National Transportation Safety Board

Office of Railroad, Pipeline, and Hazardous Materials Investigations
Human Performance and Survival Factors Division
Washington, D.C. 20594

Human Performance Group
Factual Report

DCA17FR009

Long Island Rail Road

Employee Fatality

Queens Village, New York

June 10, 2017

Human Performance Group Factual Report

A. ACCIDENT SUMMARY

Location: Queens Village, New York
Railroad: Long Island Rail Road
Date: June 10, 2017
Time: 10:12 a.m.
Fatalities: 1 LIRR employee

The Long Island Rail Road (LIRR) is an Agency of the Metropolitan Transportation Authority (MTA) of the state of New York.

NTSB accident number: DCA17FR009.

For a summary of the accident, refer to the *Accident Summary* report, in the docket for this investigation.

B. HUMAN PERFORMANCE GROUP

Group members:

- Anne Garcia Human Performance Group Chair, NTSB
- Shawn Fitzpatrick, FRA Operating Practices
- David Hess, DOT PTSB NY
- Willie Bates, SMART Party Spoke Person
- Dominick Amendolare, SMART
- Donald Hill, BLET Party Spoke Person
- Mark Elliott, LIRR Corporate Safety Director of Investigations and Analysis
- Ray Persaud, NY PESH

C. DETAILS OF THE ACCIDENT

The Metropolitan Transportation Authority (MTA) is the parent company of the LIRR. The incident train, LIRR train 7623, is an EMU commuter passenger train originating from the Huntington passenger station on the Port Jefferson Branch at mile-post (MP) 34.7 destined for Penn Station, NY MP 0.0.

There are four main line (ML) tracks in the area of the incident, which are numbered from north to south 3-1-2-4. The tracks run in an east-west direction and train 7623 was travelling west on ML3, towards Penn Station, at 78 miles per hour (mph). The involved Maintenance of Way (MOW) crew was located on track 1 (the adjacent track), working under the protection of Train Approach Warning. Train 7623 struck and killed the MOW crew Foreman at 10:12 a.m.

The MOW crew was working a stand-by[1] overtime shift, from 7:30 a.m. to 11 p.m., out of Queens Freight MOW crew quarters for the annual Belmont Races. The MOW crew consisted of a Foreman, Watchman, and three crew members. The Assistant Supervisor for the MOW crew was also working a stand-by overtime shift for the Belmont Races, working with the MOW crew out of the neighboring Queens Village MOW crew quarters. The Assistant Supervisor was providing supervision to both MOW crews (Queens Freight and Queens Village).

Post-accident:
At impact, the train was placed into emergency by the Locomotive Engineer. The train came to a stop with the rear end one car-length west of Queens Village passenger station. LIRR reported that 800 passengers were on-board the train.

The MTA Police Department (MTAPD), New York City Fire Department (FDNY), New York City Police Department (NYPD) and LIRR transportation management arrived and assisted with the train-to-ground[2] evacuation of the passengers after the third rail power was turned off. The evacuation took approximately one and half hours, due to a disabled child on-board the train who required special assistance.

The Locomotive Engineer required medical attention on-board the train and, then, was transported by ambulance to a local hospital.

[1] The crew was working a stand-by overtime shift for the Belmont races, which meant they were asked to come in for the overtime shift, but without a specific job tasking. They were to wait, or "stand-by," so they would be immediately available to respond to an emergent situation.
[2] A train-to-ground evacuation occurs when passengers are assisted off of a train, in this case, onto the foul of the track after the third rail power is turned off. Passengers then walked down the foul of the track to the closest train station, which was the Queens Village station.

Figure 1: Train to ground evacuation of about 800 passengers off of the incident train (LIRR photo).

D. BEHAVIORAL FACTORS

The Human Performance Group and Track & Engineering Group conducted interviews with the Queens Freight MOW crew, the Assistant Supervisor and the Supervisor. Transcripts of all interviews are in the docket. Synopsis of several interviews are presented below. This Factual Report focuses on the Queens Freight MOW crew Foreman (deceased), Watchman, and Assistant Supervisor, all of whom were working overtime shifts at the time of the incident.

1. Work-rest history

Six-day work and overtime schedules for the Watchman, Assistant Supervisor and Foreman are provided in Figures 2, 3 and 4, respectively. The sleeping, eating and commuting hours are listed, where known. The information was consolidated from the LIRR timecards for these employees, and interviews with the Watchman and Assistant Supervisor.

