



# Job Task Analysis

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<b>Employer:</b>	<b>Stanislaus County</b>
<b>Occupation:</b>	Heavy Equipment Maintenance Supervisor
<b>Company Contact:</b>	Risk Management 1010 10 <sup>th</sup> Street Modesto, California 95354 (209) 525-5770
<b>Date:</b>	February 2010
<b>Analysis Provided By:</b>	Lyle Andersen, PT, CWCE Andersen Physical Therapy, Inc. 3500 Coffee Road, Suite 3 Modesto, California 95355 (209) 549-4626

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## INTRODUCTION:

A complete job description is available through Stanislaus County Human Resources. The environmental factors, physical and functional demands for this Job Task Analysis were documented by Andersen Physical Therapy, Inc. The methodology for documentation consisted of on-site visits, using various measuring devices such as dynamometers and scales, as well as observation and interviews with employees and managers. A detailed record was made of the physical and functional demands of the job in terms of force pounds, weight, frequency, height, distance, anthropometric measurements, stamina, and degrees of range of motion. The determination of the frequencies of functional activities is based on standards provided by the National Institute for Occupational Safety and Health (NIOSH) and the Work Practice Guide for Manual Lifting (U.S. Department of Commerce, National Technical Information Service).

The Job Task Analysis is organized as follows: General work description; safety requirements; equipment; environmental factors; and physical/functional demands.

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**GENERAL WORK DESCRIPTION:**

The frequency of the following activities may vary according to the physical requirements of the specific job tasks that the employee may be required to perform at random intervals.

Under the general supervision of the department manager, the Heavy Equipment Maintenance Supervisor will supervise the maintenance and repair of heavy trucks, construction and maintenance equipment of the Public Works Department.

**SPECIFIC DUTIES:** Available through the Human Resources Department at the County of Stanislaus.

<http://www.stancounty.com/personnel/PDF/JobSpecifications.pdf>

**Safety Requirements:** All employees are required to observe company safety procedures and standards to insure individual and collective safety, in addition to avoiding unnecessary risk to oneself, co-workers, customers, and property.

**Equipment:**

- |              |            |
|--------------|------------|
| 1. Computer  | 5. Mouse   |
| 2. Copier    | 6. Printer |
| 3. Facsimile | 7. Vehicle |
| 4. Keyboard  |            |

*All employees within the **Heavy Equipment Maintenance Supervisor** position are required to provide physical assistance for all weight and frequency requirement needs of all job tasks in order to maintain a safe work environment. Employees must be physically capable of working in any of the job tasks within the **Heavy Equipment Maintenance Supervisor** position.*

**ENVIRONMENTAL FACTORS**



**The following percentages are given in terms of an eight-hour workday:**

<b>Seldom</b> = 1% - 2%	<b>Frequent</b> = 34% - 66%
<b>Occasional</b> = 3% - 33%	<b>Constant</b> = 67% - 100%

	ENVIRONMENTAL FACTORS	MAXIMUM FREQUENCY
1.	Unprotected heights: pit, step ladder.....	Seldom
2.	Being around moving machinery: vehicle traffic, truck, heavy equipment.....	Occasional
3.	Exposure to marked changes in temperature and humidity: outside temperatures may seasonally vary between 28-110 degrees.	Seldom
4.	Exposure to dust, fumes, smoke, gases, or other irritating substances (specify):	Occasional
5.	Driving: vehicle, heavy equipment.....	Occasional
6.	Exposure to excessive noise:..... <i>Hearing protection is available</i>	Seldom
7.	Exposure to radiant or electrical energy:.....	Seldom
8.	Exposure to solvents or chemicals:..... <i>Refer to MSDS document.</i>	Seldom
9.	Exposure to slippery or uneven walking surfaces:.....	Occasional
10.	Working below ground:.....	Not Applicable
11.	Unusual fatigue factors: .....	Not Applicable
12.	Working with explosives:.....	Not Applicable
13.	Excessive vibration: .....	Not Applicable
14.	Working with hands in water or other substance:..... <i>Hand protection is available</i>	Not Applicable
15.	Working proximity:..... Alone: Closely with others:	Frequent Occasional
16.	Working inside:.....	Frequent
17.	Working outside:.....	Occasional

## FUNCTIONAL ACTIVITIES



The frequency of the following activities may vary according to the physical requirements of the specific job tasks the employee may be required to perform at random intervals.

