

MEMORANDUM

ROSEMARY A. VASSILIADIS
Director

DEPARTMENT OF AVIATION

TO: DISTRIBUTION Digitally signed by George C. Sims

FROM: GEORGE C. SIMS, PLANNER AND ANTHONY PERKINS, MANAGEMENT ANALYST

SUBJECT: JANUARY THROUGH MARCH 2020 NOISE COMPLAINT AND LAND USE REVIEW REPORTS

DATE: MAY 19, 2020

Attached for your review are the Clark County Department of Aviation's (CCDOA) Monthly Noise Complaint and Land Use Review Reports for January through March 2020. Please note the following airport abbreviations: **McCarran International Airport (LAS)**, **North Las Vegas Airport (VGT)**, and **Henderson Executive Airport (HND)**.

The following reports describe noise complaints and operational data regarding helicopter and fixed-wing aircraft operations at LAS, VGT, and HND. Aircraft noise complaints are received either through the CCDOA's Noise Hotline (702-261-3694), the Noise Office (702-261-5600), or calls forwarded from LAS's toll free number (1-800-261-5704). Nellis Air Force Base noise complaints are forwarded to the Nellis Public Affairs Office (702-652-2750), and noise complaints regarding aircraft operations from the Boulder City Airport are forwarded to the Boulder City Airport Coordinator (702-293-9405). Individuals who express concerns regarding aircraft operations originating from private facilities (i.e., Valley Hospital or the private helipad located near Las Vegas Blvd. and Larson Lane) are asked to contact the individual property owner directly.

Exhibit 1 of each Monthly Noise Complaint Report illustrates the number of calls received by community as well as the number of individual callers or households. **Exhibit 2** illustrates the primary nature of the disturbance as identified by the caller. The second page of each monthly report (**Exhibit 3**) graphically illustrates all known origins of the calls received that month. **Exhibits 4 and 5** summarize arrival and departure runway use for large and non-large air carrier aircraft. Arrival and departure corridor use for helicopters are summarized in **Exhibit 6**. **Exhibit 7** provides a complete arrival fleet mix of all aircraft landing at LAS and highlights the two noisier aircraft types, the Boeing 727 series and Boeing 737-100 and 737-200 series. **Exhibit 8** illustrates the general departure direction for large aircraft.

Exhibit 9 summarizes how well large aircraft and helicopters adhered to the preferred, non-regulated departure corridors. Adherence to preferred departure corridors is voluntary, and neither Clark County nor the State of Nevada regulates aircraft in flight. The FAA, through the discretion of Congress, has sole authority over the safe and efficient utilization of the nation's navigable airspace. Therefore, local and state authorities cannot legally enforce the use of these corridors, or impose penalties to pilots who opt not to comply with preferred procedures. "Compliance gates" are located along historical/fly-quietly routes. If all aircraft flew with advanced navigational technologies and operated under Required Navigational Precision (RNP) procedures, then it could be expected that up to 95% of all aircraft would be within 0.3 nautical miles (NM) of a fly-over point. Therefore, 0.3 NM is the threshold for compliance for large air carrier aircraft. The compliance threshold for helicopters is 500 feet.

Exhibit 10 provides the total number of land use applications reviewed and the percentage of applications receiving a CCDOA comment. **Exhibit 11** breaks down the number of commented applications by airport concern. **Exhibit 12** provides the number of residential dwelling units per commented application. **Exhibit 13** gives the number of applications in which CCDOA recommends denial, as well as applications opposed in person at Commission and/or Council hearings. **Exhibit 14** displays the extent of the Airport Environs Overlay

District (AEOD) for LAS, VGT, and HND. **Exhibit 15** depicts where noise-related comments were issued for applications around LAS. **Exhibit 16** depicts where noise-related comments were issued for applications around HND. Finally, **Exhibit 17** depicts where noise-related comments were issued for applications around VGT.

The following provides a synopsis of each monthly noise complaint report, land use reviews, and additional noise-related issues addressed during the reporting period. Please refer to each noise complaint report for more detailed information.

Monthly Noise Complaint Summaries

January 2020: 337 total complaints - a 355% increase from 2019 and a 617% increase from 2018. On average, each caller (or household) issued 6.1 calls. The most calls received from one household totaled 229.

Calls by Community - (Exhibits 1 and 3)

Majority (more than 50%): The **Spring Valley** community issued 277 calls (82%). This community is typically impacted by aircraft departing to the west (from Runway 26R and Runway 26L) and by aircraft departing to the north (from Runway 01R and Runway 01L) that turn left (to the west and south).

Minority (between 10% and 50%): (Not applicable.)

Repeat Caller Impact: One household issued 68% (229 calls) of all the calls received in January 2020.

Calls by Operation - (Exhibit 2)

LAS: 97% of the total calls were due to **LAS** fixed-wing operations.

- 92% were due to departures to the north from Runways 01L and 01R (73% from one household).

VGT: <1% of the total calls were due to **VGT** fixed-wing operations.

HND: 1% of the total calls were due to **HND** fixed-wing operations.

Helos: 2% of the total calls were due to **helicopter** operations.

LAS Operations & Runway Use by **Large Air Carriers** - (Exhibit 4)

Overall: 520 daily *departures* – a 6% increase from 2019 and 8% increase from 2018.

- 75% of departures were to the north, 22% west, 2% south, and 1% east.

512 daily *arrivals* – a 6% increase from 2019 and 7% increase from 2018.

- 67% of arrivals were from the east, 32% from the south, and 1% from the north.

Daytime: 432 daily *departures* – a 5% increase from 2019 and 8% increase from 2018.

- 76% of departures were to the north, 21% west, 2% south, and 2% east.

450 daily *arrivals* – a 4% increase from 2019 and 8% increase from 2018.

- 66% of arrivals were from the east, 33% and 1% from the north.

- Nighttime:** 88 daily *departures* – a 7% increase from 2019 and 8% increase from 2018.
- 68% of departures were to the north, 31% west, and 1% south.
- 62 daily *arrivals* – a 24% increase from 2019 and 3% decrease from 2018.
- 73% of arrivals were from the east, 25% south, and 1% from the north.

Daytime vs. Nighttime: Approximately 83% of all *departures* and 88% of all *arrivals* occurred during the daytime hours.

LAS Operations & Runway Use by **Non-Large Air Carriers** - (Exhibit 5)

- Overall:** 119 daily *departures* – a 4% increase from 2019 and 1% increase from 2018.
- 77% of departures were to the north, 20% south, 2% west, and 1% east.
- 116 daily *arrivals* – a 5% increase from 2019 and 7% increase from 2018.
- 51% of arrivals were from the south, 31% from the east, and 18% north.

- Daytime:** 110 daily *departures* – a 5% decrease from 2019 and 1% increase from 2018.
- 77% of departures were to the north, 19% south, 2% west, and 2% east.
- 110 daily *arrivals* – a 5% increase from 2019 and 7% increase from 2018.
- 50% of arrivals were from the south, 32% east, and 17% north.

- Nighttime:** 9 daily *departures* – a 3% decrease from 2019 and 8% decrease from 2018.
- 68% of departures were to the north, 28% south, and 4% west.
- 7 daily *arrivals* – no change from 2019 and 8% increase from 2018.
- 56% of arrivals were from the south, 29% north, 14% east, and 1% west.

Daytime vs. Nighttime: Approximately 92% of all *departures* and 94% of all *arrivals* occurred during the daytime hours.

Operations by Corridor for **Helicopter Tours** - (Exhibit 6)

Tropicana: 46 daily *departures* - a 16% decrease from 2019 and a 32% decrease from 2018.

Charleston: 45 daily *arrivals* - a 16% decrease from 2019 and a 31% decrease from 2018.

Strip: 62 daily *touch and go's* - a 2% increase from 2019 and a 9% increase from 2018.

Daytime vs. Nighttime: Approximately 96% of all helicopter tour operations occurred during the daytime hours.

LAS Fleet Mix for All Aircraft Types - (Exhibit 7)

Heavies: **Very large** air carrier turbine-driven aircraft (those weighing 300,000 lbs. or more) accounted for 5% of the daily traffic.

Large: **Large** air carrier turbine-driven aircraft (those weighing more than 75,000 lbs. and less than 300,000 lbs.) accounted for 65% of the daily traffic.

Medium: **Medium** turbine-driven aircraft (those weighing more than 41,000 lbs. and less than 75,000 lbs.) accounted for 4% of the daily traffic.

Small: **Small** turbine-driven aircraft (those weighing 41,000 lbs. or less) accounted for 10% of the daily traffic.

Military: *Military* turbine-driven aircraft accounted for 0% of the daily traffic.

Non-Jet: *Piston-driven* aircraft and unassigned aircraft types accounted for 3% of the daily traffic.

Helos: *Touring helicopters* accounted for 15% of the daily traffic.

Noisier Aircraft Types: The hush-kitted Boeing 727 aircraft and Boeing 737 (100 & 200 series) aircraft accounted for less than one operation per day.

LAS General Departure Direction for Large Aircraft - (Exhibit 8)

Primary: In 2020, 16% departed to the *west* (from LAS's primary departure runways). This figure was 70% in 2019 and 87% in 2018.

Secondary: In 2020, 2% departed to the *south* (from LAS's secondary departure runways). This figure was 4% in 2019 and 4% in 2018.

Alternate 1: In 2020, 79% departed to the *north* (from LAS's alternate departure runways). This figure was 25% in 2019 and 9% in 2018.

Alternate 2: In 2020, 4% departed to the *east* (from LAS's alternate departure runways). This figure was 1% in 2019 and <1% in 2018.

Gate Compliance for Large Aircraft and Helicopters - (Exhibit 9)

SVHS: In 2020, 98% of the large air carrier aircraft (excluding those destined to the Nevada National Security Site) that departed to the west from Runways 26L or 26R and made a left-hand turn were within 0.3 NM of *Sierra Vista High School* (SVHS). This figure was 98% in 2019 and 97% in 2018.

The SVHS "compliance gate" is located southwest of Warm Springs Rd. and Buffalo Dr., approximately 5 miles due west and 1.5 miles due south of the extended runway centerline of Runways 26L and 26R. This gate was established along an existing noise abatement flight track which requests pilots to proceed runway heading to 3 nautical miles from the Las Vegas very-high frequency omnidirectional range tactical air navigation (VORTAC) facility before turning left (or towards the south) - where large air carrier aircraft have historically been encouraged to operate. This noise abatement flight track avoids communities impacted by aircraft turning early along this corridor (like the Nevada Trails community) and aircraft turning late along this corridor (like the Rhodes Ranch community).

Peace: In 2020, 98% of the large air carrier aircraft (excluding those destined to the Nevada National Security Site) that departed to the west from Runways 26L or 26R and made a right-hand turn were within 0.3 NM of the intersection of *Peace Way & Summers Shade Street*. This figure was 99% in 2019, and 97% in 2018.

The Peace "compliance gate" is located northeast of Tropicana Ave. and I-215, approximately 6 miles due west and 2 miles due north of the extended runway centerline of Runways 26L and 26R. This gate was also established along an existing noise abatement flight track which requests pilots to proceed runway heading to 4 nautical miles from the Las Vegas VORTAC before turning right (or towards the north) - where large air carrier aircraft have historically been encouraged to operate. This noise abatement flight

track avoids communities impacted by aircraft turning early along this corridor (like the Spanish Trail community) and aircraft turning late along this corridor (like the Summerlin South community).

Pebble: In 2020 99% of the large air carrier aircraft (excluding those destined to the Nevada National Security Site) that departed to the south from Runways 19L or 19R were within 0.3 NM of the intersection of *Pebble Road & Arville Street*. This figure was 98% in 2019 and 96% in 2018.

The Pebble “compliance gate” is located southeast of Blue Diamond Rd. and Decatur Blvd., approximately 4 miles due south by southwest of the extended runway centerline of Runways 19L and 19R. This gate was also established along an existing noise abatement flight track which requests pilots to proceed runway heading to 3 nautical miles from the Las Vegas VORTAC before turning - where large air carrier aircraft have historically been encouraged to operate. This noise abatement flight track avoids communities impacted by aircraft turning early along this corridor (like the Warm Spring Estates community) and aircraft turning late along this corridor (like the Southern Highlands community).

UNLV: In 2020, 92% of the large air carrier aircraft that departed to the north from Runways 01L or 01R were within 0.3 NM of the *UNLV sports complex*. This figure was 92% in 2019 and 92% in 2018.

The UNLV “compliance gate” is located southeast of Flamingo Rd. and Paradise Rd., approximately 1 mile due north by northeast of the extended runway centerline of Runways 01L and 01R. This gate was also established along an existing noise abatement flight track which requests pilots to proceed runway heading to 2 nautical miles from the Las Vegas VORTAC before turning - where large air carrier aircraft have historically been encouraged to operate. This noise abatement flight track avoids communities impacted by aircraft turning early along this corridor, located due east and due west of UNLV.

Boulder: In 2020, 99% of the large air carrier aircraft that departed to the east from Runways 08L or 08R were within 0.3 NM of the extended runway centerline, near *Boulder Highway*. This figure was 99% in 2019 and 100% in 2018.

The Boulder Hwy. “compliance gate” is located southeast of Russell Rd. and I-93/95, approximately 7 miles due east of the extended runway centerline of Runways 08L and 08R. This gate was also established along an existing noise abatement flight track which requests pilots to proceed runway heading to 7 nautical miles from the Las Vegas VORTAC before turning - where large air carrier aircraft have historically been encouraged to operate. This noise abatement flight track avoids communities impacted by aircraft turning early along this corridor (like the Green Valley community, located in the City of Henderson, and older neighborhoods located north of Patrick Ln.).

Hualapai: In 2020, 89% of the large air carrier aircraft destined to the Nevada National Security Site that departed to the west were within 0.3 NM of the extended runway centerline, near *Hualapai Way*. This figure was 88% in 2019 and 74% in 2018.

The Hualapai Way “compliance gate” is located northeast of Sunset Rd. and Hualapai Way, approximately 7 miles due west of the extended runway centerline of Runways 26L and 26R. This gate was established in May 2011 along a new noise abatement flight track which requests pilots of aircraft destined to the Nevada National Security Site to proceed runway heading to 7 nautical miles from the Las Vegas VORTAC before turning. This

noise abatement flight track avoids communities impacted by aircraft turning early along this corridor (like the Spanish Trail community and the Summerlin South community).

Eastern: In 2020, 99% of the touring helicopters destined east of the Las Vegas Valley were within 500 feet of the intersection of *Tropicana Avenue & Eastern Avenue*. This figure was 99% in 2019 and 99% in 2018.

The Eastern Ave. “compliance gate” is located at Tropicana Ave. and Eastern Ave, approximately 2 miles due west of their initial departure route. This gate was also established along an existing noise abatement flight track which requests helicopter pilots to proceed along the centerline of Tropicana Ave. until 10 nautical miles from the Las Vegas VORTAC before turning. This noise abatement flight track avoids communities impacted by helicopters located north and south of the corridor.

Hollywood: In 2020, 100% of the touring helicopters returning from areas east of the Las Vegas Valley were within 500 feet of the intersection of *Charleston Boulevard & Hollywood Boulevard*. This figure was 99% in 2019 and 99% in 2018.

The Hollywood Blvd. “compliance gate” is located at Charleston Blvd. and Los Feliz St., where their initial arrival route begins over the urbanized area of the Las Vegas Valley. This gate was also established along an existing noise abatement flight track which requests helicopter pilots to proceed along the centerline of Charleston Blvd. This noise abatement flight track avoids communities impacted by helicopters located north and south of the corridor.

Stratosphere: In 2020, 99% of the north-bound helicopters providing tours of the Las Vegas Strip were within 500 feet of the intersection of Oakey Boulevard & Las Vegas Boulevard, *northeast of the Stratosphere Tower*. This figure was 99% in 2019 and 97% in 2018.

The Stratosphere Tower “compliance gate” is located northeast of Sahara Avenue and Las Vegas Blvd., where an important turn in their fly-quietly routing structure begins near a historic portion of the urbanized area of the Las Vegas Valley.

Land Use Application Reviews & Comments – (Exhibit 10)

Clark County: 118 applications were reviewed (a 32% decrease from 2019), with 17 applications (14%) issued at least one comment.

Henderson: 80 applications were reviewed (an 86% increase from 2019), with 9 applications (11%) issued at least one comment.

Las Vegas: 32 applications were reviewed (an 85% decrease from 2019), with 0 applications issued at least one comment.

North Las Vegas: 14 applications were reviewed (a 44% decrease from 2019), with 0 applications issued at least one comment.

Land Use Application Comments by Airport Concern – (Exhibit 11)

Clark County: 21 comments were issued, with 14 comments issued for “noise” concerns.

Henderson: 12 comments were issued, with 6 comments issued for “noise” concerns.

Las Vegas: 0 comments were issued.

North Las Vegas: 0 comments were issued.

Dwelling Units per “Noise,” Commented Application – (Exhibit 12)

Clark County: 2 dwelling unit was proposed in the commented applications, within the AEOD. 736 dwelling units were proposed in the commented applications, just outside the AEOD.

Henderson: 1,354 dwelling units were proposed in the commented applications, just outside the AEOD.

Las Vegas: 0 comments were issued.

North Las Vegas: 0 comments were issued.

Land Use Applications Denied and/or Opposed – (Exhibit 13)

0 applications were denied and/or opposed in person.

The information denoted in this monthly summary represents **typical** residential complaints, (with the exception of the number of complaints from one household), flight activity, (with the exception of increased departures to the north), fleet mix, and gate compliance. The northbound departure increase was a result of increased air traffic levels and/or airfield construction projects. The FAA will utilize the needed runway configuration necessary to avoid air traffic congestion and keep pace with the increased hourly aircraft arrival and departure rates.

