Factual Report – Attachment 1

Interview Summaries

AIR TRAFFIC CONTROL

OPS17IA014

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Interviewee: Christopher Short (Front Line Manager (FLM)/ Local Control Assist (LCA))

Date: February 28, 2017
Location: SFO ATCT
Present: Lydia Baune and David Waudby
Investigator: Betty Koschig

During the interview Christopher Short stated the following:

His air traffic control experience began in 1996 when he enlisted in the United States Navy (USN). He served for five years on active duty as an air traffic controller and had been stationed at Naval Air Station Lemoore (NLC). In 2005, he was hired by the FAA and attended initial training at the FAA Academy in Oklahoma City, Oklahoma. After successful completion of initial air traffic control training, he worked at Oakland Air Route Traffic Control Center (ZOA ARTCC) from 2005 to 2008; Hayward Executive Airport (HWD) from 2008 to 2009, and SFO from 2009 to present. He had qualified on all positions at SFO ATCT and certified as controller in charge (CIC), and in 2015 he began working as a front-line manager (FLM).

On Wednesday, February 15, 2017, he worked his regularly scheduled shift and was assigned as the FLM combined with the LCA position. He stated that his work schedule leading up to the day of the incident was:

Thursday	0600–1400
Friday	0600–1400
Saturday	RDO
Sunday	RDO
Monday	1600–2400
Tuesday	1330–2130
Wednesday	0900–1700 -Worked swing shifts, times varied. (Day of Incident)

Mr. Short stated that he held a current medical certificate with no waivers or restrictions. His operating initials were CS. His supervisor was Dave Hearn. He did not work overtime, but other controllers were scheduled overtime. Many of the controllers were scheduled six-day work weeks.

Mr. Short recalled that when he came in and assumed the operating position, the wind was "kicking up," which caught him off guard because he had not anticipated a runway change. He explained that aircraft were unable to depart in their current airport configuration, due to tailwind component, so he immediately made a runway change. Changing the runway required a lot more coordination due to the requirement, by NCT to "route modify (RM)[1]" each flight strip.

About the time of the incident, he typically sent controllers downstairs to take a break so the shift would be set up for the late push [heavy traffic]. During all the coordination that he was required to conduct with ZOA for the runway change, he missed hearing the pilot of Compass[2]

[1] A request route conversion message was used to force route conversion for a flight plan.
[2] Telephony for Compass Airlines. All references to "Compass" are understood to be CPZ6081 unless otherwise

check in on the frequency, but he did see that Compass' data tag [on the tower radar display] indicated "RGT" (right). He had been focused on all the calls and coordination with the runway change and getting Mr. Descalopoulis relieved from the local control (LC) position and assigned to the clearance delivery (CD) position to help modify flight routes.

When the ASSC alerted, he had a gut feeling (it was real). Mr. Short recalled that the LC was looking at the data tag, and still processing what was going on, so he told the LC to send the flight around, which the LC immediately did. The pilot did not question the reason for the go around. Mr. Short did not believe the pilot saw the aircraft on the runway.

When he looked out the window at Compass, he thought the lights looked close. He believed the LC was still processing what was happening. They were in a new tower which created changes; the sounds/alerts had changed, and it took the controllers longer to process. Additionally, their view of the runways from tower was different.

He recalled thinking that the LC was pregnant, and even though she did not want to get off the position, he felt he needed to get her off position right away. He had another controller relieve her from the LC position. Mr. Short and the LC listened to the audio tapes, and "they were shocked."

They had still been trying to get used to the view from the new tower. In the old tower, they had a better angle to the runways. He stated that the LC had been scanning the airport.

Mr. Short stated that only the LCA used the arrival pad; LC did not use it. The RM was a recent change; they were required to amend the standard instrument departure (SID) on each flight before it could be released [by NCT]. SFO ATCT used to just line out the old routing on the flight strip and verbally coordinate with NCT, but now they must electronically modify the route. He explained that there had been a change in how they handled the modification route. Prior to the change, the procedure was that NCT knew what SID the flight would use based off the departure runway and the pre-departure scan of the flight strip. After the change, when a runway change occurred, SFO had to call NCT, who would then call ZOA to let them know about the RMs and strip status. Mr. Short stated that SFO could not call ZOA directly. When asked the reason they could not, Mr. Short stated it was complex.