### PHYSICAL AND FUNCTIONAL REQUIREMENTS

<u>FREQUENCY DEFINITIONS</u>	<u>SELDOM</u>	<u>OCCASIONAL</u>	<u>FREQUENT</u>	<u>CONSTANT</u>
Percent of the Day	1-2%	3-33%	34-66%	67-100%
Material Handling	1-4 Reps	5-32 Reps	33-250 Reps	251-2,000 Reps
Non Material Handling	1-4 Reps	5-32 Reps	33-250 Reps	251-2,000 Reps
Repetitive & Static Work	1-50 Reps	51-250 Reps	251-1,000 Reps	1,001-20,000 Reps

1.) **PUSH**: *Pushing activities may require use of the back in conjunction with leg and arm musculature.*

<u>MAXIMUM REQUIREMENT</u>	
<b>0-10 pounds:</b>	Occasional
<b>11-25 pounds:</b>	Seldom
<b>26-35 pounds:</b>	Not Required
<b>36-50 pounds:</b>	Not Required
<b>51-75 pounds:</b>	Not Required
<b>76-100 pounds:</b>	Not Required
<b>Maximum Force: 15 Pounds</b>	

**Assistive Devices:** 4-Wheeled Cart, Hand Truck. Additionally, one person assistance is available with forces greater than 15 pounds.

**Comments:** Pushing is utilized with activities such as retrieving, returning, storing, adjusting, moving, and/or transporting equipment, and supplies (e.g. cart, door). The employee exerts up to 15 pounds of force in a horizontal plane from waist to shoulder height of a distance up to 5+ feet when performing job tasks (e.g. push up to 15 pounds of force to open/close door, drawer, file).

2.) **PULL**: *Pulling activities may require use of the back in conjunction with leg and arm musculature.*

<u>MAXIMUM REQUIREMENT</u>	
<b>0-10 pounds:</b>	Occasional
<b>11-25 pounds:</b>	Seldom
<b>26-35 pounds:</b>	Not Required
<b>36-50 pounds:</b>	Not Required
<b>51-75 pounds:</b>	Not Required
<b>76-100 pounds:</b>	Not Required
<b>Maximum Force: 15 Pounds</b>	

**Assistive Devices:** 4-Wheeled Cart, Hand Truck. Additionally, one person assistance is available with forces greater than 15 pounds.

**Comments:** Pulling is utilized with activities such as retrieving, returning, storing, adjusting, moving, and/or transporting equipment, and supplies (e.g. cart, door). The employee exerts up to 15 pounds of force in a horizontal plane from waist to shoulder height of a distance up to 5+ feet when performing job tasks (e.g. pull up to 15 pounds of force open/close door, drawer, file). *Pushing is the preferred method of moving carts.*

3.) **STAND-UP LIFT:** *Lifting weighted objects between floor and waist height.*

<b><u>MAXIMUM REQUIREMENT</u></b>	
<b>0-10 pounds:</b>	Seldom
<b>11-25 pounds:</b>	Not Required
<b>26-35 pounds:</b>	Not Required
<b>36-50 pounds:</b>	Not Required
<b>51-75 pounds:</b>	Not Required
<b>76-100 pounds:</b>	Not Required
<b>Maximum Force: 10 Pounds</b>	

