



6/18/2020	Time	Load	Medium Bucket Loader			
			From	Compact	Load Time	
Truck 1 Arrives	3:00:00 AM	Rear	Right			
Load 1	3:00:37 AM	Rear	Right		0:00:37	
Load 2	3:01:20 AM	Rear	Right	X	0:00:43	
Load 3	3:01:52 AM	Rear	Right		0:00:32	
Load 4	3:02:17 AM	Front	Left		0:00:25	
Load 5	3:02:48 AM	Mid Rear	Left		0:00:31	
Load 6	3:03:15 AM	Front	Left		0:00:27	
Load 7	3:03:42 AM	Front	Left		0:00:27	
Load 8	3:04:02 AM	Front	Left		0:00:20	
Load 9	3:04:31 AM	Mid Front	Left		0:00:29	
Load 10	3:05:20 AM	Mid Rear	Left	X	0:00:49	
Load 11	3:06:00 AM	Mid Front	Left	X	0:00:40	
Load 12	3:06:35 AM	Mid Front	Left	X	0:00:35	
Truck 1 Leaves	3:06:48 AM				0:06:35	Total
Truck 2 Arives	3:07:27 AM				0:00:39	Truck Change Time
Load 1	3:08:07 AM	Rear	Left		0:00:40	
Load 2	3:08:40 AM	Rear	Left		0:00:33	
Load 3	3:09:05 AM	Mid Rear	Left		0:00:25	
Load 4	3:09:48 AM	Mid Rear	Left	X	0:00:43	
Load 5	3:10:10 AM	Front	Left		0:00:22	
Load 6	3:10:30 AM	Front	Left		0:00:20	
Load 7	3:10:58 AM	Front	Left		0:00:28	
Load 8	3:11:32 AM	Mid Front	Left		0:00:34	
Load 9	3:12:05 AM	Mid Front	Left		0:00:33	
Load 10	3:12:30 AM	Rear	Left		0:00:25	
Load 11	3:13:11 AM	Front	Left	X	0:00:41	
Load 12	3:13:32 AM	Mid Front	Left		0:00:21	
Truck 2 Leaves	3:13:55 AM				0:06:05	Total
Truck 3 Arives	3:14:42 AM				0:00:47	Truck Change Time
Load 1	3:14:50 AM	Rear	Right		0:00:08	
Load 2	3:15:17 AM	Rear	Right		0:00:27	
Load 3	3:15:46 AM	Mid Rear	Right		0:00:29	
Load 4	3:16:20 AM	Mid Rear	Right		0:00:34	
Load 5	3:16:42 AM	Mid Rear	Right		0:00:22	
Load 6	3:17:15 AM	Mid Rear	Right		0:00:33	
Load 7	3:17:33 AM	Front	Left		0:00:18	
Load 8	3:17:57 AM	Front	Left		0:00:24	
Load 9	3:18:20 AM	Front	Left		0:00:23	
Load 10	3:18:53 AM	Front	Left		0:00:33	
Load 11	3:19:35 AM	Mid Front	Left	X	0:00:42	
Load 12	3:20:15 AM	Mid Rear	Left	X	0:00:40	
Load 13	3:20:58 AM	Front	Left		0:00:43	
Truck 3 Leaves	3:21:12 AM				0:06:16	Total
Truck 4 Arives	3:24:30 AM				0:03:18	Truck Change Time
Load 1	3:24:58 AM	Rear	Left		0:00:28	
Load 2	3:25:24 AM	Mid Rear	Left		0:00:26	
Load 3	3:25:50 AM	Rear	Left		0:00:26	