Mr. Short explained that SFO would not receive the correct SID/departure routing on flight progress strips until ZOA made the changes [in their system]. He stated that sometimes SFO would not get updated strips for 1 or 1 1/2 hours after making the call. As the FLM, he would call ZOA directly to ask what was going on. He stated that SFO "butt heads" [does not always agree] with NCT.

He typically sent controllers on a break about 2000 so he could have them ready for the later push that began between 2200 and 2300.

When asked if he would normally tell a pilot the reason for a go-around, Mr. short stated that they would not tell them if they did not ask, especially in time critical moments. The LC did

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stated.

not tell the Compass pilot the reason for the go around. Mr. Short believed that the Compass pilot had not been aware that there was an airplane on the runway. He stated that Redwood[3] had all his navigation lights on.

Mr. Short said that they had to combine the supervisor position a lot because of the lack of staffing. The staffing level at the facility was "bad" and there was a lot of pressure put on the FLMs. Mr. Short said that there had been so many changes at SFO lately, such as the new facility, use of FUSION, RM, etc.

Mr. Short was asked why the procedure for RM was implemented. He stated that it did not impact SFO or NCT, but it changed something further down the route when it got to ZOA. The issue originated with ZOA, but that was fixed. However, NCT was now holding releases until the RM was completed.

When a runway change was made at SFO, ZOA waited until the last flight departed the old configuration before they would "flip the switch" (change) for the new runway configuration, instead of switching immediately. He believed that had become a safety issue.

Mr. Short was a member of the local safety committee (LSC), which met once a month. He said they had recently held a telecom with NCT about the issue, but the issue remains unresolved.

Mr. Short stated that expanding ASSC from 1 or 1 1/2 miles out could help to prevent a recurrence. He felt that he could have managed the shift better; slow things down and called somebody up to the tower. He said that he had been trying to make it work, but staffing was a "huge huge" issue there.

The position relief briefing (PRB) overlap time was two minutes. He needed to get Mr. Descalopoulis off the local control position so he could help him out [on the CD position].

He said it was unusual that Compass came in on the left runway because they prefer using the right runway. They had not been in quiet hours [noise abatement] at that time. When he submitted the mandatory occurrence report (MOR) for this incident, he believed that he forgot to put in the reason for the go around with Compass.

They started using FUSION[4] when they moved into the new tower. He could not tell if the flights were lined up for 28L or 28R.

Mr. Short explained that working at SFO was complex; they had only one LC position in the tower. He did not believe that their salary reflected the amount of work they did. SFO was a level 10 facility, but he believed they worked busier traffic than a level 10 facility. He believed that the complexity of their traffic at SFO should have been taken more into account.

[3] Telephony for Virgin America. All references to "Redwood" are understood to be VRD920 unless otherwise stated.
[4] The combination of all available surveillance sources into the display of a single tracked target for air traffic control.

SFO was required to call for releases on runways 1L and 1R, but they had auto releases for runways 28L and 28R.

They usually have about five people on each shift, sometimes four. The lowest staffing, he had seen on a shift was four. The traffic management coordinator (TMC) counts as controller staffing. There were five supervisors at SFO, which were counted separate from the controllers; however, FLMs often had to work positions. They tried to keep LCA open as much as possible, but at times they could not open it due to staffing shortages.

He believed the ASSC extended centerline extension (a recent modification to ASSC requested by SFO tower) was huge. He said that they needed to utilize the technology and have the metroplex back up things; there had been a problem with en route automation modernization (ERAM) equipment, and it made things more difficult.