February 2020: 65 total complaints - a 7% increase from 2019 and an 86% increase from 2018. On average, each caller (or household) issued 1.5 calls. The most calls received from one household totaled 16.

Calls by Community - (Exhibits 1 and 3)

Majority (more than 50%): (Not applicable.)

Minority (between 10% and 50%): The **Paradise and Winchester** communities issued 23 calls (35%). These communities are typically impacted by aircraft departing to the north (from Runway 01R and Runway 01L) and aircraft arriving from the north (into Runways 19R and 19L).

The **Spring Valley** community issued 19 calls (29%). (See January 2020 synopsis of typical aircraft overflight impacts on this community.)

The **Enterprise** community issued 9 calls (14%). This community is typically impacted by aircraft departing to the south (from Runway 19L and Runway 19R).

Repeat Caller Impact: One household issued 25% (16 calls) of all the calls received in February 2020.

Calls by Operation - (Exhibit 2)

- LAS:** 95% of the total calls received were due to **LAS** fixed-wing operations.
- 77% were due to departures to the north from Runways 01L and 01R (32% from one household).
- VGT:** 0% of the total calls received were due to **VGT** fixed-wing operations.
- HND:** 0% of the total calls received were due to **HND** fixed-wing operations.
- Helis:** 5% of the total calls received were due to **helicopter** operations.

LAS Operations & Runway Use by **Large Air Carriers** - (Exhibit 4)

- Overall:** 511 daily *departures* – a 6% increase from 2019 and 7% increase from 2018.
- 79% of departures were to the north, 16% west, 4% east, and 1% south.
- 506 daily *arrivals* – a 7% increase from 2019 and 7% increase from 2017.
- 62% of arrivals were from the east, 36% from the south, and 1% from the north.
- Daytime:** 423 daily *departures* – a 7% increase from 2019 and 7% increase from 2018.
- 78% of departures were to the north, 16% west, 4% east, and 2% south.
- 440 daily *arrivals* – a 6% increase from 2019 and 8% increase from 2018.
- 61% of arrivals were from the east, 37% from the south, and 1% from the north.
- Nighttime:** 88 daily *departures* – a 4% increase from 2019 and 8% increase from 2018.
- 81% of departures were to the north, 18% west, and 1% south.
- 66 daily *arrivals* – a 12% increase from 2019 and 3% increase from 2018.
- 69% of arrivals were from the east, 29% south, and 2% north.

Daytime vs. Nighttime: Approximately 83% of all *departures* and 87% of all *arrivals* occurred during the daytime hours.

LAS Operations & Runway Use by **Non-Large Air Carriers** - (Exhibit 5)

- Overall:** 114 daily *departures* – a 3% increase from 2019 and 5% decrease from 2018.
- 82% of departures were to the north, 13% south, 3% east, and 2% west.
- 109 daily *arrivals* – no change from 2019 and 3% decrease from 2018.
- 56% of arrivals were from the south, 30% east, and 13% north.
- Daytime:** 105 daily *departures* – a 3% increase from 2019 and 4% decrease from 2018.
- 82% of departures were to the north, 13% south, 3% east, and 2% west.
- 103 daily *arrivals* – no change from 2019 and 2% decrease from 2018.
- 56% of arrivals were from the south, 31% east, and 13% north.
- Nighttime:** 9 daily *departures* – a 3% decrease from 2019 and 18% decrease from 2018.
- 82% of departures were to the north, 14% south, 2% east, and 2% west.
- 6 daily *arrivals* – a 4% decrease from 2019 and 20% decrease from 2018.
- 61% of arrivals were from the south, 19% east, 17% north, and 2% west.

Daytime vs. Nighttime: Approximately 92% of all *departures* and 94% of all *arrivals* occurred during the daytime hours.

Operations by Corridor for **Helicopter Tours** - (Exhibit 6)

Tropicana: 41 daily *departures* – a 12% decrease from 2019 and a 29% decrease from 2018.

Charleston: 40 daily *arrivals* - a 10% decrease from 2019 and a 29% decrease from 2018.

Strip: 53 daily *touch and go's* - an 8% decrease from 2019 and a 23% decrease from 2018.

Daytime vs. Nighttime: Approximately 96% of all helicopter tour operations occurred during the daytime hours.

LAS Fleet Mix for All Aircraft Types - (Exhibit 7)

Heavies: **Very large** air carrier turbine-driven aircraft (those weighing 300,000 lbs. or more) accounted for 5% of the daily traffic.

Large: **Large** air carrier turbine-driven aircraft (those weighing more than 75,000 lbs. and less than 300,000 lbs.) accounted for 67% of the daily traffic.

Medium: **Medium** turbine-driven aircraft (those weighing more than 41,000 lbs. and less than 75,000 lbs.) accounted for 4% of the daily traffic.

Small: **Small** turbine-driven aircraft (those weighing 41,000 lbs. or less) accounted for 9% of the daily traffic.

Military: **Military** turbine-driven aircraft accounted for less than 0% of the daily traffic.

Non-Jet: **Piston-driven** aircraft and unassigned aircraft types accounted for 3% of the daily traffic.

Helos: **Touring helicopters** accounted for 13% of the daily traffic.

Noisier Aircraft Types: The hush-kitted Boeing 727 aircraft and Boeing 737 (100 & 200 series) aircraft accounted for less than one operation per day.

LAS General Departure Direction for Large Aircraft - (Exhibit 8)

Primary: In 2020, 16% departed to the **west** (from LAS's primary departure runways). This figure was 68% in 2019 and 69% in 2018.

Secondary: In 2020, 2% departed to the **south** (from LAS's secondary departure runways). This figure was 7% in 2019 and 5% in 2018.

Alternate 1: In 2020, 79% departed to the **north** (from LAS's alternate departure runways). This figure was 24% in 2019 and 26% in 2018.

Alternate 2: In 2020, 4% departed to the **east** (from LAS's alternate departure runways). This figure was 0% in 2019 and <1% in 2018.

Gate Compliance for Large Aircraft and Helicopters - (Exhibit 9)

- SVHS:** In 2020, 98% of the large air carrier aircraft (excluding those destined to the Nevada National Security Site) that departed to the west from Runways 26L or 26R and made a left-hand turn were within 0.3 NM of *Sierra Vista High School* (SVHS). This figure was 99% in 2019 and 97% in 2018. (See January 2020 synopsis for specific location of the SVHS gate.)
- Peace:** In 2020, 98% of the large air carrier aircraft (excluding those destined to the Nevada National Security Site) that departed to the west from Runways 26L or 26R and made a right-hand turn were within 0.3 NM of the intersection of *Peace Way & Summers Shade Street*. This figure was 97% in 2019 and 96% in 2018. (See January 2020 synopsis for specific location of the Peace gate.)
- Pebble:** In 2020, 98% of the large air carrier aircraft (excluding those destined to the Nevada National Security Site) that departed to the south from Runways 19L or 19R were within 0.3 NM of the intersection of *Pebble Road & Arville Street*. This figure was 97% in 2019 and 96% in 2018. (See January 2020 synopsis for specific location of the Pebble gate.)
- UNLV:** In 2020, 91% of the large air carrier aircraft that departed to the north from Runways 01L or 01R were within 0.3 NM of the *UNLV sports complex*. This figure was 91% in 2019 and 92% in 2018. (See January 2020 synopsis for specific location of the UNLV gate.)
- Boulder:** In 2020, 99% of the large air carrier aircraft (excluding those destined to the Nevada National Security Site) that departed to the east from Runway 08L or 08R were within 0.3 NM of the extended runway centerline, near *Boulder Highway*. Due to a low number of aircraft operations departing toward the east, this figure was not available in 2019 and 98% in 2018. (See January 2020 synopsis for specific location of the Boulder Hwy. gate.)
- Hualapai:** In 2020, 84% of the large air carrier aircraft destined to the Nevada National Security Site that departed to the west were within 0.3 NM of the extended runway centerline, near *Hualapai Way*. This figure was 93% in 2019 and 72% in 2018. (See January 2020 synopsis for specific location of the Hualapai gate.)
- Eastern:** In 2020, 99% of the touring helicopters destined east of the Las Vegas Valley were within 500 feet of the intersection of *Tropicana Avenue & Eastern Avenue*. This figure was 98% in 2019 and 99% in 2018. (See January 2020 synopsis for specific location of the Eastern gate.)
- Hollywood:** In 2020, 99% of the touring helicopters returning from areas east of the Las Vegas Valley were within 500 feet of the intersection of *Charleston Boulevard & Hollywood Boulevard*. This figure was 99% in 2019 and 98% in 2018. (See January 2020 synopsis for specific location of the Hollywood gate.)
- Stratosphere:** In 2020, 100% of the north-bound helicopters providing tours of the Las Vegas Strip were within 500 feet of the intersection of Oakey Boulevard & Las Vegas Boulevard, *northeast of the Stratosphere Tower*. This figure was 99% in 2019 and 98% in 2018. (See January 2020 synopsis for specific location of the Stratosphere gate.)

Land Use Application Reviews & Comments – (Exhibit 10)

Clark County: 152 applications were reviewed (a 12% decrease from 2019), with 19 applications (13%) issued at least one comment.

Henderson: 18 applications were reviewed (a 55% decrease from 2019), with 1 application (6%) issued at least one comment.

Las Vegas: 43 applications were reviewed (a 43% increase from 2019), with 1 application (2%) issued at least one comment.

North Las Vegas: 8 applications were reviewed (a 74% decrease from 2019), with 1 application (13%) issued at least one comment.

Land Use Application Comments by Airport Concern – (Exhibit 11)

Clark County: 21 comments were issued, with 9 comments issued for “noise” concerns.

Henderson: 1 comments were issued, with 0 comments issued for “noise” concerns.

Las Vegas: 1 comments were issued, with 0 comments issued for “noise” concerns.

North Las Vegas: 1 comments were issued, with 1 comments issued for “noise” concerns.

Dwelling Units per “Noise,” Commented Application – (Exhibit 12)

Clark County: 2,150 dwelling units were proposed in the commented applications, just outside the AEOD.

Henderson: 0 dwelling units were proposed in the commented applications, just outside the AEOD.

Las Vegas: 0 dwelling units were proposed in the commented applications, just outside the AEOD.

North Las Vegas: 239 dwelling units were proposed in the commented applications, just outside the AEOD.

Land Use Applications Denied and/or Opposed – (Exhibit 13)

0 applications were denied and/or opposed in person.

The information denoted in this monthly summary represents **typical** residential complaints, (with the exception of the number of complaints from one household), flight activity, (with the exception of increased departures to the north), fleet mix, and gate compliance. The northbound departure increase was a result of increased air traffic levels and/or airfield construction projects. The FAA will utilize the needed runway configuration necessary to avoid air traffic congestion and keep pace with the increased hourly aircraft arrival and departure rates.

March 2020: 45 total complaints - a 58% decrease from 2019 and a 34% decrease from 2018. On average, each caller (or household) issued 2.0 calls. The most calls received from one household totaled 13.

Calls by Community - (Exhibits 1 and 3)

Majority (more than 50%): The **Enterprise** community issued 27 calls (60%). (See February 2020 synopsis of typical aircraft overflight impacts on this community.)

Minority (between 10% and 50%): The **Spring Valley** community issued 9 calls (20%). (See January 2020 synopsis of typical aircraft overflight impacts on this community.)

Repeat Caller Impact: One household issued 29% (13 calls) of all the calls received in March 2020.

Calls by Operation - (Exhibit 2)

LAS: 96% of the total calls received were due to **LAS** fixed-wing operations.

- 56% were due to departures to the south from Runways 19L and 19R (52% from one household).

VGT: 2% of the total calls received were due to **VGT** fixed-wing operations.

HND: 0% of the total calls received were due to **HND** fixed-wing operations.

Helis: 2% of the total calls received were due to **helicopter** operations.

LAS Operations & Runway Use by **Large Air Carriers** - (Exhibits 4)

Overall: 381 daily *departures* – a 26% decrease from 2019 and 24% decrease from 2018.

- 76% of departures were to the west, 12% north, 7% south, and 4% east.

376 daily *arrivals* – a 26% decrease from 2019 and 26% decrease from 2018.

- 87% of arrivals were from the east, 6% north, 5% south, and 2% west.

Daytime: 300 daily *departures* – a 27% decrease from 2019 and 25% decrease from 2018.

- 74% of departures were to the west, 13% north, 8% south, and 5% east.

313 daily *arrivals* – a 27% decrease from 2019 and 27% decrease from 2018.

- 86% of arrivals were from the east, 6% north, 5% south, and 3% west.

Nighttime: 81 daily *departures* – a 21% decrease from 2019 and 19% decrease from 2018.

- 85% of departures were to the west, 10% north, and 5% south.

63 daily *arrivals* – a 20% decrease from 2019 and 21% decrease from 2018.

- 91% of arrivals were from the east, 5% north, and 4% south.

Daytime vs. Nighttime: Approximately 79% of all *departures* and 83% of all *arrivals* occurred during the daytime hours.

LAS Operations & Runway Use by **Non-Large Air Carriers** - (Exhibit 5)

Overall: 67 daily *departures* – a 40% decrease from 2019 and 44% decrease from 2018.

- 69% of departures were to the south, 14% west, 13% north, and 4% east.

64 daily *arrivals* – a 42% decrease from 2019 and 42% decrease from 2018.

- 60% of arrivals were from the north, 28% east, 9% south, and 3% west.

Daytime: 62 daily *departures* – a 40% decrease from 2019 and 43% decrease from 2018.
▪ 68% of departures were to the south, 13% north, 13% west, and 5% east.
60 daily *arrivals* – a 41% decrease from 2019 and 41% decrease from 2018.
▪ 59% of arrivals were from the north, 29% east, 9% south, and 3% west.

Nighttime: 5 daily *departures* – a 48% decrease from 2019 and 57% decrease from 2018.
▪ 72% of departures were to the south, 15% west, 12% north, and 1% east.
4 daily *arrivals* – a 50% decrease from 2019 and 53% decrease from 2018.
▪ 66% of arrivals were from the north, 22% east, 12% south, and 1% west.

Daytime vs. Nighttime: Approximately 92% of all *departures* and 94% of all *arrivals* occurred during the daytime hours.

Operations by Corridor for **Helicopter Tours** - (Exhibit 6)

Tropicana: 21 daily *departures* – a 67% decrease from 2019 and 69% decrease from 2018.

Charleston: 21 daily *arrivals* - a 66% decrease from 2019 and a 68% decrease from 2018.

Strip: 22 daily *touch and go's* - a 72% decrease from 2019 and a 68% decrease from 2018.

Daytime vs. Nighttime: Approximately 96% of all helicopter tour operations occurred during the daytime hours.

LAS Fleet Mix for All Aircraft Types - (Exhibit 7)

Heavies: **Very large** air carrier turbine-driven aircraft (those weighing 300,000 lbs. or more) accounted for 6% of the daily traffic.

Large: **Large** air carrier turbine-driven aircraft (those weighing more than 75,000 lbs. and less than 300,000 lbs.) accounted for 72% of the daily traffic.

Medium: **Medium** turbine-driven aircraft (those weighing more than 41,000 lbs. and less than 75,000 lbs.) accounted for 3% of the daily traffic.

Small: **Small** turbine-driven aircraft (those weighing 41,000 lbs. or less) accounted for 8% of the daily traffic.

Military: **Military** turbine-driven aircraft accounted for less than 0% of the daily traffic.

Non-Jet: **Piston-driven** aircraft and unassigned aircraft types accounted for 3% of the daily traffic.

Helos: **Touring helicopters** accounted for 9% of the daily traffic.

Noisier Aircraft Types: The hush-kitted Boeing 727 aircraft and Boeing 737 (100 & 200 series) aircraft accounted for less than one operation per day.

LAS General Departure Direction for Large Aircraft - (Exhibit 8)

Primary: In 2020, 76% departed to the **west** (from LAS's primary departure runways). This figure was 61% in 2019 and 66% in 2018.

Secondary: In 2020, 8% departed to the **south** (from LAS's secondary departure runways). This figure was 4% in 2019 and 3% in 2018.

Alternate 1: In 2020, 12% departed to the **north** (from LAS's alternate departure runways). This figure was 29% in 2019 and 29% in 2018.

Alternate 2: In 2020, 4% departed to the **east** (from LAS's alternate departure runways). This figure was 6% in 2019 and 2% in 2018.

Gate Compliance for Large Aircraft and Helicopters - (Exhibit 9)

SVHS: In 2020, 98% of the large air carrier aircraft (excluding those destined to the Nevada National Security Site) that departed to the west from Runways 26L or 26R and made a left-hand turn were within 0.3 NM of **Sierra Vista High School (SVHS)**. This figure was 98% in 2019 and 98% in 2018. (See January 2020 synopsis for specific location of the SVHS gate.)

Peace: In 2020, 99% of the large air carrier aircraft (excluding those destined to the Nevada National Security Site) that departed to the west from Runways 26L or 26R and made a right-hand turn were within 0.3 NM of the intersection of **Peace Way & Summers Shade Street**. This figure was 97% in 2019 and 95% in 2018. (See January 2020 synopsis for specific location of the Peace gate.)

Pebble: In 2020, 99% of the large air carrier aircraft (excluding those destined to the Nevada National Security Site) that departed to the south from Runways 19L or 19R were within 0.3 NM of the intersection of **Pebble Road & Arville Street**. This figure was 96% in 2019 and 97% in 2018. (See January 2020 synopsis for specific location of the Pebble gate.)