**Assistive Devices:** One person assistance is available with weights greater than 10 pounds.

**Comments:** A stand-up lift is utilized with activities such as retrieving, returning, storing, adjusting, moving, and/or transporting supplies (e.g. miscellaneous paper documents). The employee lifts items weighing between <1 pound and 10 pounds off the floor when performing job tasks (e.g. lift up to 10-pound hand or armfuls of documents, forms, brochures, binders, reference material, catalogs, reports). *Safe lifting is performed by utilizing a posture of partial squatting and a straight back.*

4.) **LEVEL LIFT:** *Lifting weighted objects from between waist and chest height level for a maximum horizontal distance of up to four feet.*

<b><u>MAXIMUM REQUIREMENT</u></b>	
<b>0-10 pounds:</b>	Occasional
<b>11-25 pounds:</b>	Not Required
<b>26-35 pounds:</b>	Not Required
<b>36-50 pounds:</b>	Not Required
<b>51-75 pounds:</b>	Not Required
<b>76-100 pounds:</b>	Not Required
<b>Maximum Force: 10 Pounds</b>	

**Assistive Devices:** 4-Wheeled Cart, Hand Truck. Additionally, one person assistance is available with weights greater than 10 pounds.

**Comments:** A level lift is utilized with activities such as retrieving, returning, storing, adjusting, moving, and/or transporting supplies (e.g. miscellaneous paper documents). The employee lifts items weighing between <1 pound and 10 pounds when performing job tasks (e.g. lift up to 10-pound hand or armfuls of documents, forms, brochures, binders, reference material, catalogs, reports).

5.) **WEIGHT CARRY:** *Carrying weighted objects between waist and chest height beyond a distance of four feet.*

<b><u>MAXIMUM REQUIREMENT</u></b>	
<b>0-10 pounds:</b>	Seldom
<b>11-25 pounds:</b>	Not Required
<b>26-35 pounds:</b>	Not Required
<b>36-50 pounds:</b>	Not Required
<b>51-75 pounds:</b>	Not Required
<b>76-100 pounds:</b>	Not Required
<b>Maximum Force: 10 Pounds</b>	

**Assistive Devices:** 4-Wheeled Cart, Hand Truck. Additionally, one person assistance is available with weights greater than 10 pounds.

**Comments:** Weight carry is utilized with activities such as retrieving, returning, storing, adjusting, moving, and/or transporting supplies (e.g. miscellaneous paper documents). The employee carries items weighing between <1 pound and 10 pounds between 5 feet and 600+ feet when performing job tasks (e.g. carry up to 10-pound hand or armfuls of documents, forms, brochures, binders, reference material, catalogs, reports).

6.) **OVERHEAD LIFT/PULL DOWN:** *Lifting weighted object from/to chest and overhead height level.*

<b>MAXIMUM REQUIREMENT</b>	
<b>0-10 pounds:</b>	Seldom
<b>11-25 pounds:</b>	Not Required
<b>26-35 pounds:</b>	Not Required
<b>36-50 pounds:</b>	Not Required
<b>51-75 pounds:</b>	Not Required
<b>76-100 pounds:</b>	Not Required

**Maximum Force: 10 Pounds**

**Assistive Devices:** A vertical ladder, step ladder or step stool is available to bring items to eye or shoulder level. Additionally, one person assistance is available with weights greater than 10 pounds.

**Comments:** Overhead lift/pull down is utilized with activities such as retrieving, returning, storing, adjusting, moving, and/or transporting supplies (e.g. miscellaneous paper documents). The employee lifts items weighing between <1 pound and 10 pounds to a maximum height of 72 inches when performing job tasks (e.g. lift up to 10-pound hand or armfuls of documents, forms, brochures, binders, reference material, catalogs, reports). *Variables to overhead reaching will be the employee's height and anthropometric reach.*

7.) **OVERHEAD REACH:**

<b>MAXIMUM FREQUENCY:</b>	Seldom
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**Comments:** Overhead reach is performed to a maximum height of 72 inches when retrieving, returning, storing, adjusting, moving, and/or transporting supplies (i.e. miscellaneous paper documents stored on shelves). *A ladder (appropriate height) or step stool may be utilized to bring items to eye or shoulder level. Variables to overhead reaching will be the employee's height and anthropometric reach.*