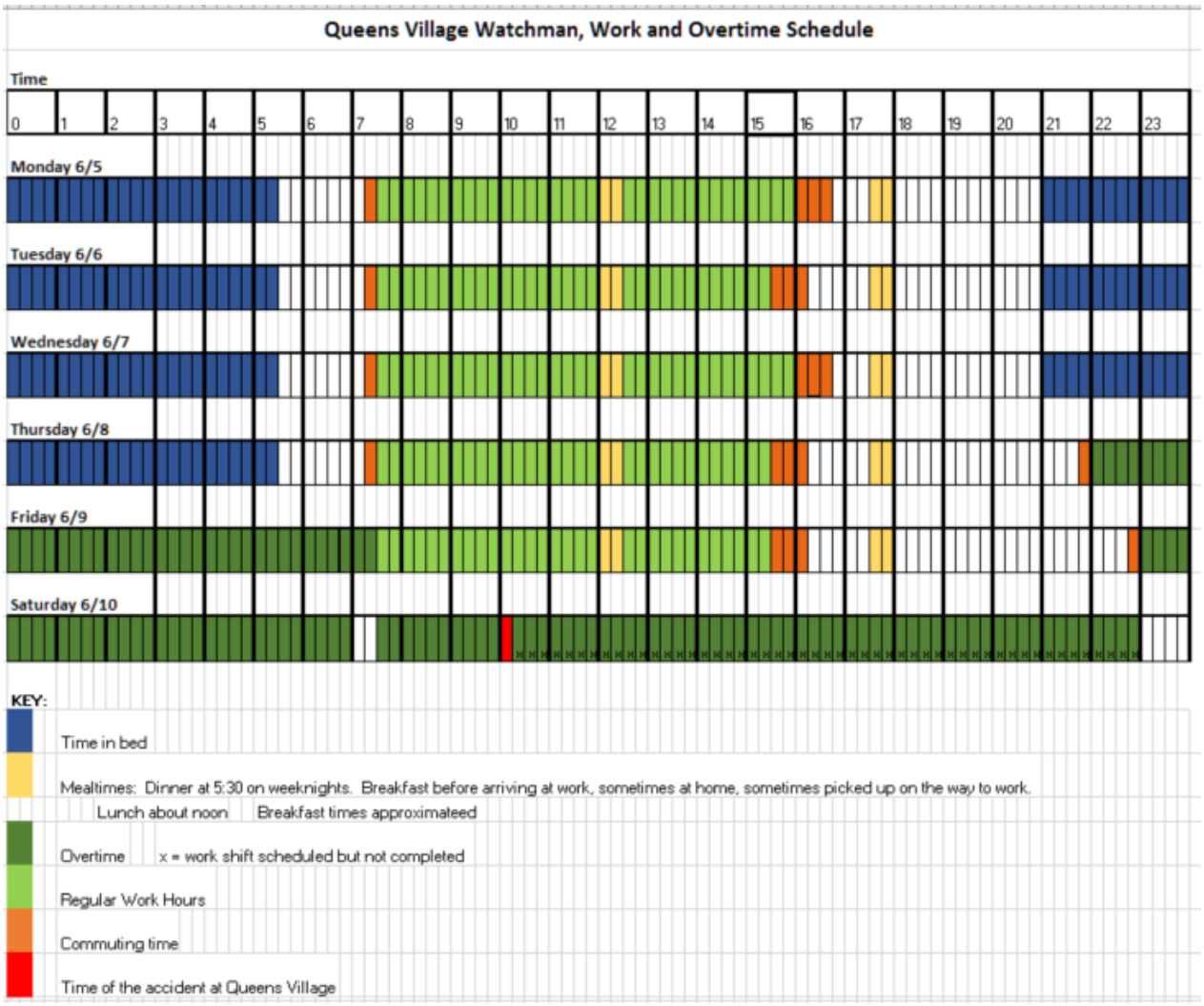

Figure 2: Queens Village Watchman, Work and Overtime Schedule

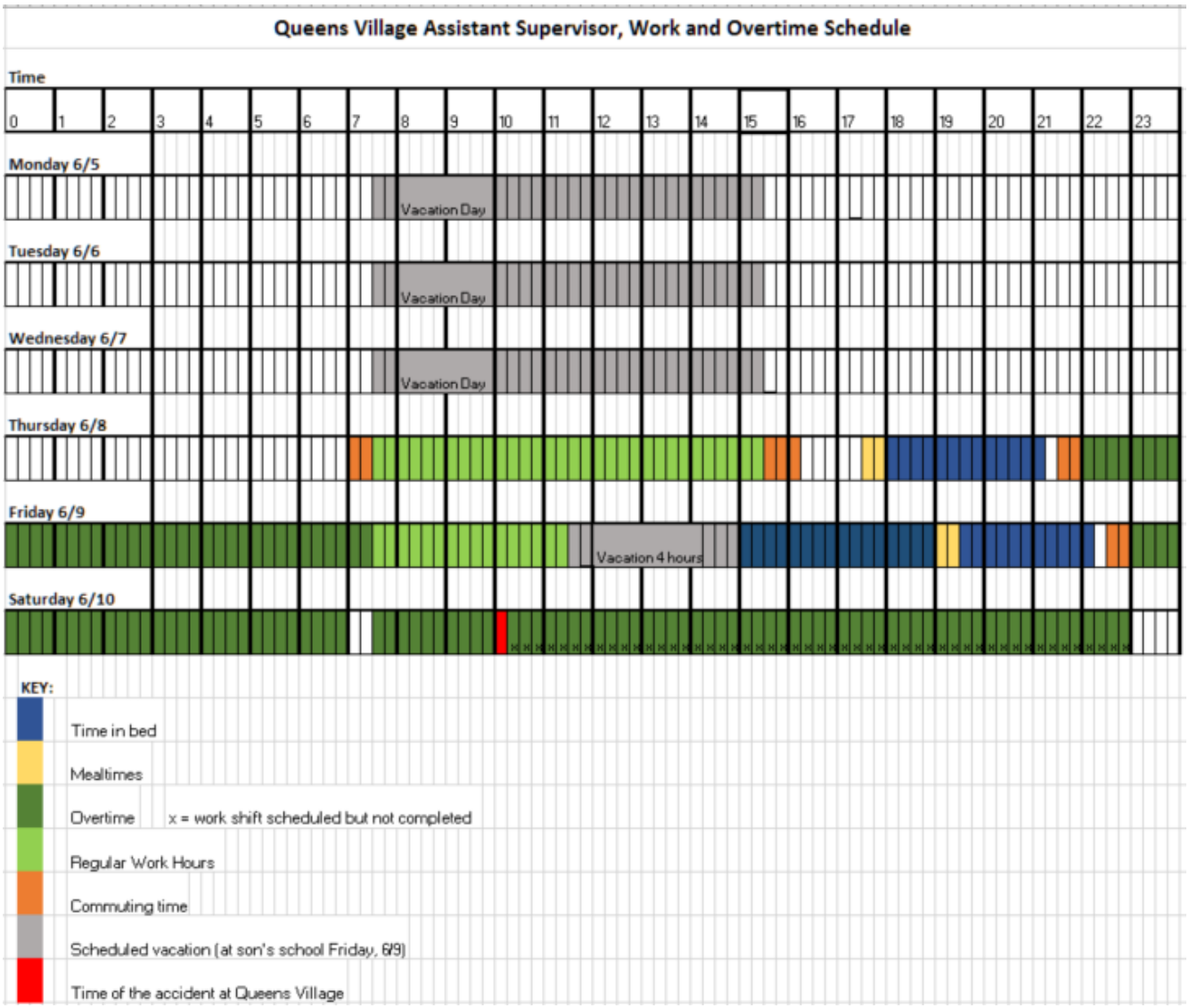

Figure 3: Queens Village Assistant Supervisor, Work and Overtime Schedule

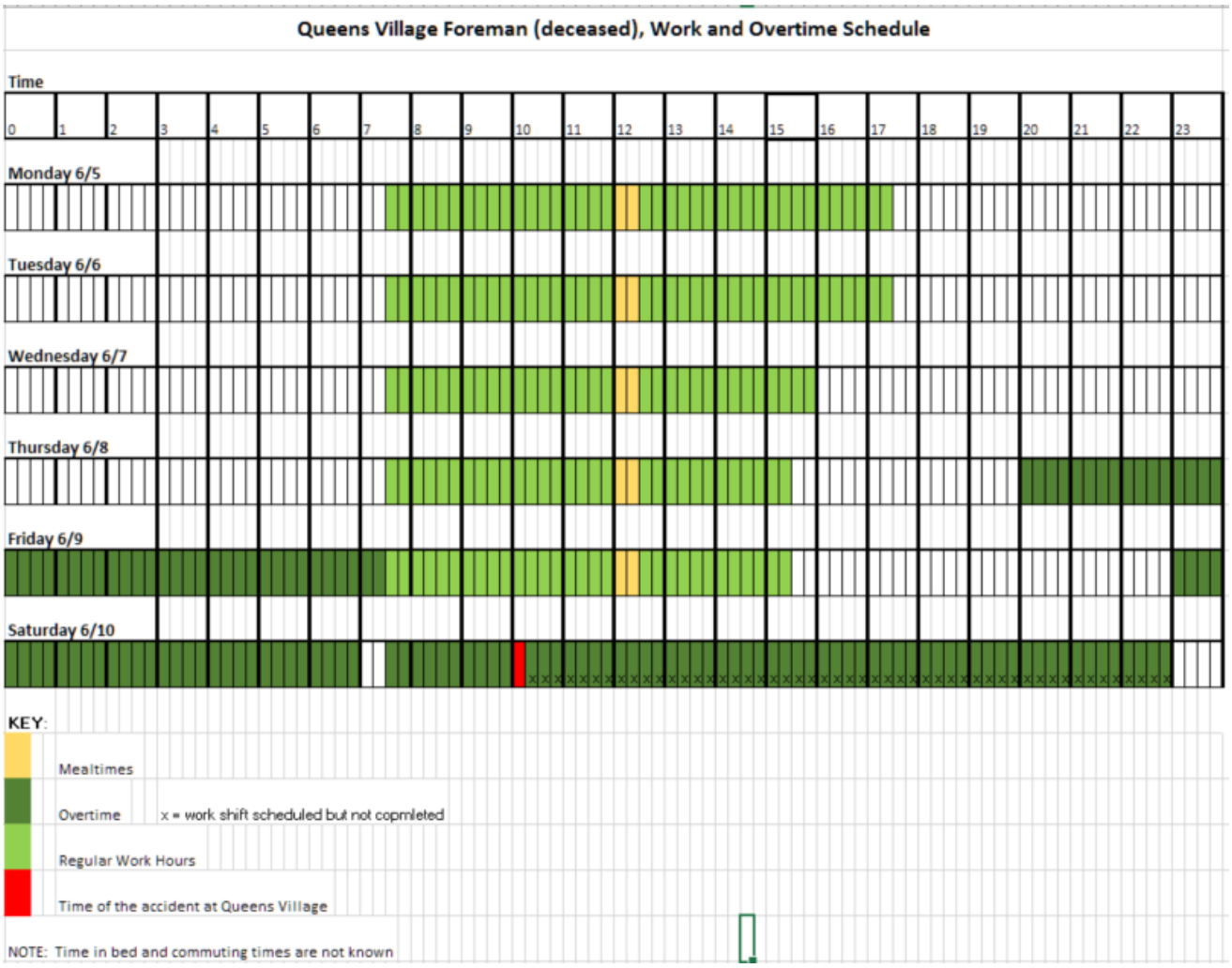

Figure 4: Queens Village Foreman (deceased), Work and Overtime Schedule

The Foreman, Watchman, and Assistant Supervisor worked a regular schedule from 7:30 a.m. to 3:30 p.m. Monday through Friday, with Saturday and Sunday as their regularly scheduled days off. The three employees regularly picked up overtime shifts. When overtime shifts are needed, the Assistant Supervisor canvases employees, using the following priorities:

1) the work group who usually or customarily performs the work is asked first.

2) if openings are left, them employees are asked based on their seniority within the subdivision (there are four subdivisions in railroad maintenance at LIRR. Queens Freight is in Subdivision 2).

3) if opening remain, employees in an adjacent subdivision are asked, then employees in other areas, such as the track department.[3]

Most LIRR MOW crews have regular work schedules that are Monday through Friday, either 7:30 a.m. to 3:30 p.m. or 8 a.m. to 4 p.m. There are, however, two night emergency crews, which are limited to responding to emergencies. These crews' regular work hours are Monday through Friday, from 4 p.m. to 12 p.m. and from 11:30 am to 5 p.m.[4]

2. LIRR Training and System Safety Program Plan (SSPP)

The MOW crew received an eight-hour refresher training course every year. Their training records will be placed in the docket. LIRR management stated that a Fatigue Awareness module is in the refresher training.

NTSB investigators previously reviewed the LIRR Fatigue Risk Management training module and the LIRR System Safety Program Plan (SSPP) during the investigation of the LIRR accident at Atlantic Terminal in Brooklyn, NY on January 4, 2017. The Human Performance Analysis Report of that accident concluded that the Fatigue Awareness training module contained inaccurate statements regarding the quality and quantity of sleep needed to avoid fatigue, and incomplete information on the effects of desynchronization of circadian rhythms resulting from dramatic shifts in sleep hours. Since then, NTSB has discussed these concerns with LIRR Systems Safety and Training personnel, and LIRR has revised the Fatigue Awareness training module. However, the discussion was not conducted and the resulting revision of Fatigue Training was not implemented prior to the last refresher training received by the MOW crew Foreman, Watchman, and Assistant Supervisor.

The Human Performance Analysis Report of the LIRR Atlantic Terminal accident also reviewed the LIRR SSPP, stating,

> "The SSPP does not include a Fatigue Risk Management section, nor does it include Fatigue Risk Management in the Fitness for Duty Program section[5]. The SSPP does provide a paragraph describing the Fatigue Awareness training class.