UNLV: In 2020, 87% of the large air carrier aircraft that departed to the north from Runways 01L or 01R were within 0.3 NM of the **UNLV sports complex**. This figure was 92% in 2019 and 93% in 2018. (See January 2020 synopsis for specific location of the UNLV gate.)

Boulder: In 2020, 98% of the large air carrier aircraft that departed to the east from Runways 08L or 08R were within 0.3 NM of the extended runway centerline, near **Boulder Highway**. This figure was 99% in 2019 and 94% in 2018. (See January 2020 synopsis for specific location of the Boulder Hwy. gate.)

Hualapai: In 2020, 78% of the large air carrier aircraft destined to the Nevada National Security Site that departed to the west were within 0.3 NM of the extended runway centerline, near **Hualapai Way**. This figure was 90% in 2019 and 72% in 2018. (See January 2020 synopsis for specific location of the Hualapai gate.)

Eastern: In 2020, 99% of the touring helicopters destined east of the Las Vegas Valley were within 500 feet of the intersection of **Tropicana Avenue & Eastern Avenue**. This figure was 99% in 2019 and 98% in 2018. (See January 2020 synopsis for specific location of the Eastern gate.)

Hollywood: In 2020, 99% of the touring helicopters returning from areas east of the Las Vegas Valley were within 500 feet of the intersection of *Charleston Boulevard & Hollywood Boulevard*. This figure was 99% in 2019 and 98% in 2018. (See January 2020 synopsis for specific location of the Hollywood gate.)

Stratosphere: In 2020, 99% of the north-bound helicopters providing tours of the Las Vegas Strip were within 500 feet of the intersection of Oakey Boulevard & Las Vegas Boulevard, *northeast of the Stratosphere Tower*. This figure was 99% in 2019 and 99% in 2018. (See January 2020 synopsis for specific location of the Stratosphere gate.)

Land Use Application Reviews & Comments – (Exhibit 10)

Clark County: 87 applications were reviewed (a 38% decrease from 2019), with 1 application (1%) issued at least one comment.

Henderson: 73 applications were reviewed (a 14% increase from 2019), with 10 applications (14%) issued at least one comment.

Las Vegas: 67 applications were reviewed (a 47% decrease from 2019), with 1 application (1%) issued at least one comment.

North Las Vegas: 12 applications were reviewed (a 71% decrease from 2019), with 2 applications (17%) issued at least one comment.

Land Use Application Comments by Airport Concern – (Exhibit 11)

Clark County: 2 comments were issued, with 1 comments issued for “noise” concerns.

Henderson: 18 comments were issued, with 8 comments issued for “noise” concerns.

Las Vegas: 1 comments were issued, with 0 comments issued for “noise” concerns.

North Las Vegas: 2 comments were issued, both comments issued for “noise” concerns.

Dwelling Units per “Noise,” Commented Application – (Exhibit 12)

Clark County: 242 dwelling units were proposed in the commented applications, just outside the AEOD.

Henderson: 1,023 dwelling units were proposed in the commented applications, just outside the AEOD.

Las Vegas: 0 dwelling units were proposed in the commented applications, just outside the AEOD.

North Las Vegas: 104 dwelling units were proposed in the commented applications, just outside the AEOD.

Land Use Applications Denied and/or Opposed – (Exhibit 13)

0 applications were denied and/or opposed in person.

The information denoted in this monthly summary represents **typical** residential complaints, (with the exception of the number of complaints from one household), flight activity, (with the exception of total decreased flights), fleet mix, and gate compliance. The overall traffic levels decreased following a statewide shutdown associated with the COVID-19 Pandemic.

Other Notable Issues

State Of Emergency Declared By Governor Sisolak: On March 12, 2020, Gov. Steve Sisolak declared a state of emergency over concerns of the coronavirus outbreak. As a result, the 2020 NFL draft previously scheduled from April 23rd to 25th in Las Vegas was cancelled, along with a torrent of cancelled conventions, shows and special events. The Governor additionally ordered the closure of all nonessential businesses, to include the suspension of all Casino operations throughout the state. The closures and cancellations played a direct role in the steep reduction in traffic levels and passenger movements through LAS including helicopters.

Safety and Security Threats: Any threats to DOA staff or an aircraft in flight are taken seriously, and such threats will be forwarded to the appropriate law enforcement agencies.

GCS:jj

Attachments

Airport Noise Report

May 19, 2020

Page 17 of 38

Distribution:

Commissioner Kirkpatrick, Chair	Sean Roebuck
Commissioner Weekly, Vice-Chair	Bruce Daugherty
Commissioner Naft	Chris Jones
Commissioner Brown	Christine Crews
Commissioner Segerblom	Tina Frias
Commissioner Jones	Jeff Jacquart
Commissioner Gibson	Charlie Hall
Yolanda King	Roben Armstrong
Rosemary Vassiliadis	Scott Kichline
James Chrisley	Anthony Perkins
Joseph Piurkowski	Susan Gersh
Ralph Lepore	Stephanie Garcia-Vause (COH)
Jennifer Lopez	Andrew Powell (COH)
Sandra Cikity	William Ruggiero (FAA TRACON)
Judy Villalta	James Borget (FAA ATCT/TRACON)
Ben Czyzewski	Thomas Miller (Nellis AFB)
Karina Tarnowska	James Erbeck (CLV)
Donna Bergstrom	Paul Alukonis (FAA FSDO)
Curtis Hedgepeth	Sydney Lowe (University Libraries)
Blanca Vazquez	Lisa Butterfield (Reno-Tahoe Airport)
Jon Holman (FAA ATC)	Andrea Christensen (Denver Airport)
Charlie Halterman (HND Tower)	Jennifer Lewis (Scottsdale Airport)
Richard Falcon (FAA FSDO)	Frank Iacovino (Mass Port Authority)
Bristol Ellington (COH)	Robert Butler (Papillon Helicopters)
Elizabeth Fretwell (CLV)	Christine Gerencher (American Airlines)
Mayor Carolyn Goodman (CLV)	Bert Ganoung (SFO)
Mayor Pro Tem Lois Tarkanian (CLV)	San Diego Airport Noise Management
Councilman S. Anthony (CLV)	Jeannie Denham (Citizen)
Councilman Bob Coffin (CLV)	Judge Bob Johnston (Citizen)
Councilman Steven S. Seroka (CLV)	Roy Fuhrmann (Metro Airports Commission)
Councilwoman Michele Fiore (CLV)	Tom Schaus (Sundance Helicopters)
Councilman Cedric Crear (CLV)	Brooke Satern (Port of Portland)
Brok Armantrout (CBC)	Gary Brodt (Citizen)
David Parks (Nevada State Assembly)	James P. Callahan (Nellis AFB)
J. Gordon Arkin (Foley & Lardner)	Stan Shepherd (SEATAC)
John Williams (Ricondo)	Eric Sheng (Long Beach Airport)
Douglas Pomeroy (FAA ADO)	Jason Schwartz (Portland Airport)
La Nea M. Conner (Boeing)	Todd Lobato (Nellis AFB)
Mike Jeck (Metro Wash. Air Auth.)	Steven Peacock (Dallas City Hall)
Karen Everitt (Dallas City Hall)	William Olivieri (Citizen)
Samuel Carter (Harris)	

Exhibit 1: Noise Complaint Calls by Community* - January 2020

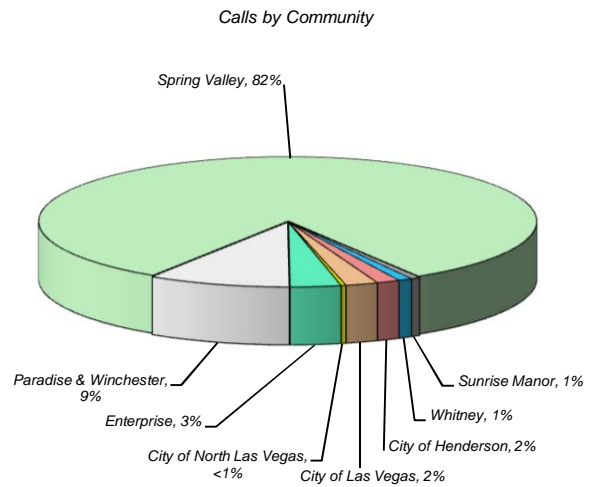
Community	No. of Calls in 2020	No. of Callers in 2020	No. of Calls in 2019	No. of Calls in 2018
City of Boulder City	5	2	4	14
City of Henderson	7	4		4
City of Las Vegas	1	1		
City of North Las Vegas	11	7		6
Enterprise				
Lone Mountain				
Paradise & Winchester	31	28	6	11
Spring Valley	277	10	62	12
Summerlin South			2	
Sunrise Manor	2	2		
Whitney	3	1		
Location unknown				
Overall Total	337	55	74	47

Difference between 2020 and 2019 Total Calls: 355%

Difference between 2020 and 2018 Total Calls: 617%

Average Number of Calls per Caller: 6.1

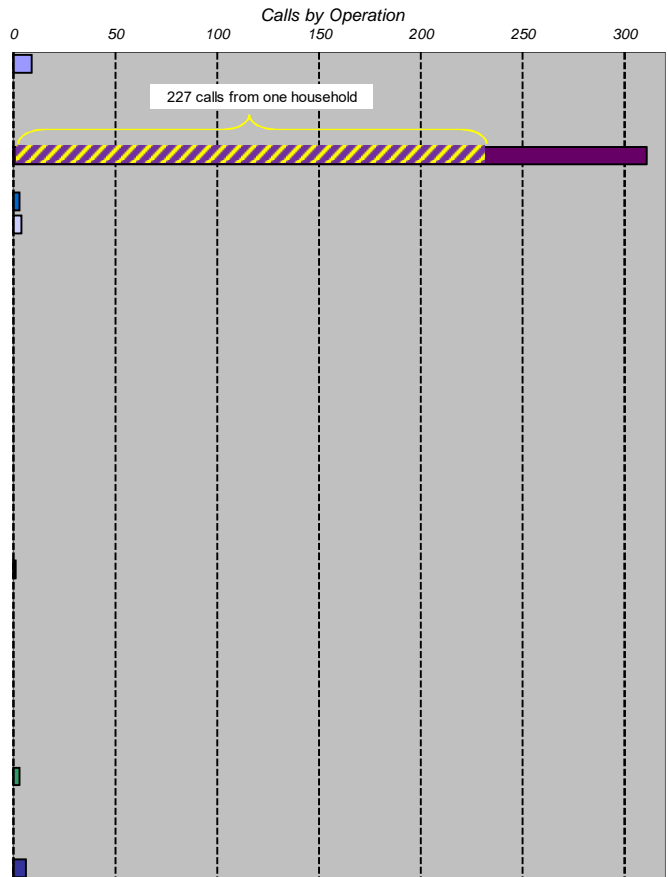
Most calls received from one household: 229



* See map on reverse side for community boundaries and location of known noise complaints.

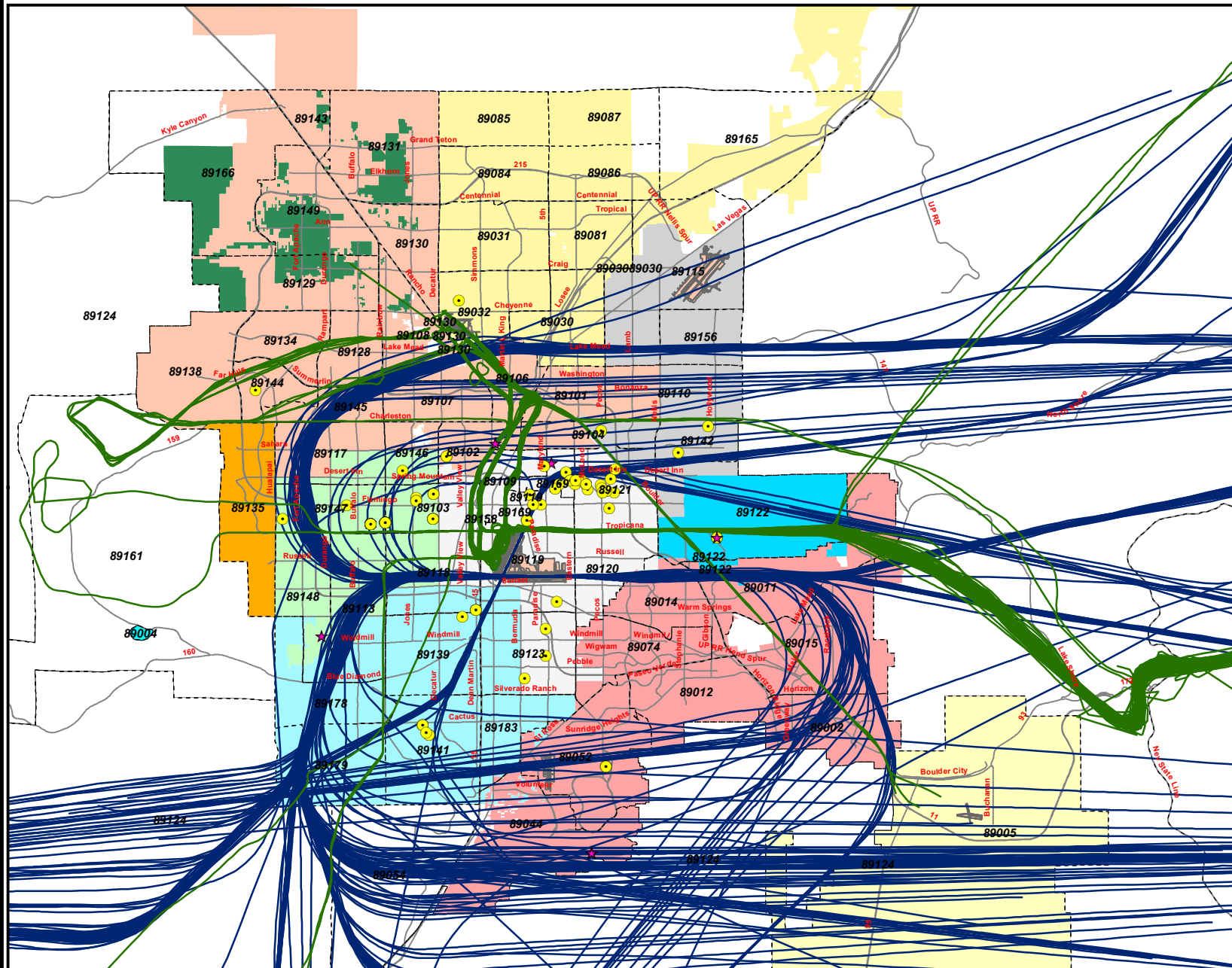
Exhibit 2: Noise Complaint Calls by Type of Operation - January 2020

Operation	No. of Calls in 2020	Percent of Overall Total	No. of Calls in 2019	No. of Calls in 2018
LAS 01R/L Arrivals	9	2.7%	1	
LAS 08R/L Arrivals			1	
LAS 19R/L Arrivals				2
LAS 26R/L Arrivals				
LAS 01R/L Departures	311	92.3%	19	11
LAS 08R/L Departures	3	1.5%	1	
LAS 19R/L Departures	4	1.2%	47	13
LAS 26R/L Departures				1
LAS Run-ups				
LAS GA				
LAS Other			2	
LAS Total	327	97.0%	71	27
VGT 07 Arrivals				
VGT 12R/L Arrivals				
VGT 25 Arrivals				
VGT 30R/L Arrivals				
VGT 07 Departures				
VGT 12R/L Departures				
VGT 25 Departures				
VGT 30R/L Departures				
VGT Run-ups				
VGT GA	1	0.3%		
VGT Other				
VGT Total	1	0.3%	0	0
HND 17R/L Arrivals				
HND 35R/L Arrivals				
HND 17R/L Departures				
HND 35R/L Departures				
HND Run-ups				
HND GA	3	0.9%	1	11
HND Other				
HND Total	3	0.9%	1	11
Helicopters**	6	1.8%	2	9
Overall Total	337	100%	74	47



** Note that helicopter noise complaints are not tied to a specific facility since the operation cannot always be associated to a specific airport. Additionally, helicopter calls do not include those associated with operations conducted by the Metropolitan Police Department or those associated with operations conducted at non-DOA facilities.

Exhibit 3: Aircraft Noise Complaints by Community - Jan 2020



Legend

Jan 2020
Total Complaints: 337

- Aircraft Complaints Received 331 Mapped 331
- ★ Helicopter Complaints Received 6 Mapped 6
- Major Streets
- Airports
- - - Zip Code Boundaries
- Typical Large Air Carrier Departure Tracks
- Typical Touring Helicopter Tracks
- Unincorporated Clark County
- Boulder City
- Whitney
- Henderson
- Las Vegas
- North Las Vegas
- Paradise/Winchester
- Summerlin
- Spring Valley
- Sunrise Manor
- Winchester
- Enterprise
- Lone Mountain

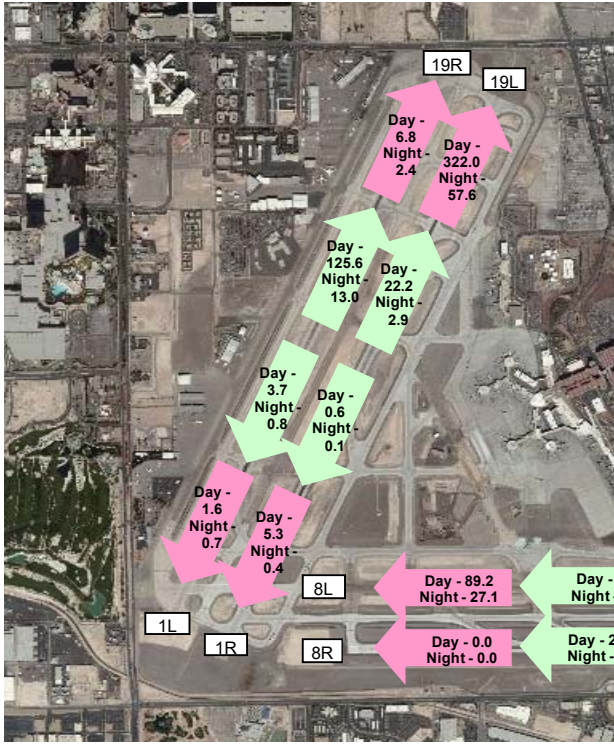
Department of Aviation
Geographic Information Systems

May 7, 2020

Note: This information is for display purposes only. No liability is assumed with the accuracy of the data displayed hereon.

