms on rails (with use of legs on steps) to access cabs.

**8. Low level work: Occasionally (6-33%)**

Forward bending at waist, squatting, kneeling to repair equipment, secure snow chains and clean equipment, remove and replace cutting edges on blades.

Routine maintenance of equipment, checking of hoses, greasing of truck may require employee to be supine on a creeper.

**9. Climbing: Occasionally (6-33%)**

Step up onto loader step 24 inches, grader 27 inches (all vertical ladders that require use of hands to pull), 25 inches step up onto grader blade.

**10. Stairs:**

**Occasionally (6-33%)**

14 steps to access upper storage.  
4 step mobile stairs to access equipment.

**11. Step-up/over:**

**Occasionally (6-33%)**

Navigate uneven terrain which may require stepping up/over obstacles, such as logs, debris when working in the field.

**12. Overhead tasks:**

**Occasionally (6-33%)**

Lift and replace barricades weighting 55# from a height of 75 inches.  
Install signs in windy conditions requiring variable resistance to secure signs using overhead reach.  
Uses arms for reaching from hip to above head while supine under a truck for service, repair and maintenance using hand tools, grease gun and other tools.

**13. Fine motor skills:**

**Occasionally (6-33%)**

Dexterity to operate controls on heavy equipment: lateral and 3 point pinch, gross grasp, hook grasp.

**14. Reaching:**

**Occasionally (6-33%)**

Reach forward (horizontal) 36 inches to access engine, access hand tools across work bench, check fluids on heavy equipment, change mower blades.  
Reach upward overhead to access items on top shelves located at a height of up to 7 feet, change light bulbs at 8 feet. A 10 foot ladder is available to assist.

**15. Elevated work:**

**Rarely (1-5%)**

Motorized scissors lift is used for tasks such as wall painting and light bulb changing.

**16. Walking:**

**Occasionally (6-33%)**

Walking on uneven surfaces, ditches, slippery and icy environments.  
Distance 100-400 feet to assist stranded motorists.  
Distance from shop to salt building is 275 feet. 550 feet total distance.

**17. Long handled tools:**

**Occasionally (6-33%)**

Use of shovels, rakes, push brooms for building cleaning, equipment cleaning.  
Use of shovel to dig 3-4 foot deep trench for location of fiber optic cables before installation of culverts.  
Use of rake to re-seed land.  
Use of scoop shovel in floor drain, requiring forward bending, to lift out wet sand up to 15-20# to a

wheelbarrow to height of 26".

Wash/clean trucks and equipment after their use. This require use of brooms, wash mops, and hoses using an overhead and extended horizontal reaching and below waist use of tools to clean lower parts of the equipment. It may take 45 minutes to clean the truck or equipment.

**18. Balance:**

**Occasionally (6-33%)**

Balance on unstable footing during clean-out of culverts, stepping onto blades to access cabs, uneven terrain.

**19. Cervical rotation**

**Continuous (67 -100%)**

Driver must continuously scan road environment for hazards and location of other vehicles. Visual scanning of obstacles in the shop environment required throughout the day.

**20. Back pack:**

**Continuous (67 -100%)**

Employee may need to wear a back pack with 35 pounds of fluid when crack sealing.

**Assessment completed by: Denise Ristinen, OTR/L, 11-6-2017; Rob Hendrickson, DOT, 10-30-2017**

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