>
> "The American College of Occupational and Environmental Medicine's (ACOEM) Task Force on Fatigue Risk Management's Guidance Statement provides key points of Fatigue Risk Management Systems (FRMS) as the international standard for mitigating fatigue

[3] This seniority method of canvasing was explained by LIRR management during a telephone discussion with the NTSB investigative team on May 1, 2018.
[4] Ibid
[5] The SSPP Fitness for Duty Program consists of the Drug and Alcohol Program and does not include Fatigue Risk Management

risk[6]. It states that the organization must provide "procedures for monitoring and managing fatigue within the organization[7]," as part of an effective FRMS.

"The ACOEM Guidance also addresses the supervisor's role in monitoring employee fatigue, stating "Supervisors in particular have a responsibility to be alert for signs of excessive fatigue among their staff. The supervisor training module should provide additional training on the recognition of excessive fatigue.[8]" LIRR engineers' first line supervisors, however, are not tasked with nor trained for assessing the fatigue aspect of an employee's fitness for duty."

The version of the LIRR SSPP that was in effect at the time of the incident at Queens Village had not addressed these concerns, nor was the LIRR required to by Federal Railroad Administration regulation.

3. Equipment

The Watchman carried his equipment with him in a bag. The equipment he carried on the day of the incident was a whistle board disc[9], CPR mask[10], air horn, flashlight, flares, gloves, goggles, his work book[11].

The Foreman was the only member of the MOW crew who was provided with a work cell phone. The Watchman and other MOW crew members reported having their cell phones off while at work. A NTSB cell phone report will be in the docket.

4. Toxicology

The NTSB Medical Report will discuss the toxicology test results, which will be included in the docket.

E. ENVIRONMENT AND WORK LOAD

[6] ACOEM Presidential Task Force on Fatigue Risk Management, *ACOEM Guidance Statement: Fatigue Risk Management in the Workplace*, Journal of Occupational and Environmental Medicine, Volume 54, Number 2, February 2012.
[7] ACOEM Guidance Statement, pg. 235
[8] ACOEM Guidance Statement, pg. 249
[9] The Watchman's whistle board disc is a circular banner at the end of a stick that is easily recognized by both MOW gangs and Locomotive Engineers. It is commonly referred to as a "lollipop".
[10] A cardiopulmonary resuscitation (CPR) mask is used to deliver rescue breaths to a person during cardiac or respiratory arrest.
[11] which includes "Right to Know" safety information

The accident occurred on a Saturday morning during a MOW crew overtime shift, at about 10:12 a.m. The NTSB Video Group Factual states the conditions were daylight, with partly cloudy skies, and visibility greater than 10 miles.