H:\GIS\Standard Projects\Noise\2020\0101_NOISE20.mxd

Exhibit 4: LAS Daily Average Operations Runway for Large Air Carrier Aircraft* - January 2020



Year	2020		2019		2018	
Daytime Departures	432	83%	409	83%	400	83%
Nighttime Departures	88	17%	83	17%	82	17%
Total Departures	520	100%	492	100%	482	100%

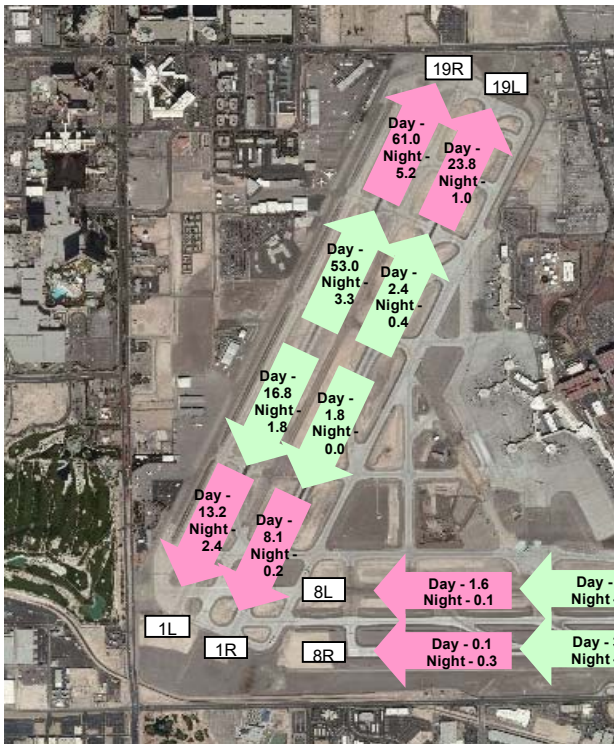
Daytime Arrivals	450	88%	433	90%	417	87%
Nighttime Arrivals	62	12%	51	10%	64	13%
Total Arrivals	512	100%	483	100%	481	100%

Growth	Overall	Daytime	Nighttime
Depts. 2020 vs 2019	6%	5%	7%
Depts. 2020 vs 2018	8%	8%	8%

Arrivals 2020 vs 2019	6%	4%	24%
Arrivals 2020 vs 2018	7%	8%	-3%

* Aircraft types: All aircraft with a maximum gross take of weight of at least 75,000 pounds, including but not limited to, A306, A310, A311, A318, A319, A320, A330, A340, B707, B717, B727, B737, B747, B757, B767, B777, CRJ7, CRJ9, DC8, DC9, DC10, E170, E190, HA4T, L1011, MD80, MD90, MD10, MD11, VC10.

Exhibit 5: LAS Daily Average Operations by Runway for Non-Large Air Carrier Aircraft** - January 2020



Year	2020		2019		2018	
Daytime Departures	110	92%	104	92%	108	92%
Nighttime Departures	9	8%	10	8%	10	8%
Total Departures	119	100%	114	100%	118	100%

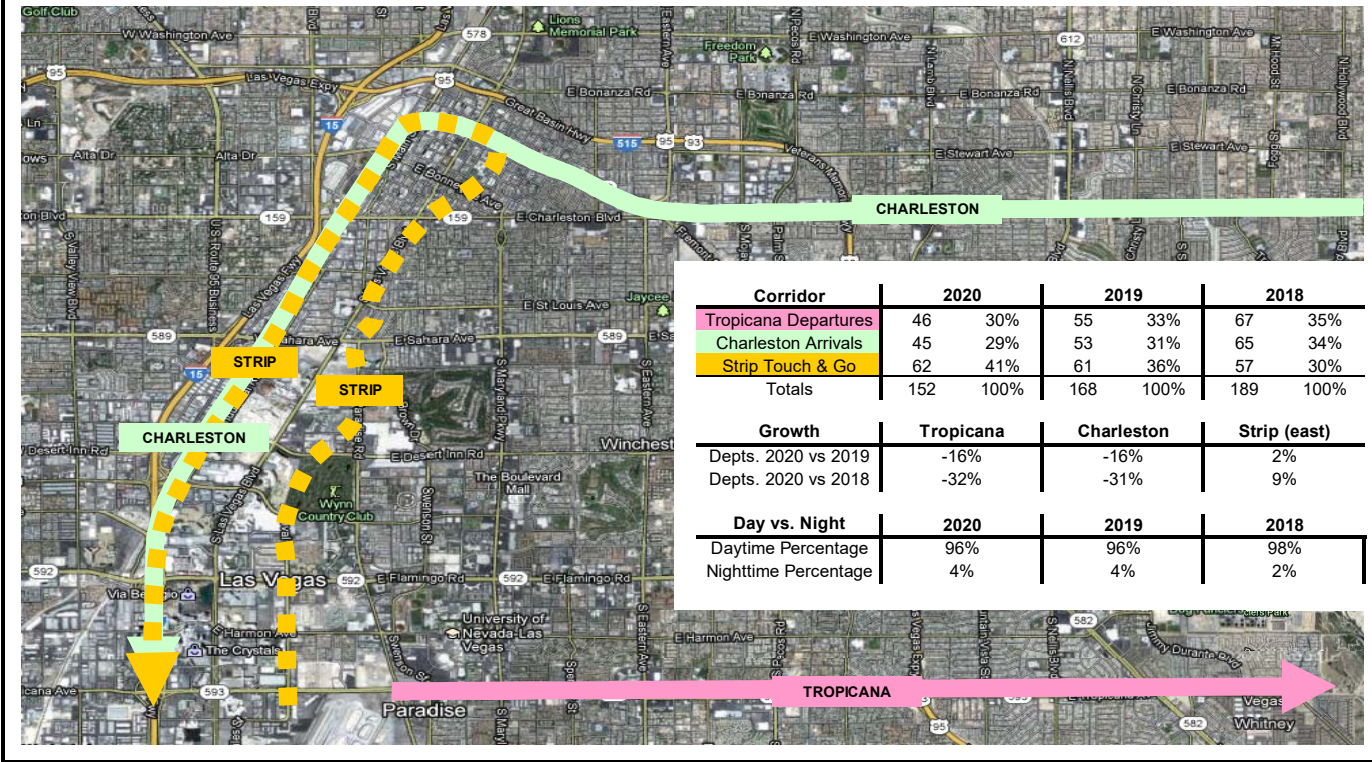
Daytime Arrivals	110	94%	105	94%	103	94%
Nighttime Arrivals	7	6%	7	6%	6	6%
Total Arrivals	116	100%	111	100%	109	100%

Growth	Overall	Daytime	Nighttime
Depts. 2020 vs 2019	4%	5%	-3%
Depts. 2020 vs 2018	1%	1%	-8%

Arrivals 2020 vs 2019	5%	5%	0%
Arrivals 2020 vs 2018	7%	7%	8%

** Aircraft types: All aircraft with a maximum gross take of weight less than 75,000 pounds, excluding helicopters.

Exhibit 6: LAS Daily Average Operations by Corridor for Helicopter Tours* - January 2020

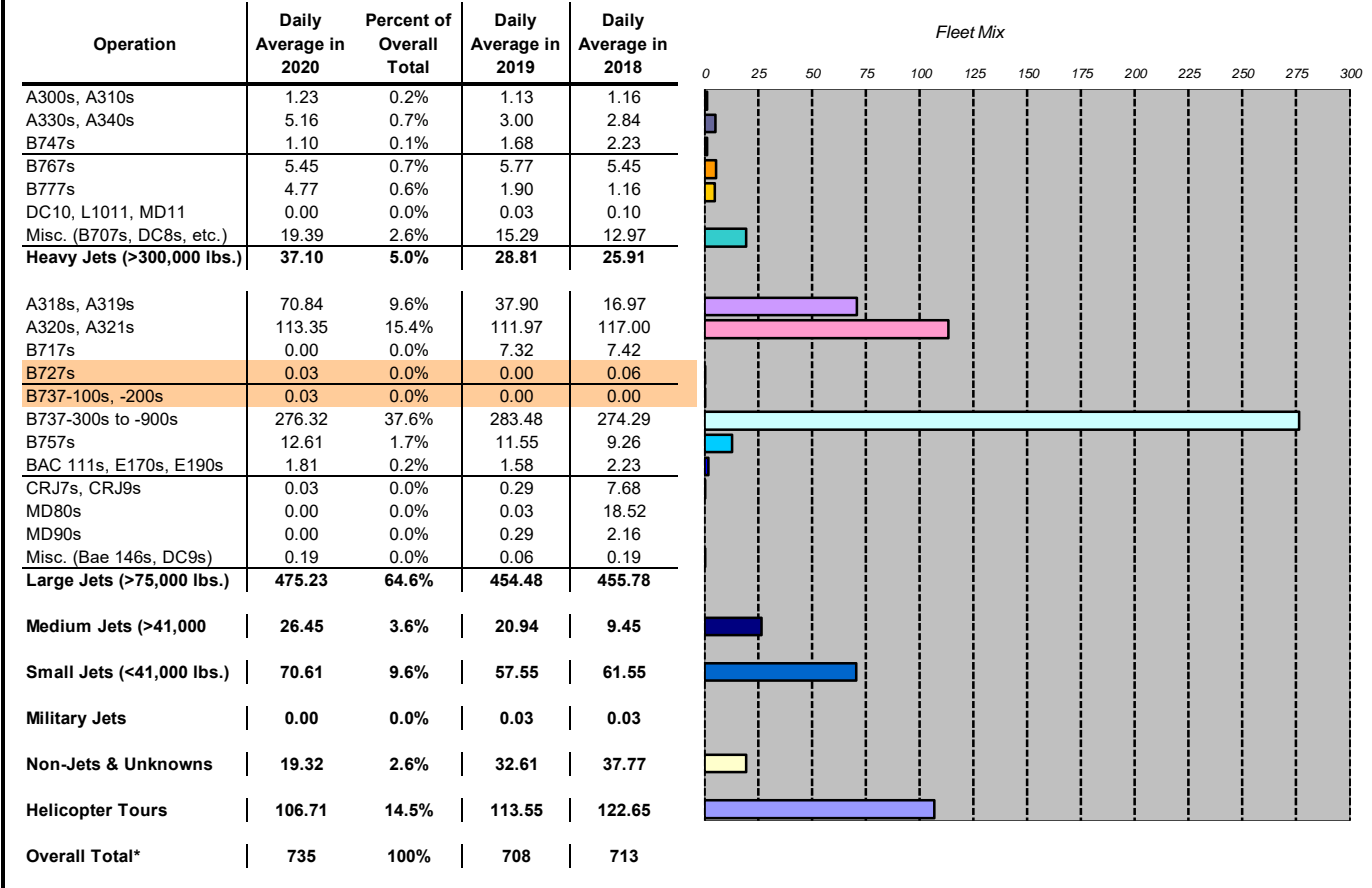


Corridor	2020	2019	2018
Tropicana Departures	46 30%	55 33%	67 35%
Charleston Arrivals	45 29%	53 31%	65 34%
Strip Touch & Go	62 41%	61 36%	57 30%
Totals	152 100%	168 100%	189 100%

Growth	Tropicana	Charleston	Strip (east)
Depts. 2020 vs 2019	-16%	-16%	2%
Depts. 2020 vs 2018	-32%	-31%	9%

Day vs. Night	2020	2019	2018
Daytime Percentage	96%	96%	98%
Nighttime Percentage	4%	4%	2%

Exhibit 7: LAS Aircraft Arrival Fleet Mix** - January 2020



** Overall Total: Note that operation type and runway use counts are estimated by Harris Corp. EnvironmentalVue Noise and Monitoring Operations system based on radar data. Due to limitations of radar data, information for aircraft weighing less than 75,000 lbs is inexact.

Exhibit 8: LAS General Departure Direction for Large Air Carrier Aircraft* - January 2020 to 2018

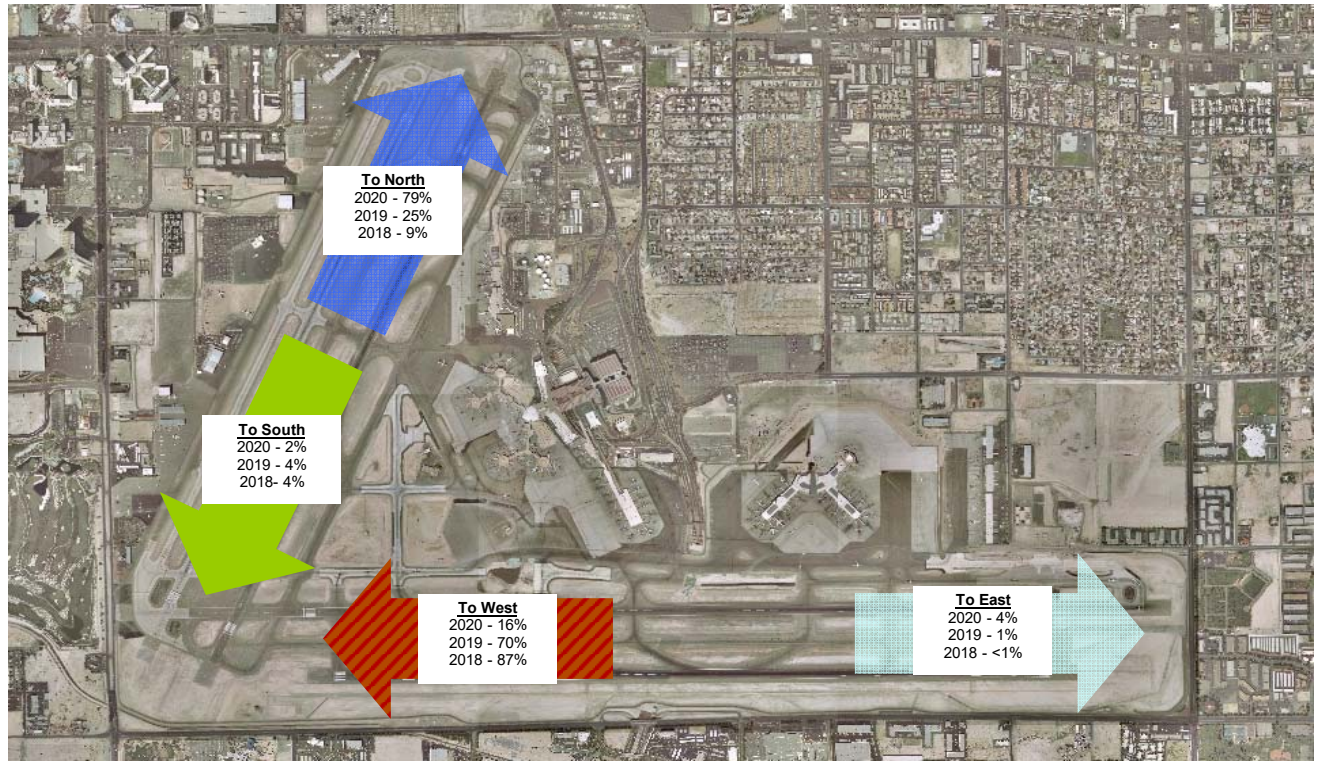
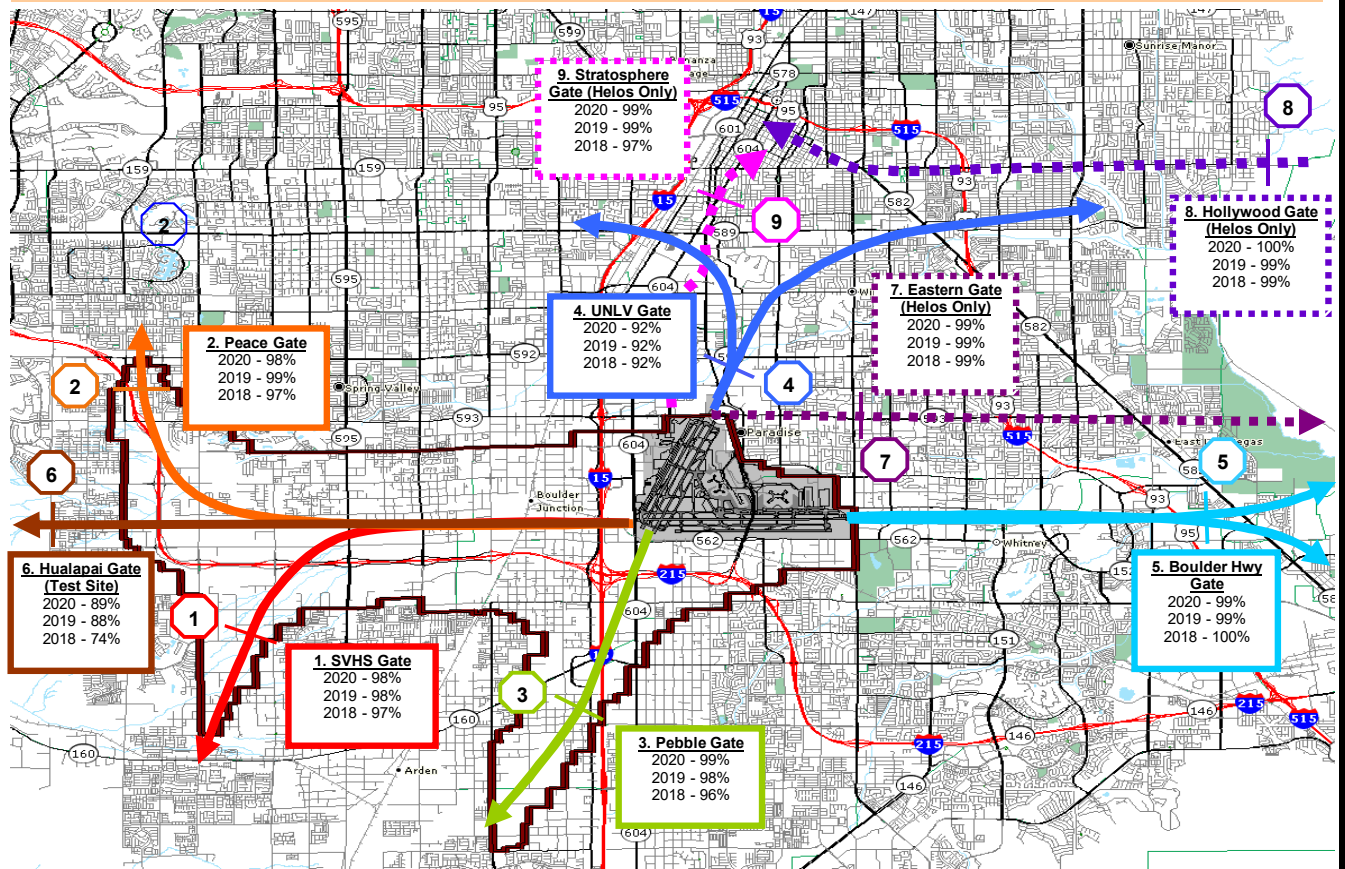


Exhibit 9: "Gate" Compliance for Large Aircraft* & LAS Helicopter Tours - January 2020



* Aircraft types: All aircraft with a maximum gross take of weight of at least 75,000 pounds, including but not limited to, A306, A310, A311, A318, A319, A320, A330, A370, B707, B717, B727, B737, B747, B757, B767, B777, CRJ7, CRJ9, DC8, DC9, DC10, E170, E190, HA4T, L1011, MD80, MD90, MD10, MD11, VC10.