8.) **FORWARD REACH:**

<b>MAXIMUM FREQUENCY:</b>	Frequent
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**Comments:** Forward reach is performed to a distance of 28 inches when retrieving, returning, storing, adjusting, moving, and/or transporting equipment, controls, and supplies (e.g. reach lateral or forward for desktop work; instruct in proper use of tools and equipment; diagnosis and/or appraisal of equipment; repair and maintenance analysis; drive vehicle, heavy equipment). *The degree of elbow extension required for reaching will vary according to the employee's anthropometric reach.*

9.) **STOOP:**

<b>MAXIMUM FREQUENCY:</b>	Seldom
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**Comments:** Stooping is performed when retrieving, returning, storing, adjusting, moving, and/or transporting equipment, controls, and supplies (e.g. stoop to reach below waist height for advising mechanics of repair; instruct in proper use of tools and equipment; diagnosis and/or appraisal of equipment; repair and maintenance analysis). *Variable to stooping will be the employee's height. Stooping of the head, trunk and knees can be minimized or avoided by substituting alternate positions of squatting, kneeling or bending when performing job tasks.*

10.) **SQUAT:** (*Unloaded*)

**MAXIMUM  
FREQUENCY:** Not Required

**Comments:** Squatting is not required to perform job tasks. *Squatting may be minimized or avoided by substituting alternate positions of bending or kneeling. Partial squatting is a preferred lifting posture.*

11.) **FORWARD BEND:**

**MAXIMUM  
FREQUENCY:** Occasional

**Comments:** Bending forward at the waist is performed when retrieving, returning, storing, adjusting, moving, and/or transporting equipment, controls, and supplies (e.g. bend to reach near or far below waist height for office work; advising mechanics of repair; instruct in proper use of tools and equipment; diagnosis and/or appraisal of equipment; repair and maintenance analysis). Maximum forward trunk flexion required is 60 degrees. *Employee may minimize or avoid excessive forward bending of the trunk up to 80 degrees by using alternate positions of bending at the hips, kneeling, half kneeling, stooping, sitting or squatting.*

12.) **TWIST:**

**MAXIMUM  
FREQUENCY:** Occasional

**Comments:** Twisting at the waist is performed when retrieving, returning, storing, adjusting, moving, and/or transporting equipment, controls, and supplies (e.g. twist to reach near or far for advising mechanics of repair; instruct in proper use of tools and equipment; diagnosis and/or appraisal of equipment; repair and maintenance analysis; drive vehicle, heavy equipment). *Twisting at the waist may be minimized by turning the whole body, including the feet and working from a swivel chair.*

13.) **TURN:**

**MAXIMUM  
FREQUENCY:** Occasional

**Comments:** Turning is performed when retrieving, returning, storing, adjusting, moving, and/or transporting equipment, controls, and supplies (e.g. turn to reach near or far for advising mechanics of repair; instruct in proper use of tools and equipment; diagnosis and/or appraisal of equipment; repair and maintenance analysis).

14.) **KNEEL:**

**MAXIMUM  
FREQUENCY:** Not Required

**Comments:** Kneeling is not required to perform job tasks. *Kneeling may be minimized or avoided by substituting alternate positions of bending, squatting, or half kneeling.*

15.) **CRAWL:**

**MAXIMUM  
FREQUENCY:** Not Required

**Comments:** Crawling is not required to perform job tasks.

16.) **STAIR CLIMB:**

**MAXIMUM  
FREQUENCY:** Occasional

**Comments:** Stair climb is required in order to go to/from the mezzanine and the office. Maximum number of 24 steps is climbed.