While the work assignment was ordinary and usual, the number of revenue trains was unusually high due to the special event.

NTSB Video Group Factual includes information on train activity at the location of the accident, during the time leading up to the incident. It also includes some activities of the MOW crew, on or about the tracks, during this timeframe. A timeline of these activities is provided, below. This information was extracted by the Security Video Group from LIRR video cameras; the cameras' positions and vantage points at Queens Interlocking are provided in Figure 2, below. The times used are the timestamps recorded on the video files, which were not aligned with the incident train's event recorder (the timestamps for the security cameras are about 1 minute behind the event recorder timestamps).

The tracks at the Queens interlocking area, shown in Figure 5, are numbered Main Line (ML)3, ML1, ML2 and ML4, from the northern most track to the southernmost track.

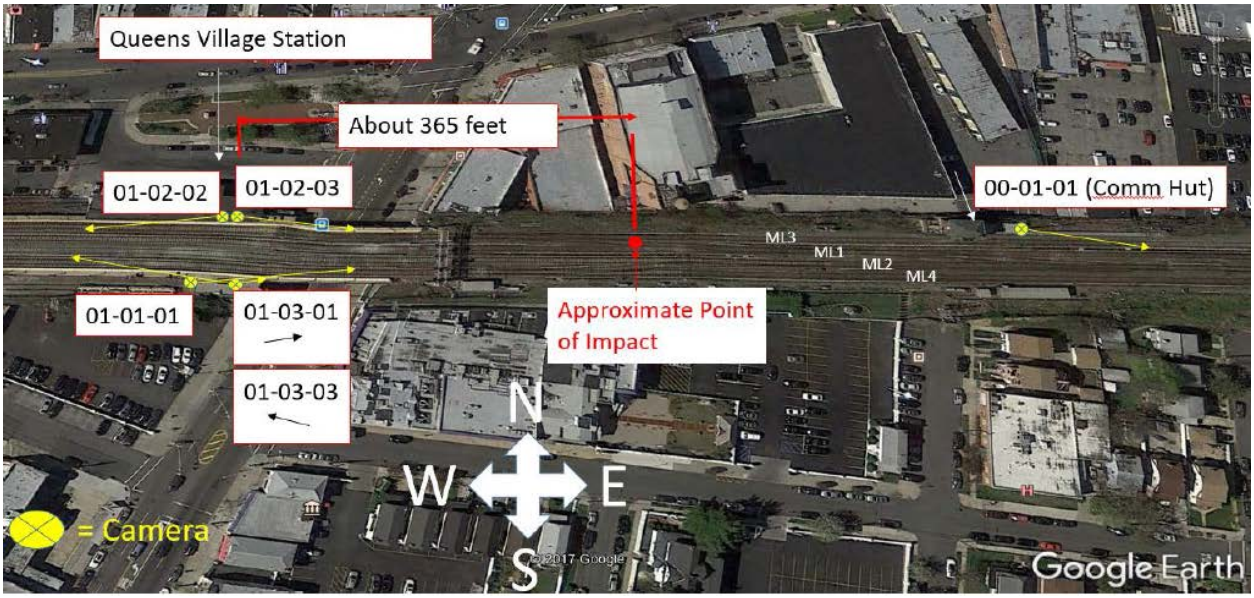

Figure 5: LIRR security video cameras' locations and numbers.

Timeline of events:

7:00

The MOW crew reports for duty at Queens Freight crew quarters.

9:00 (approximately)

The Assistant Supervisor of Track instructs the Foreman to have his crew perform a walking inspection of ML1-4. The Foreman conducts a job briefing and the crew departs quarters.

9:24:01

The MOW crew enters the camera's field of view from the west, walking east on the south Queens Village platform. All are wearing high visibility vests. The Watchman is carrying the Watchman's bag and the whistle board disc is exposed.

9:25:08

The five-man MOW crew finish exiting the South Queens Village platform, walking east on foul of ML4 and other tracks.

9:25:47

The MOW crew proceeds east, primarily in the foul of ML2 and ML4.

9:30:47

A westbound train passed the crew on ML3.

9:33:43

An eastbound train passed the crew on ML4.

9:41:14

A westbound train passed the crew on ML1.

9:43:11

A westbound train passed the crew on ML3.

9:46:19

A westbound train passed the crew on ML1.

9:47:22

An eastbound train passed the crew on ML4.

9:53:23

An eastbound train passed the crew on ML4
(taking about 41 seconds to pass through camera's field of view).

9:55:12

An eastbound train passed the crew on ML2
(taking about 35 seconds to pass through camera's field of view.)

9:58:02

A westbound train comes out of Belmont Wye (This "Belmont Wye train" moves across ML 4 and ML2 towards ML1. It starts at less than 10 mph, then accelerates, taking about 4 minutes and 5 seconds to pass through camera's field of view.)

10:00:31

The westbound "Belmont Wye train" is now on ML1.

10:06:01

About a dozen roadway workers are walking westward together, in foul of all four tracks.

10:08:54

About half the roadway workers exited field of view.

10:10:23

An eastbound train passed the crew on ML4, moving about 15mph.
(This "Slow train" will slow further, then move south to enter Belmont Wye about 10:12:22, described below.)

10:11:23

The crew is in the foul of the tracks, on the north side of the passing 'Slow train" and east of the impact site.

10:12:22

The "Slow train" has slowed down further on ML4 and enters the Belmont Wye.

10:13:03

1) Westbound incident train lights are first visible in camera's field of view (looking east)
2) The Watchman moves his whistle board disc from high to low position

10:13:06

Foreman is struck by the westbound incident train on ML3
(camera times not synched to train recorder times)

10:13:33

Westbound incident train stops, west of North Queens Village platform

10:14:12

Eastbound "Slow train" exited field of view of camera, into Belmont Wye from ML4

10:19:52

Eastbound train enters field of view on ML4, and stops
(head of train is near the east end of the south Queens Village platform)