Exhibit 10: Land Use Application Reviews & Comments - January 2020

Land Use Application Review Summary	Clark County	City of Henderson	City of Las Vegas	City of North Las Vegas	2020 Total	2019 Total	2018 Total
No. of Land Use Applications Reviewed	118	80	32	14	244	455	N/A
No. of Applications where CCDOA Issued a Comment	17	9	0	0	26	22	N/A
Percent of Applications where Comment Issued	14%	11%	0%	0%	11%	5%	N/A

Exhibit 11: Land Use Application Comments by Airport Concern - January 2020

Summary by Comment Type	Clark County	City of Henderson	City of Las Vegas	City of North Las Vegas	2020 Total	2019 Total	2018 Total
Deed Restrictions	0	0	0	0	0	2	N/A
Height-Penetrates Part 77 100:1 Surfaces >200'	4	6	0	0	10	11	N/A
Height-Penetrates Part 77 PATH-C Surfaces*	3	0	0	0	3	0	N/A
Helipad/Helipad	0	0	0	0	0	0	N/A
Noisy-Commercial within AEOD**	4	0	0	0	4	3	N/A
Noisy-Residential within the AEOD**	2	1	0	0	3	2	N/A
Noisy-Residential Just Outside the AEOD**	8	5	0	0	13	9	N/A
Total***	21	12	0	0	33	27	N/A

* Primary, Approach, Transition, Horizontal, Conical as defined by Federal Aviation Regulation (FAR) Part 77.

**AEOD-Airport Environs Overlay District (defined below).

***Comment Concern totals will not always match Comment Applications total. Some applications are issued more than one type of CCDOA comment.

Exhibit 12: Dwelling Units per Commented Application* - January 2020

Dwelling Units Proposed in Commented Applications	Clark County	City of Henderson	City of Las Vegas	City of North Las Vegas	2020 Total	2019 Total	2018 Total
Within the AEOD	2	0**	0	0	2	1	N/A
Just Outside the AEOD	736	1,354	0	0	2,090	1,020	N/A

*Due to high variability in many land use proposals, dwelling units proposed may not reflect actual number of units built. In addition, some projects will require more than one type of application, resulting in the project total counted more than once.

**1 Henderson land use application had a residential component within the AEOD, however this application did not specify the number of residential units.

Exhibit 13: Land Use Applications Denied and/or Opposed - January 2020

Summary of LUA Opposed	Clark County	City of Henderson	City of Las Vegas	City of North Las Vegas	2020 Total	2019 Total	2018 Total
Recommend Denial	0	0	0	0	0	1	N/A
Opposed at Hearings	0	0	0	0	0	0	N/A

Exhibit 14: Airport Environs Overlay Districts & Noisy Comments - Valley Wide - January 2020

AEOD - Airport Environs Overlay Districts - Noise Contours
Clark County Code (CCC) 30.48.010. The AEOD is established to:

1. Provide for a range of uses compatible with airport hazard and noise exposure areas.
2. Prohibit the development of incompatible uses that are detrimental to the general health, safety, and welfare.
3. Require noise attenuated construction, as indicated by Table 30.48-AE, in accordance with the noise attenuation construction standards of Chapter 22.22 of the CCC, within these airport environs. The regulations of the AEOD shall supersede the regulations of the underlying district if there is a conflict.
4. Comply with the Federal Aviation Administration regulations.

2008-Most recent update to the AEOD in CCC, updated the AEOD for McCarran (LAS), and added an AEOD to the North Las Vegas Airport (VGT) and the Henderson Executive Airport (HND).

2011-AEOD adopted by the cities of North Las Vegas and Henderson.

The AEOD has not been formally adopted by the City of Las Vegas. Only a small, already developed portion of the VGT AEOD lies within the incorporated City of Las Vegas boundaries.

Salmon color indicates a 1 mile zone outside the AEOD.

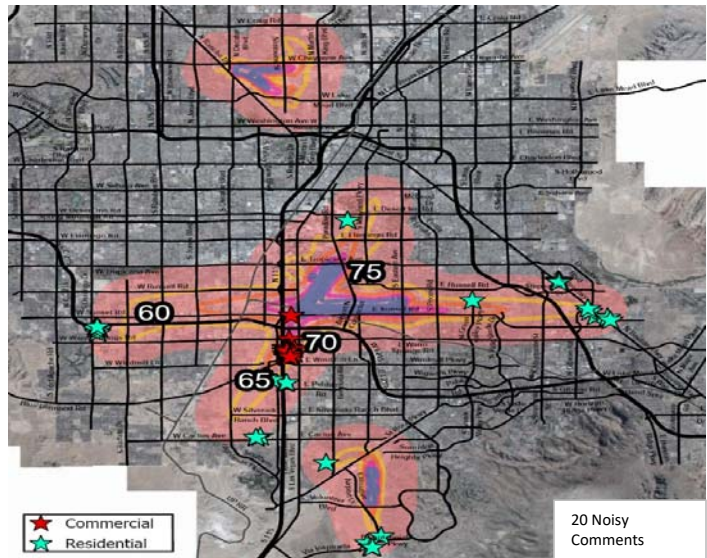


Exhibit 15: Noisy Comments - LAS Detail - January 2020

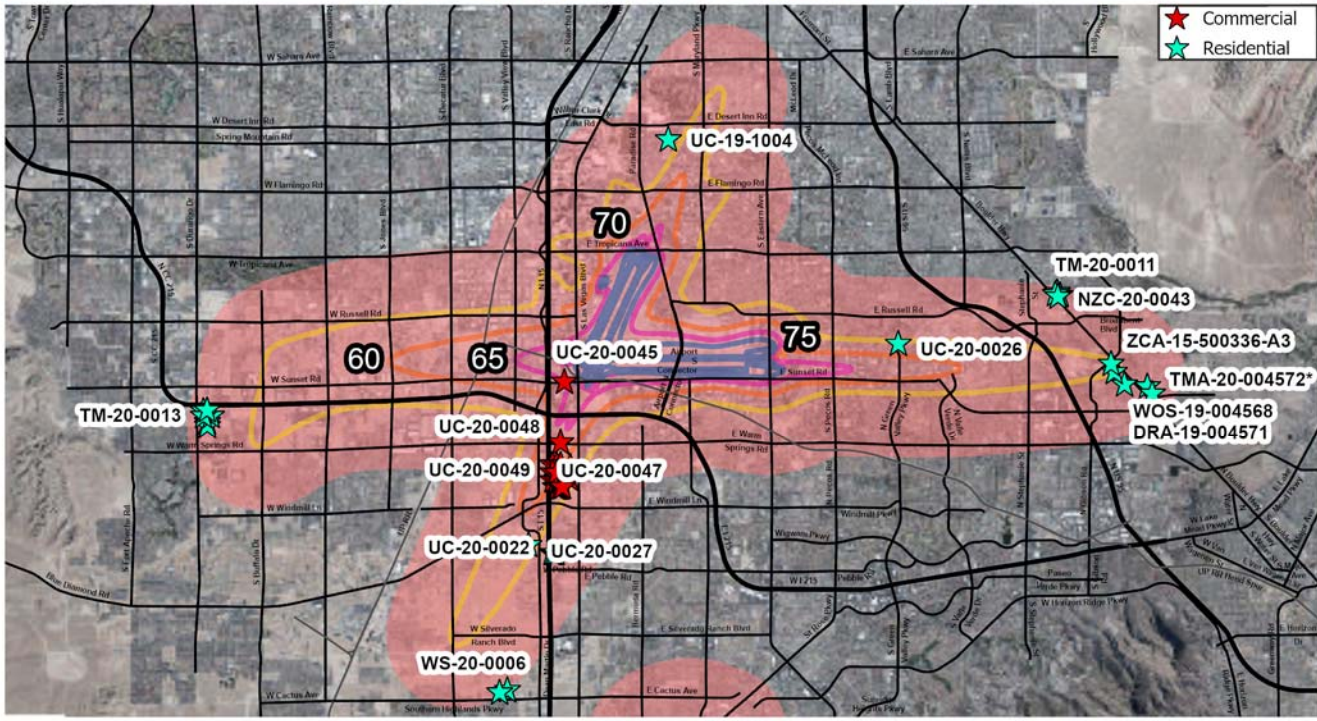


Exhibit 16: Noisy Comments - HND Detail - January 2020

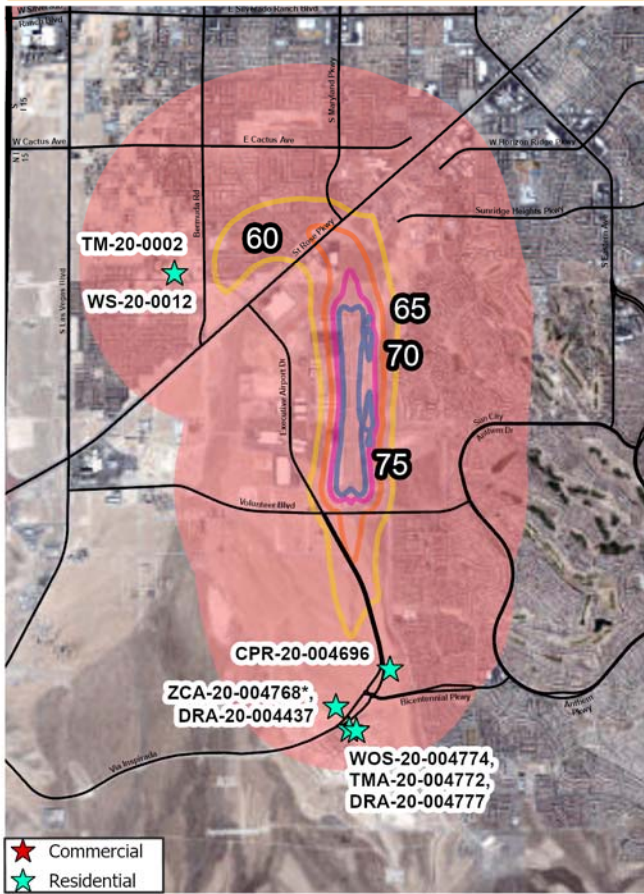


Exhibit 17: Noisy Comments - VGT Detail - January 2020

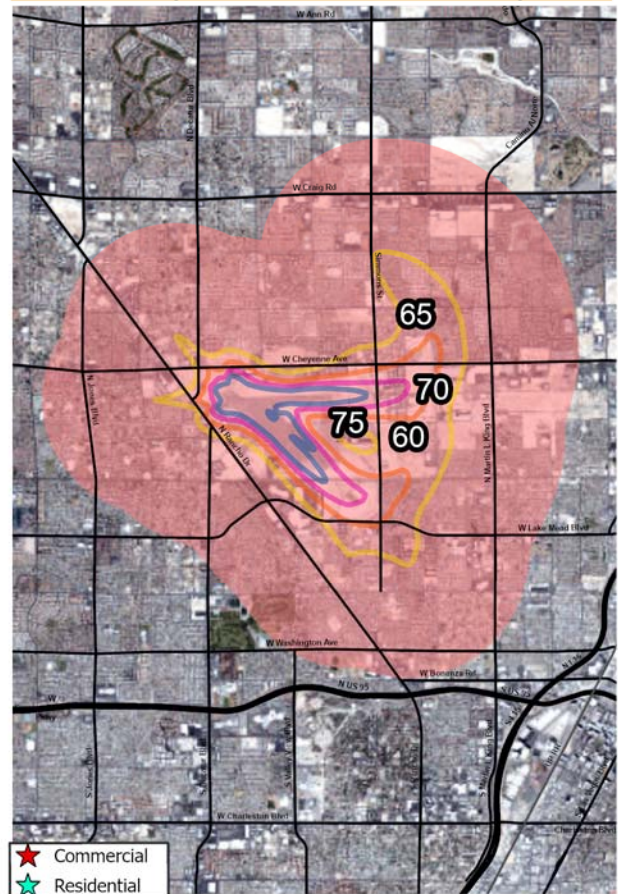


Exhibit 1: Noise Complaint Calls by Community* - February 2020

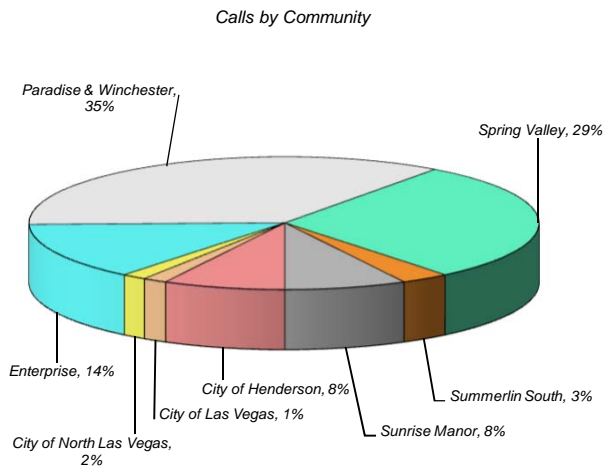
Community	No. of Calls in 2019	No. of Callers in 2019	No. of Calls in 2018	No. of Calls in 2017
City of Boulder City	5	5	3	4
City of Henderson	1	1		2
City of Las Vegas	1	1	2	
City of North Las Vegas	9	9	10	5
Enterprise	23	16	16	
Lone Mountain	19	4	46	7
Paradise & Winchester	2	1		1
Spring Valley	5	5		
Whitney				
Location unknown				
Overall Total	65	42	61	35

Difference between 2020 and 2019 Total Calls: 7%

Difference between 2020 and 2018 Total Calls: 86%

Average Number of Calls per Caller: 1.5

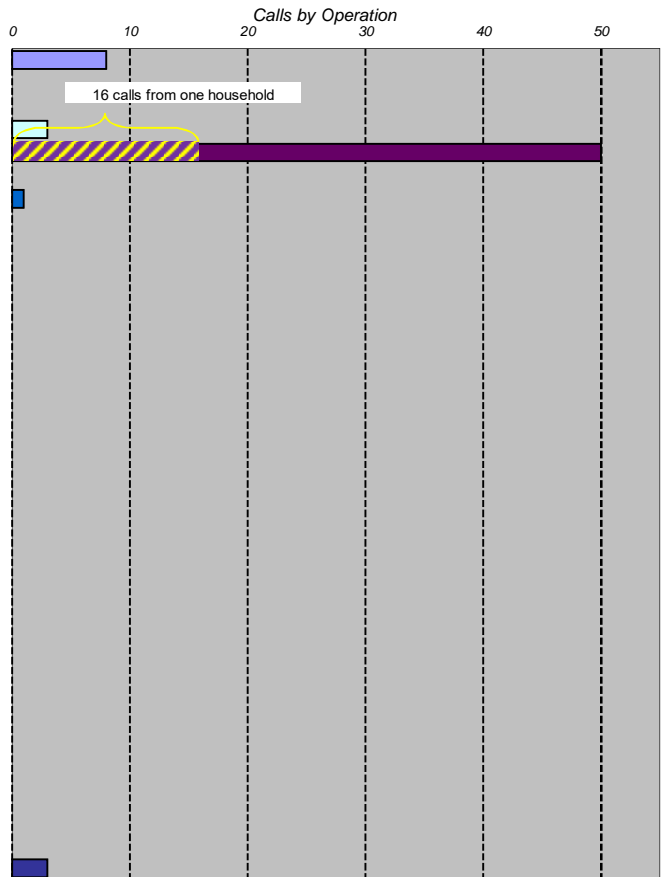
Most calls received from one household: 16



* See map on reverse side for community boundaries and location of known noise complaints.