17.) **LADDER CLIMB:**

**MAXIMUM  
FREQUENCY:** Seldom

**Comments:** Ladder climbing is performed onto/off of step ladders or steps to access equipment (e.g. heavy equipment) located 10 feet above floor level (e.g. miscellaneous elevated equipment; worksite analysis). *Variables to overhead climbing will vary according to the employee's height and anthropometric reach.*

18.) **WALK:**

**MAXIMUM  
FREQUENCY:** Frequent

**Comments:** Walking is performed when retrieving, returning, storing, adjusting, and/or transporting equipment, supplies (e.g. walk to/from main office/shop/office, storage yard; off-site field visit; meetings). Walking length varies between 3 feet and 600+ feet depending on job task.

19.) **SIT:**

**MAXIMUM  
FREQUENCY:** Frequent

**Comments:** Sitting is performed for a maximum of 120-minute intervals when performing job tasks (e.g. sit for desk top work; meetings; operate equipment; drive vehicle). *Specific work tasks may require up to frequent standing and/or walking.*

20.) **STAND: (Static)**

**MAXIMUM  
FREQUENCY:** Occasional

**Comments:** Static standing is performed for a maximum of 30-minute intervals when performing job tasks (e.g. stand when meeting with collaborating agency and/or colleagues; worksite field visit; advising mechanics of repair; instruct in proper use of tools and equipment; diagnosis and/or appraisal of equipment; repair and maintenance analysis). *Specific work tasks may require up to frequent sitting and/or walking.*



21.) **BALANCE:**

<b>MAXIMUM FREQUENCY:</b>	Frequent
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*Comments:* Adequate balance is required for safe walking, standing, climbing, reaching and lifting.

22.) **HAND/FOOT CONTROL:**

<b><u>MAXIMUM REQUIREMENT</u></b>	
<b>HAND:</b>	
<b>Right:</b>	Occasional
<b>Left:</b>	Occasional
<b>Both:</b>	Occasional
<b>Either:</b>	Not Required
<b>FOOT:</b>	
<b>Right:</b>	Occasional
<b>Left:</b>	Seldom
<b>Both:</b>	Not Required
<b>Either:</b>	Not Required

*Comments:* Hand controls are utilized to operate equipment (e.g. vehicle) when retrieving, returning, storing, adjusting, moving, and/or transporting equipment (e.g. drive vehicle, operate and/or drive heavy equipment). Foot controls are utilized to operate equipment (e.g. vehicle, heavy equipment).

23.) **UPPER AND LOWER EXTREMITY COORDINATION:**

<b><u>MAXIMUM REQUIREMENT</u></b>	
<b>Simple Grasp:</b>	Frequent
<b>Firm Grasp:</b>	Seldom
<b>Fine Manipulation:</b>	Frequent
<b>Eye/Hand Coordination:</b>	Frequent
<b>Hand/Foot Coordination:</b>	Occasional

*Comments:* Grasping and coordination activities are performed when retrieving, returning, storing, adjusting, operating moving, and/or transporting product, equipment, controls and supplies (e.g. vehicle, miscellaneous paper documents).

**Simple grasping** is utilized to perform job tasks (e.g. lift and manipulate objects weighing less than 5 pounds; desk top work; educate, train, and/or advise mechanics of repair; instruct in proper use of tools and equipment; diagnosis and/or appraisal of equipment; repair and maintenance analysis; drive vehicle, heavy equipment).

**Firm grasping** is utilized to perform job tasks (e.g. lift and handle objects weighing 5 pounds or greater; desktop work; educate, train, and/or advise mechanics of repair; instruct in proper use of tools and equipment; diagnosis and/or appraisal of equipment; repair and maintenance analysis; drive vehicle, heavy equipment).

**Fine manipulation** is utilized to perform job tasks (e.g. keyboard, mouse, handwriting, page turning, sorting).

**Eye/hand coordination** is utilized to perform job tasks (e.g. drive vehicle, heavy equipment; keyboard, mouse, handwrite, page turn, sort).