10:25:01

First responders enter field of view

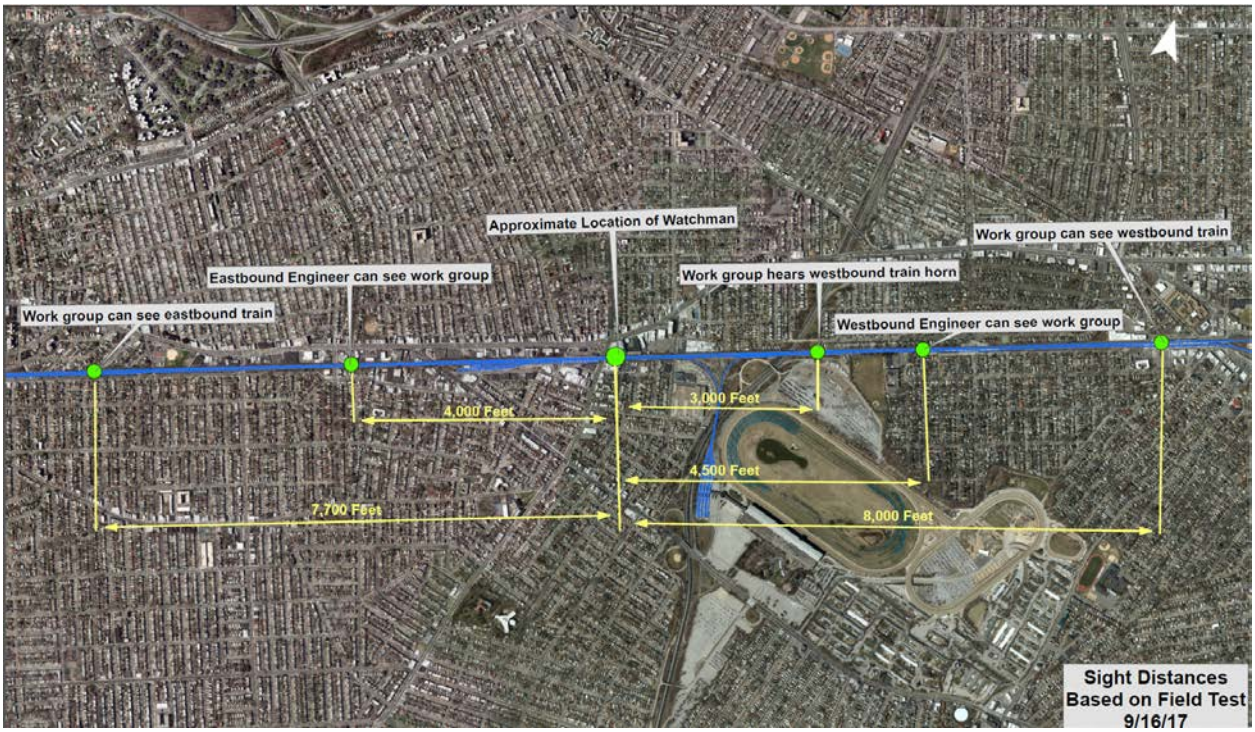

Figure 5: Site Distances

The maximum track speed for each of the four Main Line tracks is 80 mph. (The incident train's speed was 78 mph.) According to the Site Distance results (provided in Figure 5, above), the investigators performing the site distance test first saw a westbound train at 8,020 feet. In addition, the investigators first heard a westbound train horn at 2,990 feet.

F. INTERVIEWS

The Locomotive Engineer and the four surviving members of the MOW crew were interviewed. The members of the crew provided similar accounts regarding the job briefing, overtime (OT) available to the craft, clearance methods, the demeanor of the Foreman and type of protection the crew used. Information from the interviews is summarized below and excerpts from their interviews are provided. The Assistant Supervisor, Supervisor of Track and Engineering, and the Superintendent of Train Movement were also interviewed and excerpts from these interviews are provided at the end of this section.

All members of the MOW crew stated that their normal schedule is Monday to Friday (7:30 a.m.to 3:30 p.m.) and that the day of the incident, Saturday, was one of their scheduled days off. They were all working on overtime (OT) and were assigned to work "stand-by" for the day. OT is prevalent with the craft.

When questioned by investigators, the crew all stated that the Foreman was in good spirits on the morning of the incident, sharing photos of the place he was taking his family for their upcoming vacation.

Prior to the accident:
A Job Briefing was performed by the Foreman in the MOW crew quarters at Queens Freight the morning of the incident. He informed the group that a walking inspection of Queens Interlocking needed to be performed.

The Queens Freight MOW crew walked east on the ML4 track side from Queens Village to Belmont Wye, where they met a work crew from Queens Village crew quarters. The two crews then returned west, walking the ML3 and ML1 side. The second work crew left the tracks part way back, at the Queens Freight MOW crew quarters.

The work consisted of inspecting/repairing IJ's (insulated joints), loose bolts, clips. They all stated that they had to clear for trains while walking eastward and westward but could not recall the number of times. They stated that except for the last two trains, the had cleared off the live tracks to the wayside for each passing train. For the last two trains (including the incident train) they had stayed on live tracks while the train passed.

The crew members stated that the Foreman was walking in the front of the gang and the Watchman was in the rear. The group took their cue of when and where to clear from the Watchman, whose train approach warning procedure was to sound his air horn, call out to the crew, and point the whistle board disc in the direction to clear.

The crew stated that at time of the incident the Watchman gave them this advanced warning sequence (horn, voice and disc) and that they heard the horn of the train and the Watchman state "train on the outside". All but one (the crew member who was first in line behind the Foreman) stated that they believed they the saw the Foreman acknowledge the warning from the Watchman (raising of his hand).

Specific details from individual interviews are provided, below.

Locomotive Engineer Interview
He hired on with LIRR November 2014. His regular work schedule is off on Thursday and Friday; Saturday and Sunday he starts at 2:19 a.m. and is done about 10:35 a.m.; Monday and Tuesday he starts at 1:30 a.m. and ends around 9:30a.m.; Wednesday he starts at 1:30 a.m. and ends around 8:25 a.m. His commute for work is usually about 1 to 1.5 hours.

On work days he is usually up about 11 p.m. and gets between six and eight hours of sleep. On his days off, he goes to bed between 8 and 9 p.m. and gets up around 6 or 7 a.m.

He stated he felt fully rested when he went to work on the day of the accident[12]. When he reports to work he checks in with his crew, not a supervisor. They do not do a fitness for duty check before starting the work day.

He stated he does not take prescription or non-prescription drugs. He keeps his personal cell phone off and, in his bag, when he is working, and does not have a company cell phone.

Prior to the accident:
The Locomotive Engineer stated he first saw the MOW crew on or about the tracks in between ML3 and ML1, in the middle of Queens interlocking, as he passed Floral Park and was approaching Queens interlocking. As he got closer, he sounded his horn, blowing the 14L sequence. (This is blowing two long, one short, then one long blow.) The Watchman, on the east end of the crew, acknowledged him by holding up the whistle post. The Locomotive Engineer acknowledged the Watchman back by giving two blows on his horn[13].