California Avenue Transfer Station

Load Times

Video 1



6/18/2020	Time	Load	Medium Bucket Loader			
			From	Compact	Load Time	
Load 4	3:26:30 AM	Mid Rear	Left		0:00:40	
Load 5	3:27:01 AM	Rear	Left	X	0:00:31	
Load 6	3:27:26 AM	Front	Left		0:00:25	
Load 7	3:27:54 AM	Front	Left	X	0:00:28	
Load 8	3:28:28 AM	Mid Front	Left	X	0:00:34	
Load 9	3:29:00 AM	Mid Rear	Left	X	0:00:32	
Load 10	3:29:28 AM	Front	Left		0:00:28	
Truck 4 Leaves	3:29:39 AM				0:04:58	Total
Truck 5 Arives	3:30:00 AM				0:00:21	Truck Change Time
Load 1	3:30:09 AM	Rear	Left		0:00:09	
Load 2	3:30:34 AM	Mid Rear	Left		0:00:25	
Load 3	3:31:08 AM	Rear	Left	X	0:00:34	
Load 4	3:31:43 AM	Rear	Left	X	0:00:35	
Load 5	3:32:14 AM	Mid Rear	Left	X	0:00:31	
Load 6	3:32:37 AM	Front	Left		0:00:23	
Load 7	3:33:00 AM	Front	Left		0:00:23	
Load 8	3:33:30 AM	Front	Left	X	0:00:30	
Load 9	3:34:07 AM	Mid Rear	Left	X	0:00:37	
Load 10	3:34:40 AM	Mid Front	Left		0:00:33	
Load 11	3:35:18 AM	Mid Front	Left		0:00:38	
Load 12	3:36:04 AM	Front	Left	X	0:00:46	
Load 13	3:36:36 AM	Mid Rear	Left		0:00:32	
Truck 5 Leaves	3:36:56 AM				0:06:36	Time for Truckload
Truck 6 Arives	3:37:24 AM				0:00:28	Truck Change Time
Load 1	3:37:38 AM	Rear	Left		0:00:14	
Load 2	3:38:03 AM	Rear	Left		0:00:25	
Load 3	3:38:24 AM	Mid Rear	Left		0:00:21	
Load 4	3:38:50 AM	Rear	Left	X	0:00:26	
Load 5	3:39:15 AM	Mid Rear	Left		0:00:25	
Load 6	3:39:39 AM	Front	Left		0:00:24	
Load 7	3:40:03 AM	Front	Left		0:00:24	
Load 8	3:40:29 AM	Front	Left	X	0:00:26	
Load 9	3:41:08 AM	Mid Front	Left	X	0:00:39	
Load 10	3:41:42 AM	Front	Left	X	0:00:34	
Load 11	3:42:17 AM	Rear	Left	X	0:00:35	
Load 12	3:42:50 AM	Mid Front	Left	X	0:00:33	
Truck 6 Leaves	3:43:10 AM				0:05:26	Total
Truck 7 Arives	3:43:43 AM				0:00:33	Truck Change Time
Load 1	3:43:56 AM	Rear	Left		0:00:13	
Load 2	3:44:26 AM	Rear	Left		0:00:30	
Load 3	3:44:53 AM	Mid Rear	Left		0:00:27	
Load 4	3:45:30 AM	Mid Rear	Left	X	0:00:37	
Load 5	3:45:51 AM	Front	Left		0:00:21	
Video Ends	3:46:11 AM					
	0:06:58	Median cycle time	0:00:29	Median load time		
	0:07:00	Average cycle time	0:00:30	Average load time		
	0:01:27	Standard Deviation	0:00:08	Standard Deviation		

California Avenue Transfer Station



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Load Times

Video 2

6/18/2020	Time	Load Time	Medium Bucket Loader
Video Starts	5:18:40 AM		Note: Truck was loaded
Load	5:19:30 AM	0:00:50	before start of video
Load	5:20:10 AM	0:00:40	
Load	5:21:03 AM	0:00:53	
Load	5:21:45 AM	0:00:42	
Load	5:22:32 AM	0:00:47	
Load	5:23:45 AM	0:01:13	
Load	5:24:40 AM	0:00:55	
Truck 1 Leaves	5:26:26 AM	0:01:46	Time to clean truck
Truck 2 Arives	5:27:47 AM	0:01:21	Truck Change Time
Load 1	5:28:28 AM	0:00:41	
Load 2	5:29:28 AM	0:01:00	
Load 3	5:29:57 AM	0:00:29	
Load 4	5:30:54 AM	0:00:57	
Load 5	5:31:37 AM	0:00:43	
Load 6	5:32:14 AM	0:00:37	
Load 7	5:32:58 AM	0:00:44	
Load 8	5:33:56 AM	0:00:58	
Load 9	5:34:36 AM	0:00:40	
Load 10	5:35:26 AM	0:00:50	
Load 11	5:36:33 AM	0:01:07	
Truck 2 Leaves	5:38:18 AM	0:08:46	Total
Truck 3 Arives	5:38:58 AM	0:00:40	Truck Change Time
Load 1	5:39:38 AM	0:00:40	
Load 2	5:40:22 AM	0:00:44	
Load 3	5:40:58 AM	0:00:36	
Load 4	5:41:50 AM	0:00:52	
Load 5	5:42:30 AM	0:00:40	
Load 6	5:43:14 AM	0:00:44	
Load 7	5:43:45 AM	0:00:31	
Load 8	5:44:24 AM	0:00:39	
Load 9	5:45:10 AM	0:00:46	
Load 10	5:45:58 AM	0:00:48	
Load 11	5:46:48 AM	0:00:50	
Truck3 Leaves	5:48:47 AM	0:07:50	Total
Truck 4 Arives	5:49:19 AM	0:00:32	Truck Change Time
Load 1	5:49:52 AM	0:00:33	
Load 2	5:50:48 AM	0:00:56	
Video Ends	5:51:07 AM		
	0:08:54	Median cycle time	0:00:44
	0:08:54	Average cycle time	0:00:47
	0:00:45	Standard Deviation	0:00:10