Interviewee: Brent Descalopoulis (Clearance Delivery (CD))

Date: February 28, 2017
Location: SFO ATCT
Present: Lydia Baune and David Waudby
Investigator: Betty Koschig

During the interview Brent Descalopoulis stated the following:

His air traffic control experience began in 1987 when he enlisted in the United States Air Force (USAF) and served for four years on active duty as an air traffic controller. He had been stationed at Royal Air Force (RAF) Bentwaters, England, and Vandenberg, CA. In November 1997, Mr. Descalopoulis was hired by the FAA and attended initial training at the FAA Academy in Oklahoma City, Oklahoma. After successful completion of initial air traffic control training, he worked at Palo Alto Airport (PAO) from 1997 to 1999; and then SFO from 1999 to present. During his time at SFO he had been detailed to FAA Headquarters, AJV-82 from 2015 to 2016. He was qualified on all positions at SFO ATCT and was currently an FLM.

On Wednesday, February 15, 2017, Mr. Descalopoulis had been called in to work an overtime shift and was assigned to the CD position at the time of the incident.

He stated that his work schedule leading up to the day of the incident was:

Thursday:	Off
Friday:	1400–2200
Saturday:	1400–2200
Sunday:	0700–0300
Monday:	0530–1330
Tuesday:	0530–1330
Wednesday:	1600–2400 (Day of incident) Overtime shift

Mr. Descalopoulis stated that he held a current medical certificate with a restriction to wear corrective lenses. He stated that he was wearing corrective lenses at the time of the incident. He worked about one overtime shift per week and one to two hours of credit per week. He had worked overtime the previous three weeks. His operating initials were BD, and his supervisor was Dave Hearn.

Mr. Descalopoulis recalled that he had just been relieved from LC position and had begun working CD when the incident occurred. When he had been working LC, the wind began picking up out of the south, and they started having discussions in the tower about a runway change. The timing of the runway change was a little later than normal, it usually occurred earlier. He had asked pilots if they could depart with the tail wind that they had, and a United pilot had said no, so they changed the runway configuration. Shortly after that, Ms. Rodriguez came up to the tower and relieved him from the LC position. They conducted a position relief briefing and he went over to work the CD position. He did not feel overloaded with the traffic and characterized it as moderate traffic. He did not recall anything abnormal.

Mr. Descalopoulis stated that whenever a runway change was made, the supervisor was the person that made all the phone calls. On that day, it was late in the evening to change the runways, but they needed to because of the wind.

At the time of the PRB the departures had started trickling out and arrivals had lined up for runway 28R. There was no urgency to get departures out. He recalled that they had one flight transition leftover from the other runway configuration. They would normally not have that type of transition in a runway 28 configuration because the transitions flew through the departure corridor.

He did not see or talk to Compass while he had been on the LC position. During the PRB, he and the relieving LC, went through the checklist that was located on the status information area (SIA) before she took over the LC position. He thought he had conducted a two-minute overlap, but there was no timer to confirm that. He had no concerns that the LC had “the flick” [situational awareness of everything going on at the position]. He felt that Ms. Rodriguez was a very competent controller. His focus at that time had been the runway change and getting over to the CD position; when a runway configuration changed, they had to do RMs on each of the departures.

In the past they had not been required to do a RM, but now they were required. All their flights were put into “hold for release” until they did an RM on that flight. The RM had to be done because the SID changed due to the different runway. They had to RM each flight strip or NCT would not give them releases on the flights. Whenever a runway change was conducted it was urgent to change the SIDs for each of the flights, starting with those talking to LC, then GC, and then other flights waiting.

Mr. Descalopoulis believed that they had six controllers for that shift. They had LC, GC, and FLM opened at the time of the incident, and they usually had one more person available. The TMC came up to the tower shortly after the incident.

The arrival pad was not used when LC was working without an LCA. The LC would look at the STARS display to see what arrivals were inbound. If the LCA was opened, they would complete the arrival pad.

Noise abatement procedures started at 2200. Runway 28R was the noise abatement runway. NCT would use runway 28L and 28R for arrivals, even when arrival rates were low. Mr. Descalopoulis preferred they used 28R for arrivals. It was common for SFO to call NCT and request that runway 28R be the primary arrival runway.

Mr. Descalopoulis stated that they were not specifically trained to state the reason for a go-around, it was inherent to give it. There was no set standard on giving a reason for a go-around. SFO had a simulator and they included go-arounds in their training scenarios.