The Locomotive Engineer described the positioning of the crew on the tracks, "There was one gentleman on the west. They [the rest of the crew] were pretty much all bunched together in front of Queens Tower. As I was getting closer, the majority of them moved, backed off to the side back to ML3. They all acknowledged me and there was one gentleman on the west end that did not acknowledge me, had his back turned to me and he was walking parallel with my train… As I was approaching them, getting closer, he's still walking… west, parallel to my train. And [I] sounded the horn again when I was right near them (when I reached the flagman and the rest of the crew[14]). And as soon as I was on top of him, he drifted to the right [north]. It looked like… he was bending down to pick something up near ML3. He just disappeared underneath, off-side the cab from my train. And that's when I hear the train hit him…[I] dumped the train immediately after that and that was it. I lost it after that.[15]"

"I believe I slowed the train down approaching them. I do that until – I do that sometimes until they acknowledge me… I don't like flying by them. I don't because I – because you don't know.[16]"

[12] Interview, p 47
[13] Ibid, p 28
[14] Clarification on p 14, interview
[15] Ibid, p 10 & 7
[16] Ibid, p 20

When asked about the instruction he has received, on whistling for wayside workers, the Watchman stated that he is to start blowing 14L as soon as he sees workers on or about the tracks, "and it's 14L until they acknowledge you…but he [the Watchman] acknowledged me right away.[17]"

The Locomotive Engineer stated that, on the day of the accident, no temporary speed limit signs or foul time were implemented. Also, nothing was said to him over the radio and no train dispatcher or control operator called him to say there were workers on the tracks. He said that pretty much every day – almost every train – he encounters maintenance of way workers that he has not had instructions of prewarning about.[18]

MOW Crew Interviews

Watchman (third in line after Foreman)

He stated that he began his career November 2000 and has worked as driver and track-man. He is usually the Watchman, and his duties included keeping watch for on-coming trains for the protection of the work gang. He receives an eight-hour refresher training every year. When asked if he was familiar with fatigue risk management training, fatigue awareness training, or fitness for duty, he replied that he was not.[19]

LIRR records[20] show that the Watchman worked his regular shift (7:30 a.m. – 3:30 p.m.) on the Thursday and Friday prior to the incident. He also worked overtime overnight shifts on Thursday night (10 p.m. – 7:30 a.m.) and Friday night (11 p.m. – 7 a.m.). On Friday afternoon he received a canvassing call from the Assistant Supervisor, asking if he would work a 15-hour overtime shift on Saturday (7:30 a.m. – 11 p.m.), which he accepted. This schedule is provided in Figure 2, above.

Prior to the incident:

The Watchman stated that, on the morning of the incident, the Foreman received a call about 8:30 a.m. and was told to have the crew walk the interlocking, to make sure "everything is tight, you know, bolts, pretzels, and we don't understand why because it's a stand-by crew. You're standing by to make sure if something did happen, you're there for it."[21] They had their job briefing at Queens Freight, went down onto the tracks about 9 a.m. and walked east. They met the crew from Queens Village crew quarters on the tracks about 9:30 a.m., then turned to walk

[17] Ibid, p. 17
[18] Ibid, p 18
[19] Interview, p 14
[20] LIRR timecards, in the docket
[21] Interview, p 8

west as a combined group about 9:30 a.m. The other crew left the tracks about 10 a.m. and his crew continued walking east.[22]

At the time of the incident, the crew was on ML1. The Watchman was the farthest east, two crew members were walking in line with him, going west. The Foreman was the farthest west, about 50 – 70 feet ahead of the Watchman.

They continued walking west on the tracks. The Watchman stated that he looked east and saw the headlight of train No. 7623 coming out of Bellerose as it approached the work crew. "[I] Blow the horn twice, and I tell my guys, I got a westbound on the outside. They acknowledge.[23]" "We stayed in Track 1 because we knew it was coming on [ML]3 [the adjacent, outer track]."[24] He continued looking back and forth as the train approached. He did not know where the Foreman or other two crew members were looking.[25]

The Watchman continued, "[I] Blow the horn again. Blow twice. Turn to see where the train's at, put my [whistle board] up, and he [the train] blows his horns two or three times. And then when I turn around to look west, that's when it happened."[26]

He believed everyone acknowledged his warning of the on-coming train, including the Foreman (via eye contact and/or a wave of their hand). He heard the train blowing its horns as it approached and passed the crew's location. When the Foreman was struck, the Watchman called the Assistant Supervisor and informed him what happened.

MOW crew member (second in work line, after the Foreman)
He hired on at the LIRR in June of 2004 as track man. He worked as a track man and Boom Operator.

His daily commute is approximately one and a half hours. He normally eats dinner about 6:00 to 6:30 p.m. and is usually in bed between 9:30 and 10:00 p.m. He wakes up each day at about 4:50 a.m. and leaves for work at 5:45 a.m. to make his normal 7:30 a.m. start time. On weekends, he wakes about 6:30 a.m.

LIRR records[27] show that the MOW crew member who was second in the work line, after the Foreman, worked the following hours in the week prior to the incident:

[22] Ibid, p 35
[23] Ibid, p 9
[24] Ibid, p 22
[25] Ibid p 46
[26] Ibid, p 9
[27] LIRR timecards, in the docket

Saturday, June 3	Regular day off	
Sunday, June 4	Regular day off	
Monday, June 5	7:30 a.m. – 4 p.m.	(.5 hours of OT)
Tuesday, June 6	7:30 a.m. – 3:30 p.m.	
Wednesday, June 7	7:30 a.m. – 4 p.m.	(.5 hours of OT)
Thursday, June 8	7:30 a.m. – 3:30 p.m.	
	10 p.m. – 7:30 a.m.	(9.5 hours of OT)
Friday, June 9	7:30 a.m. – 5:00 p.m.	(19 hours straight; 10 p.m. Thurs. – 5 p.m. Fri.)
Saturday, June 10	7:30 a.m. – 11 p.m.	(15.5 hours of OT scheduled, incident at 10:12 a.m.)

On the morning of the incident, he reported to Queens Freight for his overtime shift at 7:00 a.m. They had their job briefing outside of the Queens Freight crew quarters, outside of the tracks. He signed the job briefing card. They discussed the safety rule of the day, then they were given their job descriptions. No other hazards were discussed and no other job briefing that day[28]. "The safety rule of the day was if you need to have help, anything too heavy, you always get help lifting something if it's too heavy. That was the safety rule of the day. And he [the Foreman] did explain the work was going to be tightening up the interlocking."[29] His job during the inspection that morning was to tighten bolts using a wrench.

Prior to the accident:
His crew met up with the other crew at the Belmont Wye. The Supervisor was at the Wye also. The two crews began walking back, westward, together. Once they passed the tower, the other crew left the tracks. He stated that during the morning, "There were a lot of trains, and fortunately, we did not have to clear a lot of times… There was a lot of train movement but not on our track."[30]

They did not clear the tracks for the last two trains. These were an eastbound train then a westbound train (the incident train). For the eastbound train, they stayed in ML1. "All tracks were live. We stayed right where we were."[31] They always go "to clear out wherever our [Watchman] is. Usually it's going to be the shortest distance to get into the clear. We don't want to go across three tracks as opposed to one track. So, we'll follow our Watchman."