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Load Times

Video 3

6/18/2020	Time	Load Time	Medium bucket loader
Video Starts	6:56:06 AM		
Truck 1 Arives	7:01:35 AM	0:05:29	
Loader Starts	7:02:39 AM	0:01:04	Downtime
Load 1	7:03:04 AM	0:00:25	
Load 2	7:03:40 AM	0:00:36	
Load 3	7:04:08 AM	0:00:28	
Load 4	7:04:48 AM	0:00:40	
Load 5	7:05:33 AM	0:00:45	
Load 6	7:06:18 AM	0:00:45	
Load 7	7:07:38 AM	0:01:20	
Load 8	7:08:18 AM	0:00:40	
Load 9	7:09:10 AM	0:00:52	
Load 10	7:09:48 AM	0:00:38	
Load 11	7:10:38 AM	0:00:50	
Truck 1 Leaves	7:13:05 AM	0:07:59	Total
Truck 2 Arives	7:13:45 AM	0:00:40	Truck Change Time
Load 1	7:14:15 AM	0:00:30	
Load 2	7:14:45 AM	0:00:30	
Load 3	7:15:30 AM	0:00:45	
Load 4	7:16:02 AM	0:00:32	
Load 5	7:16:54 AM	0:00:52	
Load 6	7:17:16 AM	0:00:22	
Load 7	7:18:22 AM	0:01:06	
Load 8	7:19:00 AM	0:00:38	
Load 9	7:19:42 AM	0:00:42	
Load 10	7:20:07 AM	0:00:25	
Load 11	7:20:35 AM	0:00:28	
Load 12	7:21:05 AM	0:00:30	
Truck 2 Leaves	7:23:33 AM	0:07:20	Total
Truck 3 Arives	7:24:06 AM	0:00:33	Truck Change Time
Load 1	7:27:00 AM	0:02:54	
Video Ends	7:27:32 AM		
	0:08:16	Median cycle time	0:00:39
	0:08:16	Average cycle time	0:00:46
	0:00:33	Standard Deviation	0:00:31

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Load Times

Video 4

6/18/2020	Time	Load Time	Small Bucket W/ Grapler
Video Starts	8:30:34 AM		
Loader Starts	8:34:55 AM	0:04:21	Downtime
Load 1	8:35:27 AM	0:00:32	
Load 2	8:36:10 AM	0:00:43	
Load 3	8:36:41 AM	0:00:31	
Load 4	8:37:23 AM	0:00:42	
Load 5	8:38:08 AM	0:00:45	
Load 6	8:38:40 AM	0:00:32	
Load 7	8:39:28 AM	0:00:48	
Load 8	8:40:00 AM	0:00:32	
Load 9	8:40:52 AM	0:00:52	
Load 10	8:41:51 AM	0:00:59	
Load 11	8:42:45 AM	0:00:54	
Load 12	8:43:23 AM	0:00:38	
Load 13	8:44:10 AM	0:00:47	
Truck 1 Leaves	8:45:40 AM	0:09:15	Total
Truck 2 Arrives	8:46:08 AM	0:00:28	Truck Change Time
Load 1	8:46:15 AM	0:00:07	
Load 2	8:46:58 AM	0:00:43	
Load 3	8:47:39 AM	0:00:41	
Load 4	8:48:44 AM	0:01:05	
Load 5	8:49:19 AM	0:00:35	
Load 6	8:49:55 AM	0:00:36	
Load 7	8:50:50 AM	0:00:55	
Load 8	8:51:22 AM	0:00:32	
Load 9	8:51:48 AM	0:00:26	
Truck 2 Leaves	8:54:07 AM	0:05:40	Total
Truck 3 Arrives	8:54:35 AM	0:00:28	Truck Change Time
Load 1	9:01:38 AM	0:07:03	Medium Bucket Loader
Load 2	9:03:08 AM	0:01:30	
Load 3	9:03:44 AM	0:00:36	
Load 4	9:04:28 AM	0:00:44	
Load 5	9:05:07 AM	0:00:39	
Load 6	9:06:58 AM	0:01:51	
Load 7	9:07:26 AM	0:00:28	
Video Ends	9:07:43 AM	0:00:17	
	0:07:55	Median cycle time	0:00:42 Median load time
	0:07:55	Average cycle time	0:00:57 Average load time
	0:02:32	Standard Deviation	0:01:13 Standard Deviation

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Load Times

Video 5

6/18/2020	Time	Load Time	Medium bucket loader
Video Starts	10:22:07 AM		
finished load	10:22:15 AM	0:00:08	Note: Truck was loaded
load	10:22:50 AM	0:00:35	before start of video
load	10:24:08 AM	0:01:18	
Truck 1 Leaves	10:25:25 AM	0:01:17	Time to clean truck
Truck 2 Arives	10:26:22 AM	0:00:57	Truck Change Time
Load 1	10:26:36 AM	0:00:14	
Load 2	10:27:08 AM	0:00:32	
Load 3	10:27:44 AM	0:00:36	
Load 4	10:28:12 AM	0:00:28	
Load 5	10:28:50 AM	0:00:38	
Load 6	10:29:37 AM	0:00:47	
Load 7	10:30:34 AM	0:00:57	
Load 8	10:31:11 AM	0:00:37	
Load 9	10:31:47 AM	0:00:36	
Load 10	10:32:30 AM	0:00:43	
Truck 2 Leaves	10:33:38 AM	0:06:08	Time for Truckload
Truck 3 Arives	10:34:30 AM	0:00:52	Truck Change Time
Video Ends	10:34:43 AM		
	0:07:00 cycle time	0:00:37	Median load time
		0:00:40	Average load time
		0:00:16	Standard Deviation