During a PRB, the relieving controller would set up the workstation, and arrange the position the way they liked it. Everything was pretty standard, but individuals did things differently and had preferences on how they wanted to set up the position.

Mr. Descalopoulis believed that when the pilot stated he was arriving runway 28L, the LC just repeated what pilot said. He explained that a controller said "cleared to land" so much. A controller would have no reason to believe that an airplane got that close to landing on another one. He believed it was abnormal that the pilot did not see anything [aircraft on the runway]. He said that the LC usually issued traffic that was holding in position, but she did not that time; that made him think that the LC believed Compass was arriving on 28R. It was a little difficult to tell at night which runway the flights were lined up for (28R or 28L). They were in the new tower, so they were still learning the view.

He explained that a runway change had occurred, he had completed the PRB, but there were no additional phone calls or anything else like that happening. There were no other distractions in the tower. He stated that they often work the FLM combined with another position, rather than stand alone. The FLM would be combined with another position, when necessary, to accomplish training.

SFO had a couple of the new controllers that had not gotten qualified, and had some of the controllers retire, so they were at minimum staffing.

When performing FLM duties, and it became necessary to combine control positions, he preferred to combine CD to the FLM position. When combined with CD, the FLM was a bit removed from everything else, because the CD [workstation] was across the room. The FLM had to combine the positions to make the schedule work. During busy times, it was essential to have the LCA position opened. Recently, they had been directed that the FLM/CIC could not be combined with LCA.

When asked what could be done to prevent a similar recurrence, Mr. Descalopoulis stated that they must ensure adherence to assigned runway, using 28R for landing only, increase staffing, and work out some sort of agreement [with other facilities] on how to handle route changes during a runway change.

Mr. Descalopoulis was asked to explain what it meant when the LCA made a call to NCT and said, "RM working…Strips not…." Mr. Descalopoulis explained that meant they had manually modified the flight strip (SFO manually changed the departure procedure on their own, to keep departures moving). Once ZOA had entered the configuration change it could take the system up to 45 minutes before showing the correct departure procedure on the flight progress strip.

The changes in area navigation (RNAV) procedures changed the departure directions. The San Francisco Four was the main departure procedure to the northeast or straight out runway 28. Before the RNAV changes, SFO would change departures clearances to "Shoreline," but now they changed it to TRUKN[5]."

Mr. Descalopoulis said the controllers were good about conducting the two-minute overlap [after a PRB], but they could be better. He believed there needed to be some way to monitor it, like an official timer.

When an MOR was submitted, they usually did not put the reason for a go-around on the form unless the occurrence had been inside 1/2 mile, then they would give a reason.

When asked his thoughts on having an indicator to show when the runway status lights (RWSL) was lighted, Mr. Descalopoulis felt that they did not need any other indicators; they do not need another thing to look at. He stated that it should be a passive system that ATC did not get involved in, it should work autonomously on its own.

Mr. Descalopoulis said it was normal to relieve a controller from the position after a situation like this one occurred. In this situation, the previous CD controller relieved the LC. He added that SFO normally had three controllers on duty after 2200.

Mr. Descalopoulis explained that the difference between ASDE and ASSC, was that the ASSC had the data block and color pallet. They were able to put call signs on positioning airplanes; it was a positive thing to have it in the tower (ASDE-X plus SMR (surface movement radar).

He stated it was normal to listen to the LC frequency on the headset, but they may put it on speaker for the mid shift.

Interviewee: Patricia Rodriquez (Local Control (LC))

Date: March 1, 2017
Location: SFO ATCT
Present: Lydia Baune and David Waudby
Investigator: Betty Koschig

During the interview Patricia Rodriquez stated the following:

[5] TRUKN was a waypoint.

Her air traffic control career began in January 2007, when she was hired by the FAA and attended initial training at the FAA Academy in Oklahoma City, Oklahoma. After successful completion of initial air traffic control training, she worked at ZOA from 2007 to 2013, and SFO from 2013 to present.

Ms. Rodriquez had been qualified on all positions in the tower and was certified as a CIC. She stated she held a current medical certificate, with no restrictions. She held an instrument rating single engine land (SEL) pilot certificate but was not current. Her operating initials were PX, and her supervisor was Cole Dietrich.