"Sometimes you can't. Sometimes we have trains coming, double headers, both directions, which it would be safer to actually stay in the track you're in. And it's really, we're following the Watchman's order at that point, and it's known by the Foreman, we will follow, we'll clear

[28] Interview, p 23
[29] Interview, p 9-10
[30] Ibid, p 23
[31] Interview, p 8

whichever is the safest, shortest."[32] "But we had a train there, so we stayed in [ML]1. So, we would follow the disc. Whichever way our Watchman wants to clear, we clear."[33]

About a minute after the eastbound train, a westbound train came on ML 3, and they stayed in ML1. The Watchman blew his horn twice. "We all acknowledged. We had a train outside on [ML]4. We know that Queens' [interlocking] is fast coming through there." "Our flagman said, stay here, stay safe; we're safe right where we are. Because we were kind of going through that bridge area… It's a little tight in there…so you don't want to cross over three more tracks. So, we stayed safe in there and continued our work.[34]"

He did not see or hear the accident train before receiving warning from the Watchman. They were warned before they could hear the train. "we were warned ahead by him [the Watchman] blowing the horn, and that's when we knew they're coming fast, again, need to hurry at that speed. So, we knew it was in [ML]4. We turned our head. You could see down – it's a straight line down the interlocking in Queens, so you get a good line of view."[35]

The Watchman "was actually 5 feet behind me, very close to me. [He] gave the instruction that we had one outside, okay, and we were safe right where we were. So, this is where we stayed. He held a disc up. I know that. Everybody acknowledged. [The next crew member in line] was right in front of me, and he was checking clips, so he knew also. We all did. We acknowledged, and [the Foreman] seemed to wave."[36]. The train blew his whistle, acknowledged where we were, and he acknowledged the disc the Watchman had. And then Mike sort of – I don't know how to explain it, but I don't know how he leaned or whatever he did, was right onto 3."

"You can see quite a distance, so the warning was well ahead. We could have cleared safely or – you have a clear time of 15 seconds, I think it is. We were well aware, at least, a half a minute to a minute ahead of time… we knew it was coming."[37]

"Everybody acknowledged it. And at that point the train came by us, came by me, and which, you know, you get that wind whips by you… you feel that wind hit you and… you keep your back to a train doing that speed. You don't want to get hit with any debris. Sometimes you get kick-up in the tracks. We all had our backs – we knew it was coming right then and there. But as we just lift our head, it had to be just when he got struck." [38]

[32] Interview, p 21
[33] Ibid, p 10
[34] Ibid, p 33-34
[35] Interview, p 29 - 30
[36] Interview, p 30
[37] Interview, p 30 - 31
[38] Ibid p 37

MOW crew member (off-track at time of incident)
He hired on at the LIRR in August of 2006 in the track department and possessed a CDL to perform the duties of Driver (utility, boom truck). He stated that his job during the inspection was to carry bolts.

He provided the investigators the following description of his daily commute and activities: His commute is approximately 50 minutes by train, or 1 hour 20 minutes if he drives. Going home is about 40 minutes on the train or 50 minutes if he drives after overtime. He works overtime whenever it is available, usually three or four times a week, for eight hours each time. He normally reports at 7:00 a.m. in Hillside where he performs a truck inspection and report, fuels-up, and drives to Queens Village.

His commute, when driving, is approximately 45 to 50 minutes in the morning and one hour and twenty minutes in the afternoon. If he rides a train, it is a 40-minute ride. He is normally home about 6:00 p.m. and he goes to bed 9:30 - 10 p.m. He wakes up about 5 a.m. to go to work. On weekends, if he is not working, he usually goes to bed and gets up at the same times as during the work week.

When he works overtime, he does not go home, because it is too far. He stays in the crew quarters and takes a nap. There are no beds in the Queens Freight crew quarters, just two couches. If both couches are taken, he sleeps in his car[39].

LIRR records[40] show that the MOW crew member who was off-track at the time of the incident worked the following hours in the week prior to the incident:

Saturday, June 3	4a.m.- 12 midnight	(20 hours straight, of OT)
Sunday, June 4	Regular day off	
Monday, June 5	Vacation	
Tuesday, June 6	7:30 a.m. – 3:30 p.m.	
Wednesday, June 7	Sick leave	
Thursday, June 8	Sick leave	
Friday, June 9	7:30 a.m. – 5:00 p.m.	(regular shift plus 1.5 hours of OT)
Saturday, June 10	7:30 a.m. – 11 p.m.	(15.5 hours of OT scheduled, incident at 10:12 a.m.)

Prior to the accident:
He recalled about nine trains passed them that morning and they cleared on the tracks for two of them. He was not on the tracks at the time of the accident because he had to use a rest room. He

[39] Interview, p 14
[40] LIRR timecards, in the docket

was on the side of the track, getting ready to return to the crew, in the moments before the accident. He heard the Watchman yell out and honk his air horn. He heard the Locomotive Engineer blow the train horn. He stated this was about 10-15 seconds prior to the incident.

He had a suggestion for improving safety: "Maybe have some more of these managers come out and see what exactly we do and how we put our lives on the line for them every day. And when you don't need to be on the track, don't get on the damn track. Stop worrying about what everyone thinks about the railroad. We do our job; we do it damn well.[41]"

MOW crew member (first in the work line, after the Foreman)
He began his career March 2008 as a track man, then worked as a welder and driver. He knew the other members of the crew about 10 years and has never felt concerned about any of their performance or ability to do their work.

He provided the investigators the following description of his commute and daily activities: His commute is approximately 20 to 30 minutes in the morning and 30 to 40 minutes in the afternoon. He usually eats dinner between 6:30 and 7:00 p.m. He is in bed about 10 p.m. and awake at 6:00 a.m. Saturday was the first OT he worked that week. He likes to work 12- 16 hours of overtime per week.

He stated that everyone was happy that morning. The Foreman was getting ready to go on vacation and showed the crew photos of the place where he would be staying with his family.

LIRR records[42] show that the MOW crew member who was first in the work line, after the Foreman worked the following hours in the week prior to the incident:

Saturday, June 3	4a.m.- 12 midnight	(20 hours straight, of OT)
Sunday, June 4	Regular day off	
Monday, June 5	7:30 a.m. – 3:30 p.m.	
Tuesday, June 6	7:30 a.m. – 3:30 p.m.	
Wednesday, June 7	7:30 a.m. – 4 p.m.	(regular shift plus .5 hours of OT)
Thursday, June 8	7:30 a.m. – 3:30 p.m.	
Friday, June 9	7:30 a.m. – 4:00 p.m.	(regular shift plus .5 hours of OT)
Saturday, June 10	7:30 a.m. – 11 p.m.	(15 hours of OT scheduled, incident at 10:12 a.m.)

His assignment while performing the walking inspections in Queens Interlocking was to use the sledge hammer and look for loose and/or missing clips. He was the first crew member in line

[41] Ibid, p 48
[42] LIRR timecards, in the docket

behind the Foreman and was walking about 25-30 feet behind him. The next crew member was walking about 10 feet behind him and the Watchman was about 10 feet behind that person.

Prior to the accident:
In the time just prior to the accident, they passed Queens Tower. Then he heard the Watchman blow his air horn and tell them, "Westbound on the outside, westbound on the outside." He turned around and saw the Watchman holding up his disc. He saw the train approaching on ML3, but he kept working, walking and looking for missing clips. He heard a noise, and that was when the accident happened.