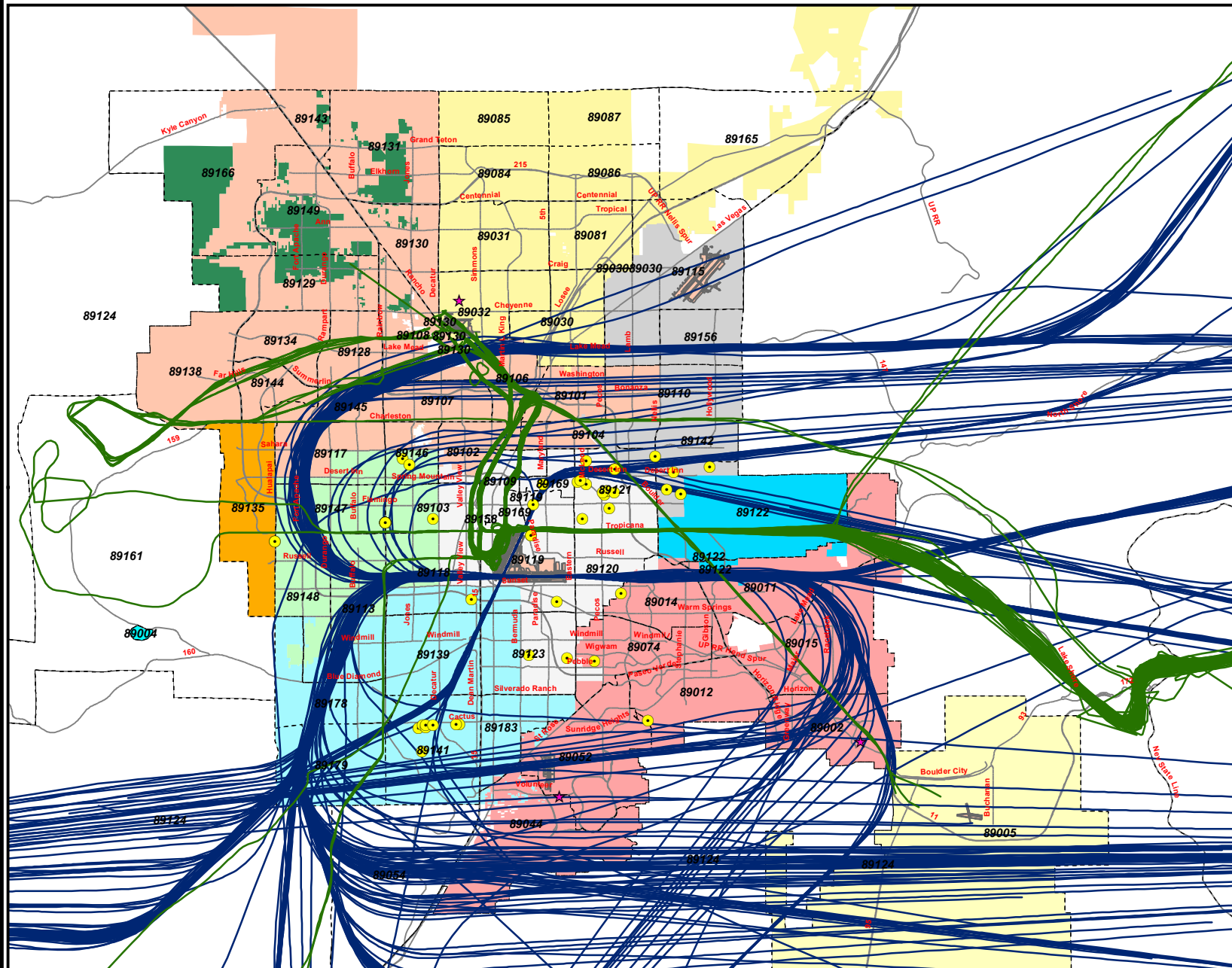
Exhibit 2: Noise Complaint Calls by Type of Operation - February 2020

Operation	No. of Calls in 2020	Percent of Overall Total	No. of Calls in 2019	No. of Calls in 2018
LAS 01R/L Arrivals	8	12.3%		2
LAS 08R/L Arrivals			1	
LAS 19R/L Arrivals			5	2
LAS 26R/L Arrivals	3	4.6%		
LAS 01R/L Departures	50	76.9%	15	23
LAS 08R/L Departures			5	2
LAS 19R/L Departures	1	1.5%		
LAS 26R/L Departures			31	2
LAS Run-ups				
LAS GA			2	
LAS Other				
LAS Total	62	95.4%	57	31
VGT 07 Arrivals				
VGT 12R/L Arrivals				
VGT 25 Arrivals				
VGT 30R/L Arrivals				
VGT 07 Departures				
VGT 12R/L Departures				
VGT 25 Departures				
VGT 30R/L Departures				
VGT Run-ups				
VGT GA			2	
VGT Other				
VGT Total	0	0.0%	2	0
HND 17R/L Arrivals				
HND 35R/L Arrivals				
HND 17R/L Departures				
HND 35R/L Departures				
HND Run-ups				
HND GA			1	3
HND Other				
HND Total	0	0.0%	1	3
Helicopters**	3	4.6%	1	1
Overall Total	65	100%	61	35



** Note that helicopter noise complaints are not tied to a specific facility since the operation cannot always be associated to a specific airport. Additionally, helicopter calls do not include those associated with operations conducted by the Metropolitan Police Department or those associated with operations conducted at non-DOA facilities.

Exhibit 3: Aircraft Noise Complaints by Community - Feb 2020



Legend

Feb 2020
Total Complaints: 65

- Aircraft Complaints Received 62 Mapped 62
- ★ Helicopter Complaints Received 3 Mapped 3
- Major Streets
- Airports
- - - Zip Code Boundaries
- Typical Large Air Carrier Departure Tracks
- Typical Touring Helicopter Tracks
- Unincorporated Clark County
- Boulder City
- Whitney
- Henderson
- Las Vegas
- North Las Vegas
- Paradise/Winchester
- Summerlin
- Spring Valley
- Sunrise Manor
- Winchester
- Enterprise
- Lone Mountain

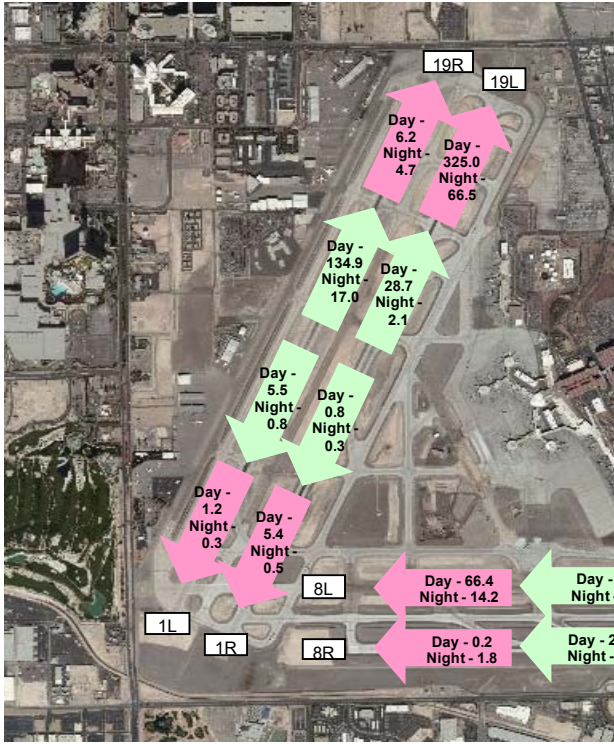
Department of Aviation
Geographic Information Systems

May 7, 2020

Note: This information is for display purposes only. No liability is assumed with the accuracy of the data displayed hereon.

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Exhibit 4: LAS Daily Average Operations by Runway for Large Air Carrier Aircraft* - February 2020



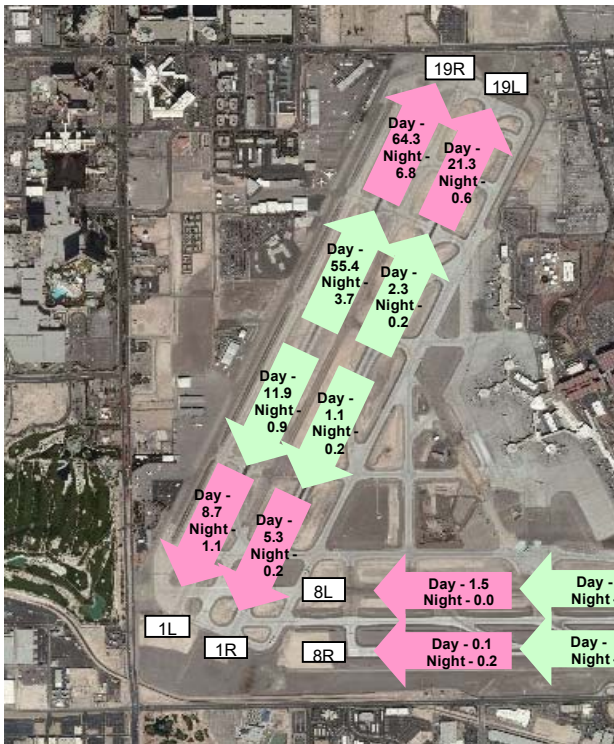
Year	2020		2019		2018	
Daytime Departures	423	83%	397	82%	394	83%
Nighttime Departures	88	17%	85	18%	82	17%
Total Departures	511	100%	482	100%	476	100%

Daytime Arrivals	440	87%	415	88%	409	86%
Nighttime Arrivals	66	13%	59	12%	64	14%
Total Arrivals	506	100%	474	100%	473	100%

Growth	Overall	Daytime	Nighttime
Depts. 2020 vs 2019	6%	7%	4%
Depts. 2020 vs 2018	7%	7%	8%
Arrivals 2020 vs 2019	7%	6%	12%
Arrivals 2020 vs 2018	7%	8%	3%

* Aircraft types: All aircraft with a maximum gross take off weight of at least 75,000 pounds, including but not limited to, A306, A310, A311, A318, A319, A320, A330, A340, B707, B717, B727, B737, B747, B757, B767, B777, CRJ7, CRJ9, DC8, DC9, DC10, E170, E190, HA4T, L1011, MD80, MD90, MD10, MD11, VC10.

Exhibit 5: LAS Daily Average Operations by Runway for Non-Large Air Carrier Aircraft** - February 2020



Year	2020		2019		2018	
Daytime Departures	105	92%	102	92%	109	91%
Nighttime Departures	9	8%	9	8%	11	9%
Total Departures	114	100%	111	100%	120	100%

Daytime Arrivals	103	94%	103	94%	105	93%
Nighttime Arrivals	6	6%	7	6%	8	7%
Total Arrivals	109	100%	110	100%	113	100%

Growth	Overall	Daytime	Nighttime
Depts. 2020 vs 2019	3%	3%	-3%
Depts. 2020 vs 2018	-5%	-4%	-18%
Arrivals 2020 vs 2019	0%	0%	-4%
Arrivals 2020 vs 2018	-3%	-2%	-20%

** Aircraft types: All aircraft with a maximum gross take off weight less than 75,000 pounds, excluding helicopters.

Exhibit 6: LAS Daily Average Operations by Corridor for Helicopter Tours* - February 2020

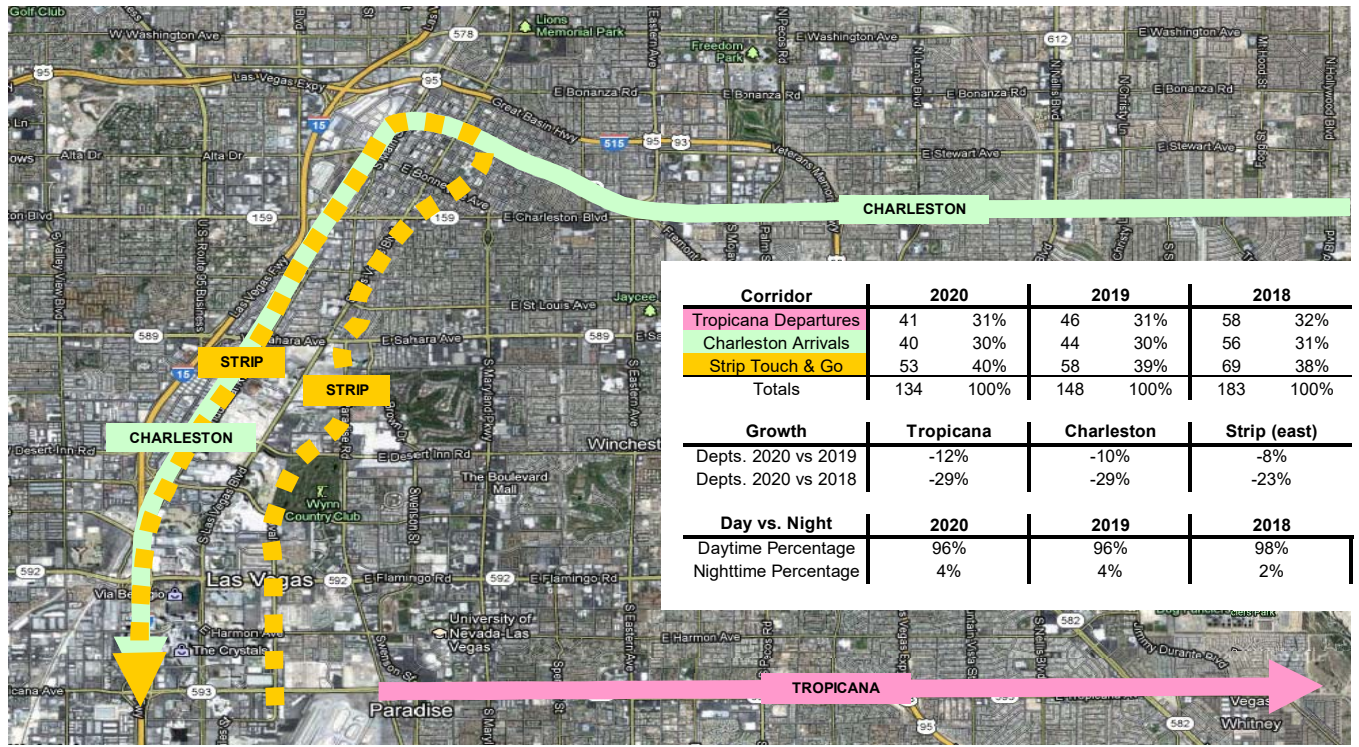
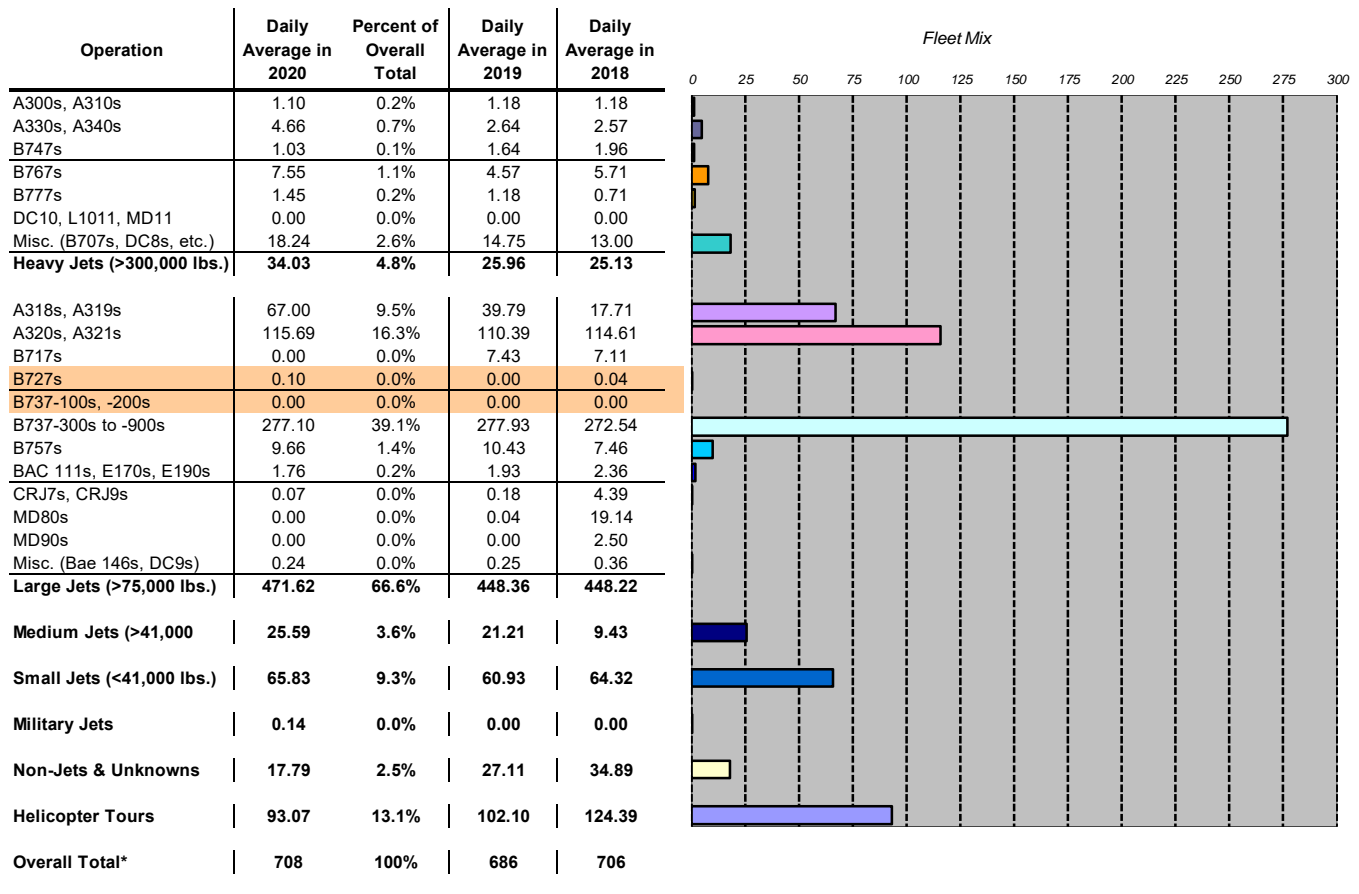


Exhibit 7: LAS Aircraft Arrival Fleet Mix** - February 2020



** Overall Total: Note that operation type and runway use counts are estimated by Harris Corp. EnvironmentalVue Noise and Monitoring Operations system based on radar data. Due to limitations of radar data, information for aircraft weighing less than 75,000 lbs is inexact.