On Wednesday, February 15, 2017, she worked her regularly scheduled shift and had been assigned to the LC position at the time of the incident.

She stated that her work schedule leading up to the day of the incident was:

Thursday:	1000–1800
Friday:	0700–1500
Saturday:	0600–1400
Sunday:	RDO
Monday:	1500–2300 (Overtime)
Tuesday:	1500–2300
Wednesday:	1230–2130 (Day of Incident)

Ms. Rodriquez recalled that after she got to the tower cab, she plugged in and took the LC position. At that time, they were in the process of conducting a runway configuration change. At that moment, there was a general aviation aircraft transitioning, going along the west end, which was abnormal in that configuration. Rather than continuing to let the aircraft go to west end, she took the flight over the top (of the airport) to get the aircraft out of the way. Then she worked a Coast Guard flight which had also been in the way [conflicting with the runway change].

Ms. Rodriguez recalled Compass checked in with her and she cleared the flight to land. She did not recall clearing the flight for runway 28L. She recalled dealing with the general aviation (GA) traffic, and then put Redwood into position (runway 28L), checked the final approach corridor, and saw that the data tag [on the TDW] for Compass indicated “RGT”. She recalled that the ASSC alerted at the same time the GA flight was saying goodbye, and then she sent Compass around. She stated that it was hard to tell at night which runway [28 left or right] an aircraft had lined up for when there was only one flight [not a pair of flights on approaches to runway 28L and 28R].

Shortly after that, she signed off the LC position and went downstairs with the supervisor to listen to the audio tape. She hoped that she had not cleared the aircraft for runway 28L instead of runway 28R. She did not remember giving that clearance at all and was not happy when she heard the tape. When asked what she did after she listened to the audio, she said she went home after that [it was the end of her shift.]

She explained that the pilot's "check on" was one piece of the information, the rest of her information reinforced her belief that runway 28R was where Compass intended to land.

Ms. Rodriquez was asked if they had been in the previous configuration would she have expected NCT to bring the majority of arrivals to runway 28R. She stated that if NCT sent in a pair of flights, they would bring them to the left and the right (runway 28); and if it were a single flight, they should put it on runway 28R, as per the letter of agreement (LOA).

She did not believe that the requirement to RM each flight added stress and coordination to the LC position, but it had been taking a lot of energy in the background. Ms. Rodriguez stated that there were no other distractions other than that.

The controllers used a checklist on the SIA to conduct a PRB. She was asked if they had used it during that PRB, and she stated that she was "pretty sure we did."

She did not remember how long the relief controller had been there for the overlap. She stated that she felt she had the flick. When asked, she said she felt well rested before going on position.

Ms. Rodriquez was asked what she would suggest as a mitigation that would prevent a recurrence; she answered that she thought the ASSC box (extended centerline) was a good idea. She added that they had also talked about correlating the radar data [from TDW] with the data indicated on the ASSC display, which would alert if an airplane lined up for the wrong runway.

She was asked if the perspective looking outside the window from the new tower was different from the old tower. She said, "once you get used to the new tower, you forget what you used to see from the old tower." She stated that they moved into the new tower in October, and she had no problem getting used to views [perspectives], and she was comfortable with how things looked from the new tower.

Ms. Rodriquez stated that when she signed on the LC position the supervisor was combined with LCA, and everything else was open. When LCA was open she expected the LCA controller to be a second set of eyes and ears; they coordinated with NCT, requested codes, handoffs, and so on. The LCA normally kept up with the arrival pad. She said when LC worked without an LCA they would use the arrival pad if workload permitted. She did not recall how many controllers they had to staff the facility that night. She was not sure if CD was already opened when she signed on to LC or if it was opening.

They normally did not provide the pilot a reason for a go-around, they gave the pilot a heading and altitude.

When asked what the reason was for doing an RM for each flight strip, Ms. Rodriquez said it went back to the ZOA; all their routes with the NextGen metroplex stuff. She did not know much about the issue; it was a dynamic situation.