**Hand/foot coordination** is utilized to perform job tasks (e.g. drive vehicle, heavy equipment).

*Depending on individual hand dominance, one hand may be used more frequently than the other when performing job tasks.*

24.) **CERVICAL (NECK) MOVEMENT:**

	<b><u>MAXIMUM REQUIREMENT</u></b>
<b>Static Neutral Position:</b>	Frequent
<b>Flexing:</b>	Frequent
<b>Rotating:</b>	Occasional
<b>Extending:</b>	Seldom

*Comments:* Neck movement is required when performing job tasks (e.g. desktop work; advising mechanics of repair; instruct in proper use of tools and equipment; diagnosis and/or appraisal of equipment; repair and maintenance analysis; drive vehicle, heavy equipment). *Participating in observation of work environment allowing for safe working conditions. Full cervical range of motion is required to safely perform the job tasks.*

{End of Report}



# Stanislaus County

## JOB TASK ANALYSIS SUMMARY

<u>FREQUENCY DEFINITIONS</u>	<u>SELDOM</u>	<u>OCCASIONAL</u>	<u>FREQUENT</u>	<u>CONSTANT</u>
Percent of the Day	1-2%	3-33%	34-66%	67-100%
Material Handling	1-4 Reps	5-32 Reps	33-250 Reps	251-2,000 Reps
Non Material Handling	1-4 Reps	5-32 Reps	33-250 Reps	251-2,000 Reps
Repetitive & Static Work	1-50 Reps	51-250 Reps	251-1,000 Reps	1,001-20,000 Reps

The following is a summary of the physical demands of the Job Task Analysis that were obtained for the position of:

### HEAVY EQUIPMENT MAINTENANCE SUPERVISOR

Functional Activities	Maximum Requirements	Functional Activities	Maximum Requirements
<i>Push (Force)</i> <sup>1</sup>	15 pounds	<i>Stair Climb</i> <sup>1</sup>	Occasional
<i>Pull (Force)</i> <sup>1</sup>	15 pounds	<i>Ladder Climb</i> <sup>1</sup>	Seldom
<i>Stand Up Lift</i> <sup>1</sup>	10 pounds	<i>Walk</i> <sup>1</sup>	Frequent
<i>Level Lift</i> <sup>1</sup>	10 pounds	<i>Sit</i> <sup>1</sup>	Frequent
<i>Weight Carry</i> <sup>1</sup>	10 pounds	<i>Stand (Static)</i> <sup>1</sup>	Occasional
<i>Overhead Lift/Pull Down</i>	10 pounds	<i>Balance</i> <sup>1</sup>	Frequent
<i>Overhead Reach</i> <sup>1</sup>	Seldom	<i>Hand Control</i> <sup>1</sup>	Occasional
<i>Forward Reach</i> <sup>1</sup>	Frequent	<i>Foot Control</i> <sup>1</sup>	Occasional
<i>Stoop</i> <sup>1</sup>	Seldom	<i>Simple Grasp</i> <sup>1</sup>	Frequent
<i>Squat (Unloaded)</i>	Not Required	<i>Firm Grasp</i> <sup>1</sup>	Seldom
<i>Forward Bend</i> <sup>1</sup>	Occasional	<i>Fine Manipulation</i> <sup>1</sup>	Frequent
<i>Twist</i> <sup>1</sup>	Occasional	<i>Eye/Hand Coordination</i> <sup>1</sup>	Frequent
<i>Turn</i> <sup>1</sup>	Occasional	<i>Hand/Foot Coordination</i> <sup>1</sup>	Occasional
<i>Kneel</i>	Not Required	<i>Cervical (neck) Movement</i> <sup>1</sup>	Frequent
<i>Crawl</i>	Not Required		

<sup>1</sup> The critical demands of the job.

*Lyle Andersen, PT*

_____ Date: _____	_____ Date: _____
Lyle Andersen, PT, CWCE Preparer Signature	Contact Person Title
_____ Date: _____	_____ Date: _____
Contact Person Title	Contact Person Title

LA/au