Exhibit 8: LAS General Departure Direction for Large Air Carrier Aircraft* - February 2020 to 2018

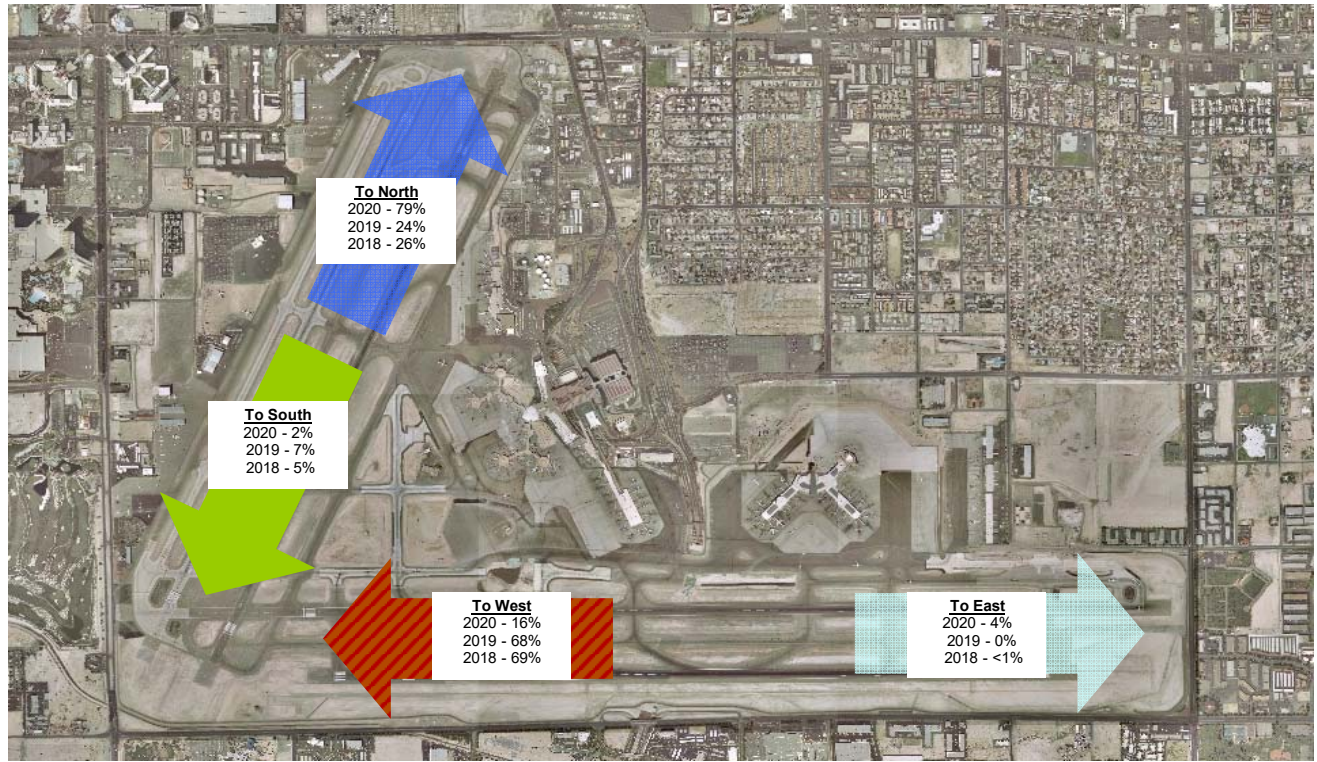
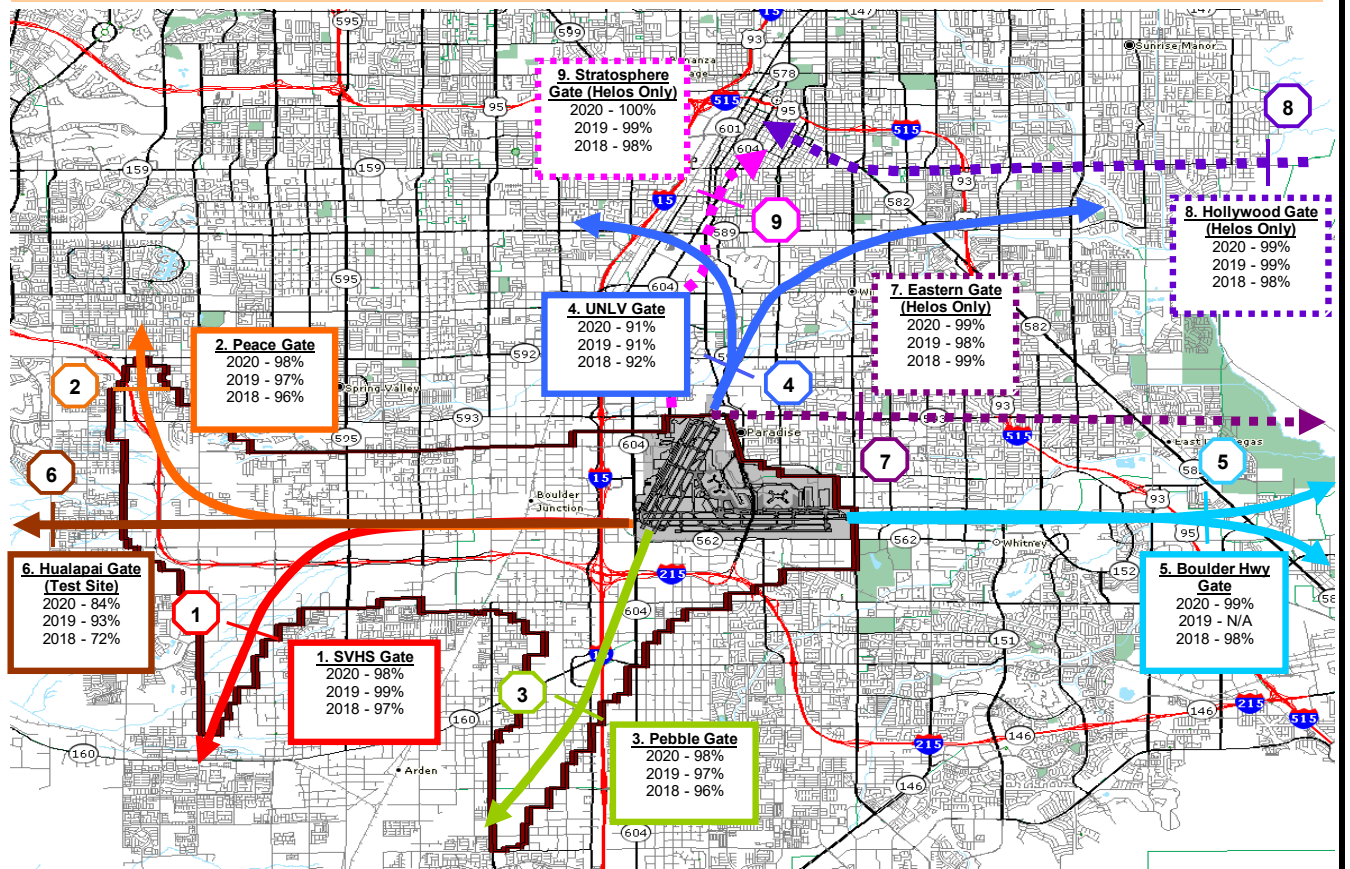


Exhibit 9: "Gate" Compliance for Large Aircraft* & LAS Helicopter Tours - February 2020



* Aircraft types: All aircraft with a maximum gross take of weight of at least 75,000 pounds, including but not limited to, A306, A310, A311, A318, A319, A320, A330, A350, B707, B717, B727, B737, B747, B757, B767, B777, CRJ7, CRJ9, DC8, DC9, DC10, E170, E190, HA4T, L1011, MD80, MD90, MD10, MD11, VC10.

Exhibit 10: Land Use Application Reviews & Comments - February 2020

Land Use Application Review Summary	Clark County	City of Henderson	City of Las Vegas	City of North Las Vegas	2020 Total	2019 Total	2018 Total
No. of Land Use Applications Reviewed	152	18	43	8	221	273	N/A
No. of Applications where CCDOA Issued a Comment	19	1	1	1	22	23	N/A
Percent of Applications where Comment Issued	13%	6%	2%	13%	10%	8%	N/A

Exhibit 11: Land Use Application Comments by Airport Concern - February 2020

Summary by Comment Type	Clark County	City of Henderson	City of Las Vegas	City of North Las Vegas	2020 Total	2019 Total	2018 Total
Deed Restrictions	2	0	0	0	2	0	N/A
Height-Penetrates Part 77 100:1 Surfaces/>200'	9	1	1	0	11	8	N/A
Height-Penetrates Part 77 PATH-C Surfaces*	1	0	0	0	1	0	N/A
Helipad/Helipad	0	0	0	0	0	0	N/A
Noisy-Commercial within AEOD**	2	0	0	0	2	7	N/A
Noisy-Residential within the AEOD**	0	0	0	0	0	3	N/A
Noisy-Residential Just Outside the AEOD**	7	0	0	1	8	11	N/A
Total***	21	1	1	1	24	29	N/A

* Primary, Approach, Transition, Horizontal, Conical as defined by Federal Aviation Regulation (FAR) Part 77.

**AEOD-Airport Environs Overlay District (defined below).

***Comment Concern totals will not always match Comment Applications total. Some applications are issued more than one type of CCDOA comment.

Exhibit 12: Dwelling Units per Commented Application* - February 2020

Dwelling Units Proposed in Commented Applications	Clark County	City of Henderson	City of Las Vegas	City of North Las Vegas	2020 Total	2019 Total	2018 Total
Within the AEOD	0	0	0	0	0	48	N/A
Just Outside the AEOD	2,150	0	0	239	2,389	1,126	N/A

*Due to high variability in many land use proposals, dwelling units proposed may not reflect actual number of units built. In addition, some projects will require more than one type of application, resulting in the project total counted more than once.

Exhibit 13: Land Use Applications Denied and/or Opposed - February 2020

Summary of LUA Opposed	Clark County	City of Henderson	City of Las Vegas	City of North Las Vegas	2020 Total	2019 Total	2018 Total
Recommend Denial	0	0	0	0	0	2	N/A
Opposed at Hearings	0	0	0	0	0	1	N/A

Exhibit 14: Airport Environs Overlay Districts & Noisy Comments - Valley Wide - February 2020

AEOD - Airport Environs Overlay Districts - Noise Contours
Clark County Code (CCC) 30.48.010. The AEOD is established to:

1. Provide for a range of uses compatible with airport hazard and noise exposure areas.
2. Prohibit the development of incompatible uses that are detrimental to the general health, safety, and welfare.
3. Require noise attenuated construction, as indicated by Table 30.48-AE, in accordance with the noise attenuation construction standards of Chapter 22.22 of the CCC, within these airport environs. The regulations of the AEOD shall supersede the regulations of the underlying district if there is a conflict.
4. Comply with the Federal Aviation Administration regulations.

2008-Most recent update to the AEOD in CCC, updated the AEOD for McCarran (LAS), and added an AEOD to the North Las Vegas Airport (VGT) and the Henderson Executive Airport (HND).

2011-AEOD adopted by the cities of North Las Vegas and Henderson.

The AEOD has not been formally adopted by the City of Las Vegas. Only a small, already developed portion of the VGT AEOD lies within the incorporated City of Las Vegas boundaries.

Salmon color indicates a 1 mile zone outside the AEOD.