Ms. Rodriquez stated that she worked overtime usually two times a month, and two to four overtime calls per weekend.

Ms. Rodriguez believed the coordination at LCA (which was combined to FLM position) at the time of Compass checked on was related to the RM strip issues. When asked if RM strip coordination would be considered an FLM/CIC coordination or an LCA coordination, she believed it would be an FLM/CIC coordination.

When asked if one LC position was sufficient for SFO tower, Ms. Rodriquez stated that one LC position works, and she did not know how that could work with two LC positions. She was asked how often they went on breaks, she said breaks varied depending on staffing.

She was asked what went through her mind when the ASSC alerted, Ms. Rodriquez replied that she was trying to figure out why it went off, and then she did figure it out. She was asked if she questioned herself which runway, she had sent him to, she said no. She said it did not matter because at that point, she was more concerned about what he (Compass) was doing, and how she would fix it. She said that the ASSC did not alert often, and usually you knew why it went off (alerted). They would occasionally get some false alerts on ASSC, but not many.

She said they could not change the information on the data tags (with the TDW), because they were set by NCT, but they could change the position of the data tag.

Interviewee: Richard Hull (Area B Front Line Manager (FLM))

Date: March 3, 2017
Location: NCT
Present: Lydia Baune and David Waudby
Investigator: Betty Koschig

During the interview Richard Hull stated the following:

His air traffic control experience began in 1979 when he enlisted in the United States Navy (USN) and served five years on active duty as an air traffic controller. He had been stationed at Naval Air Station (NAS) Miramar and NAS Rota, Spain. In 1989, he was hired by the FAA and attended initial training at the FAA Academy in Oklahoma City, Oklahoma, but did not complete the course. In 1991, he returned to the FAA academy, and after successful completion of initial air traffic control training he worked at Nantucket Memorial Airport (ACK) from 1991 to 1993, San Carlos Airport (SQL) from 1993 to 1995, SFO ATCT from 1995 to 2000, Bay TRACON from 2000 to 2002, and NCT from 2002 to present. He had qualified on all positions in Area B at NCT.

From 2010 to 2013, he worked in the TMC, and from 2011 to 2012, he worked on the metroplex design implementation team for NCT. In 2013 he was certified as an FLM.

On Wednesday, February 15, 2017, he worked his regularly scheduled shift and had been assigned to the FLM position at the time of the incident.

He stated that his work schedule leading up to the day of the incident was:

Thursday:	1000–1800
Friday:	1000–1800
Saturday:	0530–1330
Sunday:	0600–1400
Monday:	RDO
Tuesday:	RDO
Wednesday:	1530–2330 (Day of incident)

Mr. Hull stated that he held a current medical certificate with a restriction to have eyeglasses in his possession. He stated that he had eyeglasses in his possession at the time of the Incident. Mr. Hull worked about 115 hours comp time shifts last year, and he was unsure how many shifts he worked overtime, but said it was "many shifts." His operating initials were RA, and his supervisor was Joe Gryzbek.

Mr. Hull stated that he had reviewed the radar replay before the interview. He explained that the flow was heavy from the east. He was not alerted about the incident until the SFO FLM called later that evening. When he found out about the incident, he got the time the incident occurred and the call sign and gave that information to the operations manager to review. He did not recall if the controllers, who had worked the incident airplanes, were still on positions at that time or if he had discussed the incident with them.

He explained that the controllers were required to issue an expected runway when the pilot checked in with NCT. He believed the incident occurred due to the lack of pilot experience and explained that pilot experience had gone way down. Pilots did not understand the complexities of the operation [at NCT], which was one of the most complex in the world. He stated that the pilots have never been to the NCT TRACON [for a tour].

Mr. Hull did not recall the staffing for that evening. He had been in Area B monitoring operations, primarily inbounds from east due to heavy flow.

Mr. Hull said they had not made an entry on the facility log because the OM told him "they were clean." He said that if something happened on tower frequency or on center frequency, the respective facility would make the log entry.

When asked who input the runway designators "LFT" or "RGT" on the scratchpad entry in the data tag, Mr. Hull said that when the final controller cleared someone for the approach, they would enter the appropriate scratchpad data at that time.