He did not hear the train horn until after he received the warning from the Watchman and he had not noticed the approaching train prior to receiving warning from the Watchman.

He did not observe if the Foreman acknowledged the warning. He stated that once he acknowledged the warning, he returned to inspecting the track

Supervisor interviews

Assistant Track Supervisor

The Assistant Track Supervisor stated that he hired on with the LIRR in 2004, worked as a Trackman and Foreman and has worked in his current position for six years.

He said the Foreman had left the MOW crew in Sub 2 to go on a construction job for six months. This was a job he had requested by bidding on it. He had returned to Sub 2 the previous week, on Wednesday.[43]

The Assistant Track Supervisor had worked with the Foreman for several years. He considered him to be safety conscious and honest, always doing the right thing.[44] He stated that the Foreman seemed to be his normal self on the morning of the incident: cheerful with nothing out of the ordinary.[45] When asked, he told the interviewers that he was not familiar with fitness for duty training or with fatigue risk management training.[46]

His regular work hours are Mondays through Fridays, from 7:30 a.m. to 3:30 p.m. His work and overtime schedule for the day of the incident and the five days prior to it are provided in Figure

[43] Interview, p 31
[44] Interview, p 32
[45] Interview, p 26
[46] Ibid

3, above. In addition, his LIRR timecard shows three overtime shifts worked the week prior to the incident:

Tues, May 30	7:30 a.m. – 3:30 p.m. 9 p.m. – 6:30 p.m.	
Wednesday, May 31	7:30 a.m. – 3:30 p.m. 9 p.m. – 6 a.m.	(18.5 hours with 1 hour break)
Thursday, June 1	7:30 a.m. – 3:30 p.m. 10 p.m. – 7 a.m.	(18.5 hours with 1.5 hour break)
Friday, June 2	7:30 a.m. – 3:3p p.m.	(17.5 hours with .5 hour break)

The Assistant Track Supervisor stated that he tries to do overtime shifts two to three nights a week, plus Saturday daytime for a 12 to 16 hour shift.[47] When he has a weekday overtime shift at night, he tries to go home after his regular shift and sleep for two, three or four hours – whatever he can get in.[48]

Prior to the accident:
The morning of the incident, he received a call from Engineering System Operations (ESO) directing him to direct the appropriate crew(s) to have a walking inspection of Queens Interlocking.

He contacted the Foreman (now deceased) at the Queens Freight crew quarters and directed his crew to perform the walking inspection of Queens Interlocking. He stated that he and the Foreman from Queens Freight decided that the Queens Freight crew would walk ML 2 and ML4 from Queens Freight to Belmont Yard and the Queens Village crew would walk ML3 and ML1 from Queens Village to Belmont Yard.

He stated the work was not onerous or dangerous, the work was routine maintenance. He confirmed the testimony provided by the Foreman's work crew with respect to the path the crew walked, type of work they performed and the details of the work.

He stated that if the inspection is performed on the inside track that there are times where it may be difficult to clear off the tracks. The clearing procedure is discussed during the job briefing. He confirmed that the Flagman will warn the crew and give directions to where to clear. However, regarding who makes the decision of where to clear and how is this decision conveyed to the crew, the Assistant Track Supervisor responded, "Typically it's conveyed in the job briefing.

[47] Interview, p 52
[48] Interview, p 51

When we're doing a job like this, when we're walking through the interlocking, it's basically said clear to the north when we're walking on 3 and 1, or to the south when you're on 2 and 4."[49]

"When you're on an interior track, the protocol is to clear all the way to the south. But sometimes with a lot of train traffic, I have to say, sometimes it's hard. You may end up getting stuck on like the adjacent track, which would be, let's say if you're on 1, you could end up on 2, depending on how the train comes. But usually there's plenty of room to clear."[50]

When a train is coming, the Watchman is expected to "Blow the horn, raise the Watchman disc, and point to the area to clear." Typically, the Watchman would not give verbal orders, he would just blow the airhorn, "unless he really had to give some kind of direction out of the ordinary. But he typically would just blow the horn."[51] The Watchman would "see the actions of the guys if they were clearing or not. He would continue to lay on the horn to get their attention." [52]

He informed the investigators that the crew would normally acknowledge train warnings with a wave of the hand and that clearing on an inside track is performed rarely. He stated that he does not track the OT worked by the crew.

He informed the investigators that there is only one crew scheduled to work at night, and it works 3:30 to 11:30 p.m.

He believed a core issue, with respect to safety for the track department, is the difficulty in obtaining foul time to perform maintenance.

Supervisor of Track & Engineering

He stated that he hired in June 2004 and has worked the following positions: Jr. Engineer, Staff Engineer, Assistant Engineer (Track Department), and currently is the Supervisor for Sub-Division 2. The Foreman reported directly to him, although he does have an assistant supervisor. He found the Foreman to be safety conscious. None of the Foreman's crews had voiced safety concerns about him. [53]

He stated that he was not present or on-scene at the time of the incident. He oversees Sub-Division 2, which includes 64-68 personnel, approximately six-hundred miles of tracks and two-hundred switches.

[49] Interview, p 23-24
[50] Ibid
[51] Interview, p 25
[52] Ibid
[53] Interview, p 17

He gave the order to the Assistant Supervisor to have the crews perform the walking inspection of Queens Interlocking.

He stated that overtime shifts are granted on a seniority basis and if the shifts do not overlap, a senior Foreman "could take every shift all the way through the whole weekend if that's what he chooses to do." He confirmed that this is the union agreement with LIRR.[54]

Superintendent of Train Movement

During his interview, the Superintendent of Train Movement stated that train movement comes from the authority of a Tower/Block Operator who is stationed at the Wye.

He informed investigators that the work directed to the crews was routine and safe. There was no mention by anyone that the requested work was dangerous. He stated that Queens Interlocking is a challenge due to the high speed of trains, however, if Roadway Worker Protection (RWP) requirements are followed, the speed concerns are properly mitigated.

He stated that RWP requires that once a train is observed approaching a location where MOW personnel are present, they are required to exit all live tracks. He emphasized that at no time may MOW use a live track as clearance.

He said that the lack of granting foul time is a major contributing factor in unsafe risks by the Track Department. Additionally, he believes the OT worked by the MOW is unsafe.

G. LIRR RECORDS

The Foreman (deceased), aged 51, was hired by LIRR in October 2001. His training was up to date. His discipline record included a safety infraction on May 2, 2013 for "Sleeping on duty; theft of service; dereliction of duty; wasting LIRR resources; failure to supervise your gang" for which he received a 15-day suspension[55].

The Foreman worked several overtime shifts on the days prior to and including the incident, as shown in Figure 4, above. He was also scheduled to work another 12 hour overtime shift on Sunday, the day after the incident.[56]

[54] Interview, p 29 - 30
[55] The Foreman's training and discipline records are in the docket.
[56] Interview with the Supervisor, Subdivision 2, p 45 - 46