Mr. Hull stated that aircraft that come in from the bay are advised to expect runway 28L. When asked his opinion on what impact it would be if the controller were to tell the pilot that they are changing their runway, he said that "adding more phraseology was not the answer, it creates more work." He explained that they have had too many changes already, which included: STARS, FUSION, wake reclassification, 7110.308[6] restrictions, controller experience level dropped from

[6]FAA JO 7110.308 – "*Simultaneous Dependent Approaches to Closely Spaced Parallel Runways."*

an average of about 16 years to 8 years, SFO traffic increased every year, Surf Air operations out of San Carlos Airport (SQL) added workload, and the lack of experienced pilots. He added that the controllers are given a two-week period (by the training department) to complete the required electronic learning management system (eLMS) and recurrent training, even though it was not due for six months. He explained that they work overtime all the time; controllers have six-day workweeks.

Mr. Hull was asked what was expected from the feeder controller when they told a pilot to expect runway 28L, then the final controller stated (during controller coordination) that he was going to take the flight to the right (28R). Mr. Hull said, the feeder controller should hand him off to final. When asked should the feeder controller advise the pilot of a runway change, or was that something that the final controller was expected to do, Mr. Hull said that if they [feeder or final] could tell a pilot about a runway change they would, but it was not required.

When asked what could be done to add a layer of safety in their operations, Mr. Hull said that someone needed to force the hands of the airlines to make pilots observe the air traffic operations [from ATC facilities]. He believed that if pilots observed ATC operations that would be a huge benefit for the pilots, and it would benefit the controllers as well. Mr. Hull stated that they did not have a pilot outreach programs at the facility.

When asked if they were able to get controllers out for familiarization flights, Mr. Hull said it was not encouraged enough, and the paperwork and rules are cumbersome.

Interviewee: Christopher Williams (Area B, Woodside Sector (2W))

Date: March 2, 2017
Location: NCT
Present: Lydia Baune and David Waudby
Investigator: Betty Koschig

During the interview Christopher Williams stated the following:

His air traffic control career began in February 2007 when he was hired by the FAA and attended initial training at the FAA Academy in Oklahoma City, OK. After successful completion of initial training he worked at Roswell International Air Center Airport (ROW) from 2007 to 2010, Southern California TRACON (SCT) from 2010 to 2012 and NCT from 2012 to present. Mr. Williams was qualified on all sectors in Area B and was certified as a CIC. He stated that he held a current medical certificate with no restrictions. He held a current Certificated Flight Instructor (CFI), Certificated Flight Instructor-Instrument (CFII), and MEI (Multiengine instructor). His operating initials were OX and his supervisor was Todd Hower.

On Wednesday, February 15, 2015, he worked his regularly scheduled shift and had been assigned to the Woodside sector position (final controller) at the time of the incident.

He stated that his work schedule leading up to the day of the incident was:

Thursday:	0700–1500
Friday:	0600–1400 (conducted recurrent training)
Saturday:	Annual Leave
Sunday:	0800–1600
Monday:	RDO
Tuesday:	1530–2330
Wednesday:	1300–2100 (Day of incident)

Mr. Williams had been assigned to the Woodside sector and recalled the flight (CPZ6081) because the feeder sector (Boulder) had coordinated with him on the landline, which did not happen often. Compass was handed off from the Boulder position and was turned northbound because the flight had been too high for the right side (runway 28R). He felt the operations were normal, except for Southwest Airlines (SWA) flight arriving San Jose (SJC). The SWA flight was at a lower altitude than Compass, which did not normally happen, therefore he needed to provide vectors to Compass.

Mr. Williams assumed Compass would expect the left side (runway 28L), as aircraft from the south expect the left, and aircraft from the east expect the right. He stated that sometimes he advised aircraft of the runway assignment change but did not have a percentage of times that he did it. When aircraft were assigned the instrument landing system (ILS) or if they were instrument flight rules then it was a good idea to advise the pilot about a change in runway. The pilots rarely complained, but some pilots might balk a little bit when their runway was changed. Some pilots would say they would not do it (change runways), and when that occurred, he would not change their runway.

Mr. Williams stated that aircraft are flip-flopped to different runways during visual approaches every day, and corporate jets want the right (28R). He was aware of the go around, and heard it was because of traffic on the runway. He had not been made aware of the severity of the incident until March 1, 2017, and he did not review the incident until March 3, 2017.

There had been a familiarization program between SFO and NCT, which allowed controllers to visit the facilities and observe operations; he had been able to go to SFO a few months ago, but the trips did not happen often.

When asked what could be implemented to reduce runway assignment confusion, Mr. Williams stated that they should get rid of the runway 28R noise abatement requirements; the runways (28L and R) are only separated by 750 feet.

Interviewee: Josh Bustamonte (Area B, Boulder Sector (2B))

Date: March 3, 2017
Location: NCT
Present: Lydia Baune and David Waudby
Investigator: Betty Koschig

During the interview Josh Bustamonte stated the following:

His air traffic control career began in May 2009 when he was hired by the FAA and attended initial training at the FAA Academy in Oklahoma City, OK. After successful completion of initial air traffic control training, he was assigned to NCT, where he had worked until the present time. He was qualified on all positions in Area B.

On Wednesday, February 15, 2017, he worked his regularly scheduled shift and was assigned to Area B Boulder Sector (feeder controller) at the time of the incident.

His stated that his work schedule for that week leading up to the incident was:

Thursday:	Swing Shift
Friday:	Day Shift
Saturday:	Day Shift
Sunday:	Midnight Shift
Monday:	RDO
Tuesday:	RDO
Wednesday:	1500/1600–2300/0000 – worked swing shift, times varied

Mr. Bustamonte stated that he held a current medical certificate with a restriction to wear glasses or contacts. He stated he was wearing corrective lenses at the time of the incident. He stated that he had worked overtime one or two times in the last month. His operating initials were VB, and his supervisor was Rich Hull.

Mr. Bustamonte watched the replay of the event the morning of the interview.

He recalled that Compass had arrived from the south and he told the pilot to expect runway 28L, then he advised the aircraft of current ATIS information. He stopped the aircraft at 8,000 feet instead of the 6,000 feet as required by the facility standard operating procedure (SOP). He verbally coordinated with the Woodside Sector to ask if Woodside would accept the aircraft at 8,000 feet or if he needed him at 6,000 feet (due to a SWA arriving SJC, which was at a lower altitude). He then switched Compass to Woodside frequency. He emphasized the fact that he changed the runway for Compass due to noise abatement rules.

He did not recall the staffing levels for that shift and did not recall any distractions.

When asked if there would have been an expectation by the Woodside controller (final controller) for Boulder sector (feeder controller) to issue the runway change to Compass, Mr. Bustamonte stated no, it was up to the final controller to sequence the aircraft. The expectation would be for Boulder controller to ship the aircraft to final (Woodside) for sequence. He believed this was a common practice, as opposed to SOP[7].

Mr. Bustamonte stated that typically when working the Boulder sector, he told aircraft to expect runway 28L when arriving from the northwest to west, west to southeast. The Boulder

[7] SOP, section 9-70, Woodside - SFOW Pre-Arranged Coordination Procedures and Sector Responsibilities" stated Woodside responsibilities included "a. Sequence arrivals to SFO."

sector typically started talking to aircraft arriving from the north about 30 miles from SFO, south at 100 miles, and east at 40 miles.

When asked about his technique for working the final position, he stated that he would typically tell the pilot change to the landing runway, by using phraseology such as, "…you can now expect the approach to runway 28R…"

The familiarization program (between SFO and NCT) existed, but it was difficult to get it accomplished. He had visited SFO tower to observe the operations.

When asked what change he could suggest, Mr. Bustamonte replied that some at NCT used the phrase, "an informed pilot is a happy pilot." He also offered that controllers did not need another change to the 7110.65[8], but that runway change phraseology for the TRACON may not be a large workload.

He emphasized the fact that he changed Compass' runway due to noise abatement rules [which were in effect at that time].

End of Interview Summaries.

[8] FAA order 7110.65W: *Air Traffic Control.*