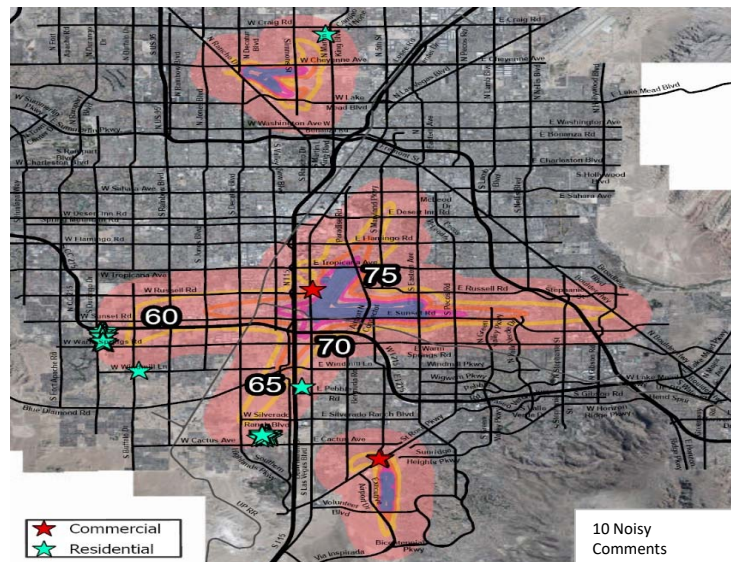


Exhibit 15: Noisy Comments - LAS Detail - February 2020

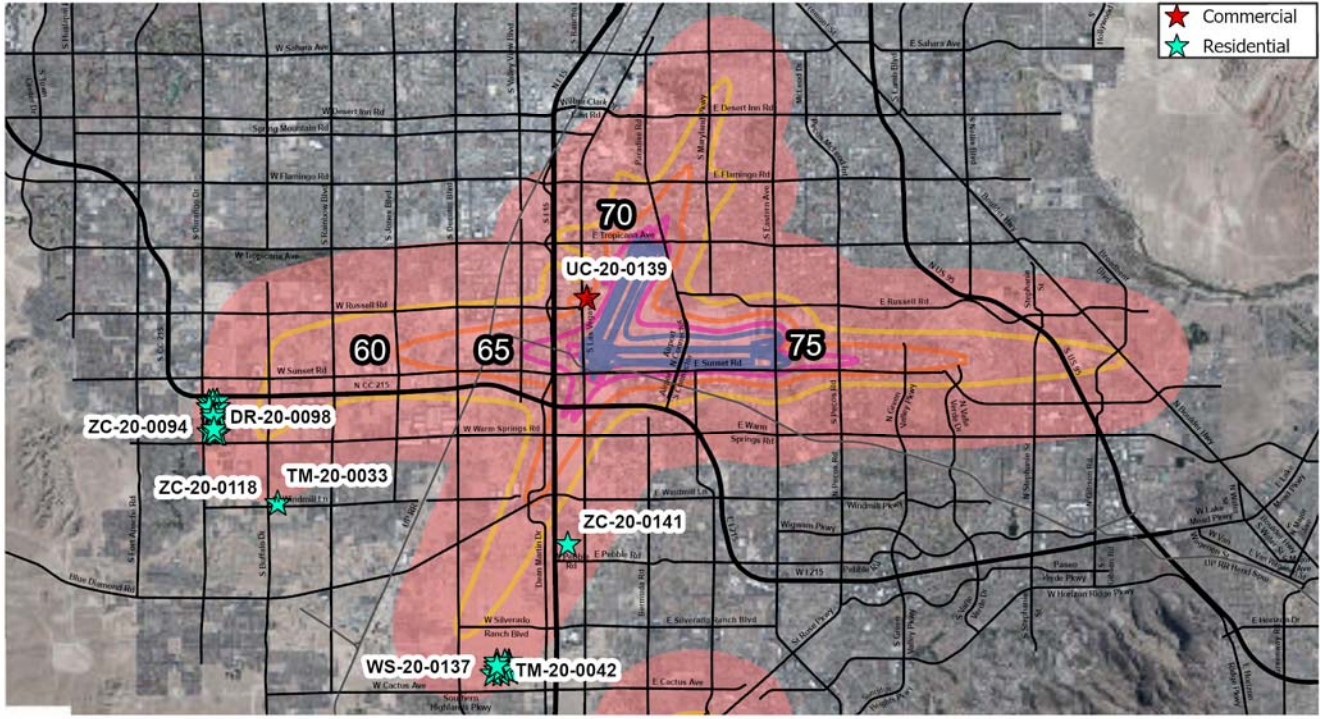


Exhibit 16: Noisy Comments - HND Detail - February 2020

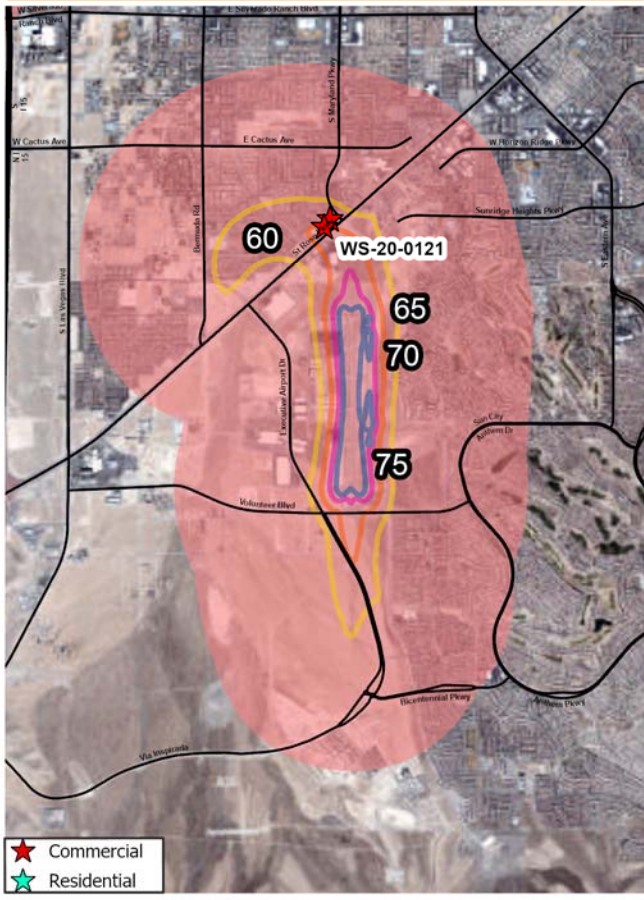


Exhibit 17: Noisy Comments - VGT Detail - February 2020

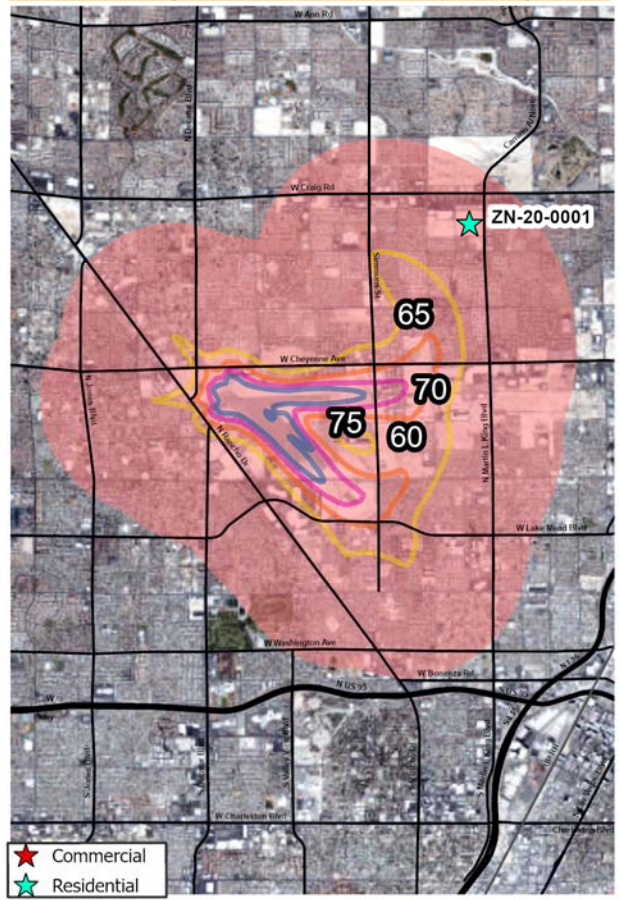
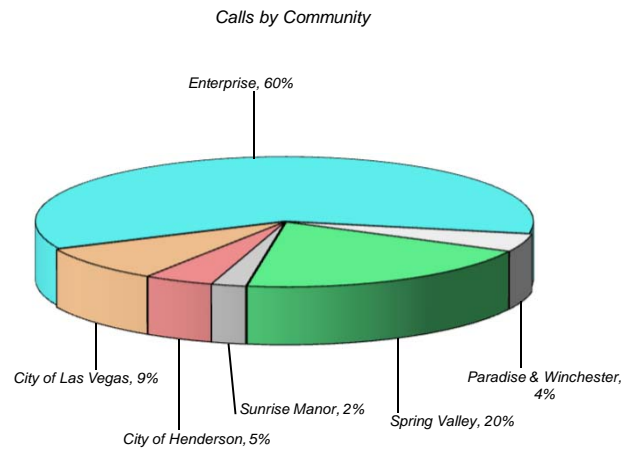


Exhibit 1: Noise Complaint Calls by Community* - March 2020

Community	No. of Calls in 2020	No. of Callers in 2020	No. of Calls in 2019	No. of Calls in 2018
City of Boulder City	2	2	3	8
City of Henderson	4	4	1	2
City of Las Vegas	4	4	1	2
City of North Las Vegas				
Enterprise	27	11	12	4
Lone Mountain				
Paradise & Winchester	2	2	7	39
Spring Valley	9	3	81	13
Summerlin South				
Sunrise Manor	1	1	1	
Whitney			1	
Location unknown				
Overall Total	45	23	107	68



Difference between 2020 and 2019 Total Calls: -58%

Difference between 2020 and 2018 Total Calls: -34%

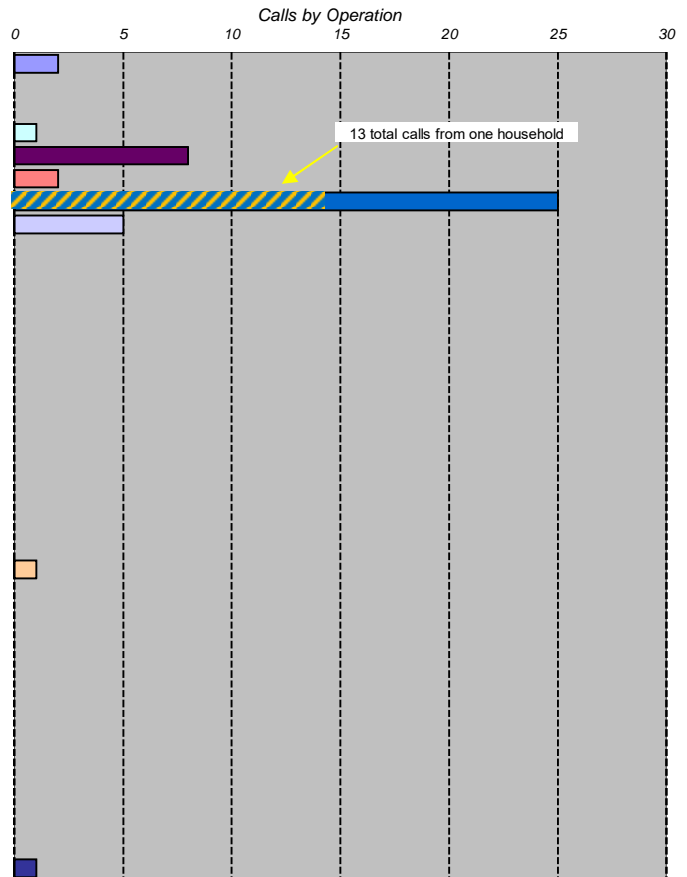
Average Number of Calls per Caller: 2.0

Most calls received from one household: 13

* See map on reverse side for community boundaries and location of known noise complaints.

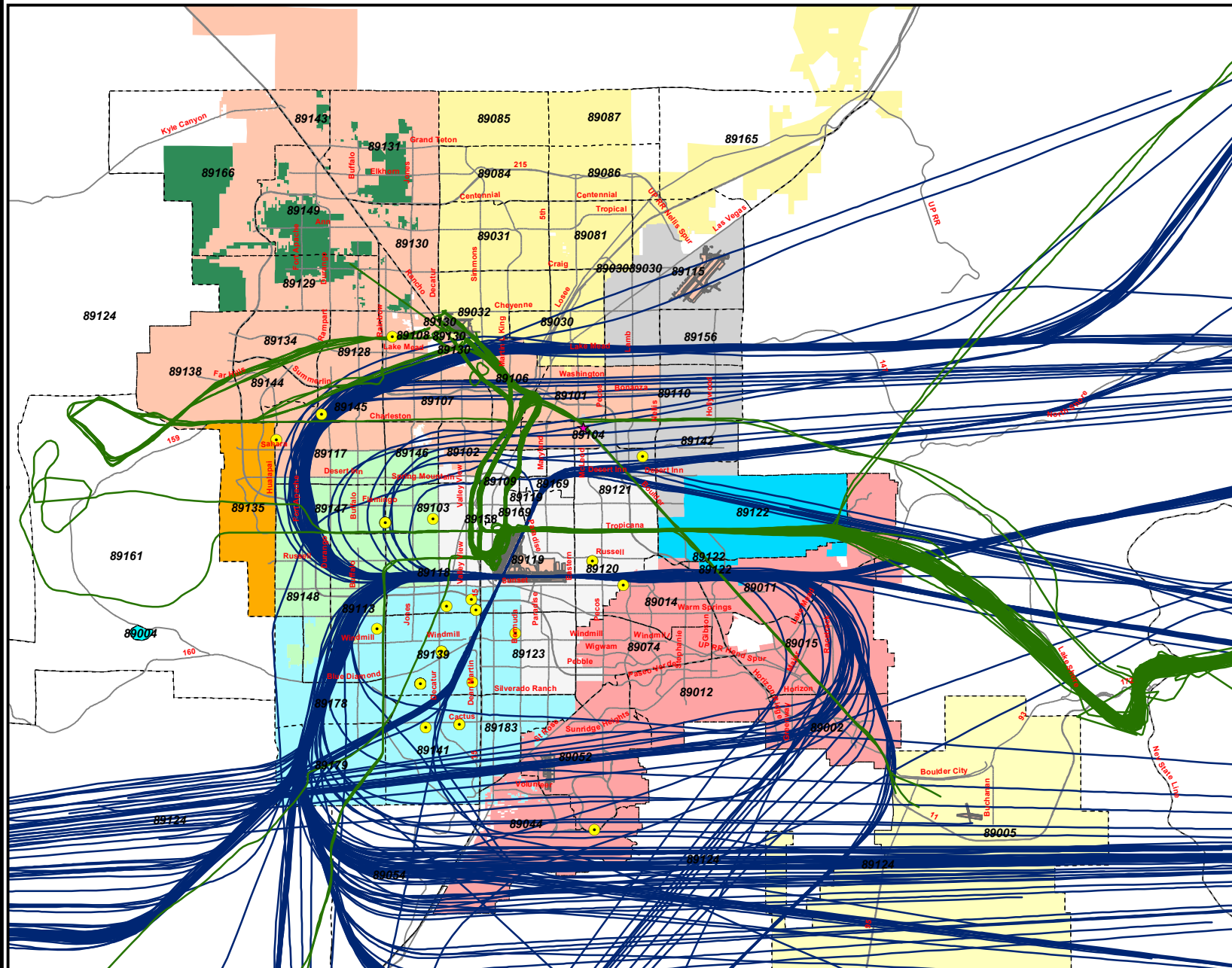
Exhibit 2: Noise Complaint Calls by Type of Operation - March 2020

Operation	No. of Calls in 2020	Percent of Overall Total	No. of Calls in 2019	No. of Calls in 2018
LAS 01R/L Arrivals	2	4.4%	2	2
LAS 08R/L Arrivals				1
LAS 19R/L Arrivals				
LAS 26R/L Arrivals	1	2.2%	2	3
LAS 01R/L Departures	8	17.8%	47	41
LAS 08R/L Departures	2	4.4%	1	2
LAS 19R/L Departures	25	55.6%	3	2
LAS 26R/L Departures	5	11.1%	48	7
LAS Run-ups				
LAS GA				
LAS Other				
LAS Total	43	95.6%	103	58
VGT 07 Arrivals				
VGT 12R/L Arrivals				
VGT 25 Arrivals				
VGT 30R/L Arrivals				
VGT 07 Departures				
VGT 12R/L Departures				
VGT 25 Departures				
VGT 30R/L Departures				
VGT Run-ups				
VGT GA	1	2.2%		1
VGT Other				
VGT Total	1	2.2%	0	1
HND 17R/L Arrivals				
HND 35R/L Arrivals				
HND 17R/L Departures				
HND 35R/L Departures				
HND Run-ups				
HND GA			1	5
HND Other				
HND Total	0	0.0%	1	5
Helicopters**	1	2.2%	3	4
Overall Total	45	100%	107	68



** Note that helicopter noise complaints are not tied to a specific facility since the operation cannot always be associated to a specific airport. Additionally, helicopter calls do not include those associated with operations conducted by the Metropolitan Police Department or those associated with operations conducted at non-DOA facilities.

Exhibit 3: Aircraft Noise Complaints by Community - Mar 2020



Legend

Mar 2020
Total Complaints: 45

- Aircraft Complaints Received 44 Mapped 44
- ★ Helicopter Complaints Received 1 Mapped 1
- Major Streets
- Airports
- - - Zip Code Boundaries
- Typical Large Air Carrier Departure Tracks
- Typical Touring Helicopter Tracks
- Unincorporated Clark County
- Boulder City
- Whitney
- Henderson
- Las Vegas
- North Las Vegas
- Paradise/Winchester
- Summerlin
- Spring Valley
- Sunrise Manor
- Winchester
- Enterprise
- Lone Mountain

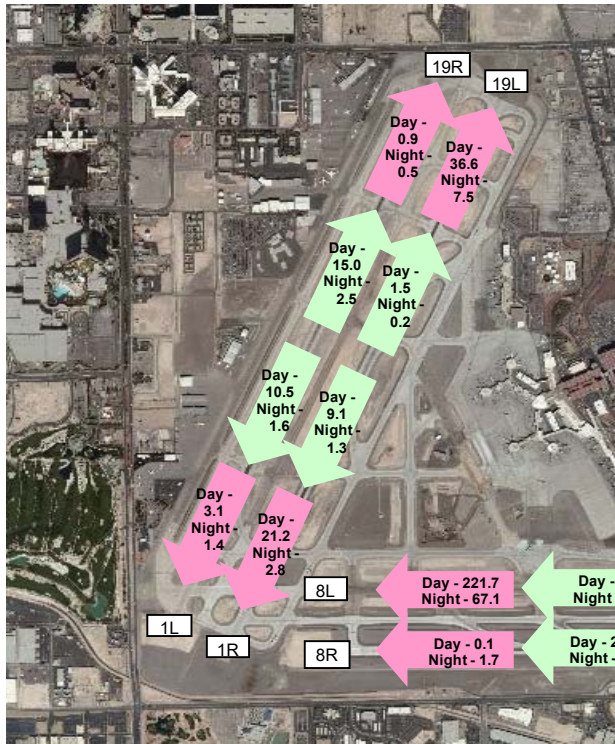
Department of Aviation
Geographic Information Systems

May 7, 2020

Note: This information is for display purposes only. No liability is assumed with the accuracy of the data displayed hereon.

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Exhibit 4: LAS Daily Average Operations by Runway for Large Air Carrier Aircraft* - March 2020



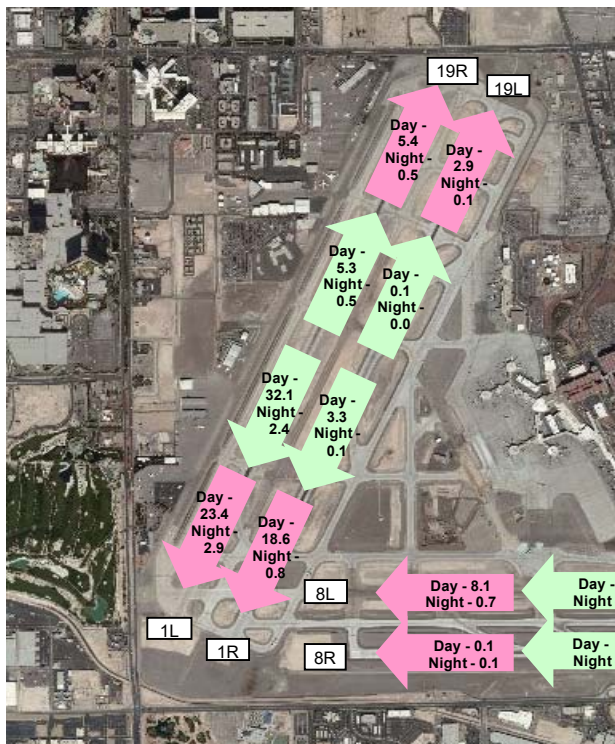
Year	2020		2019		2018	
Daytime Departures	300	79%	411	80%	398	80%
Nighttime Departures	81	21%	102	20%	100	20%
Total Departures	381	100%	513	100%	498	100%

Daytime Arrivals	313	83%	429	85%	426	84%
Nighttime Arrivals	63	17%	78	15%	79	16%
Total Arrivals	376	100%	507	100%	505	100%

Growth	Overall	Daytime	Nighttime
Depts. 2020 vs 2019	-26%	-27%	-21%
Depts. 2020 vs 2018	-24%	-25%	-19%
Arrivals 2020 vs 2019	-26%	-27%	-20%
Arrivals 2020 vs 2018	-26%	-27%	-21%

* Aircraft types: All aircraft with a maximum gross take off weight of at least 75,000 pounds, including but not limited to, A306, A310, A311, A318, A319, A320, A330, A340, B707, B717, B727, B737, B747, B757, B767, B777, CRJ7, CRJ9, DC8, DC9, DC10, E170, E190, HA4T, L1011, MD80, MD90, MD10, MD11, VC10.

Exhibit 5: LAS Daily Average Operations by Runway for Non-Large Air Carrier Aircraft** - March 2020



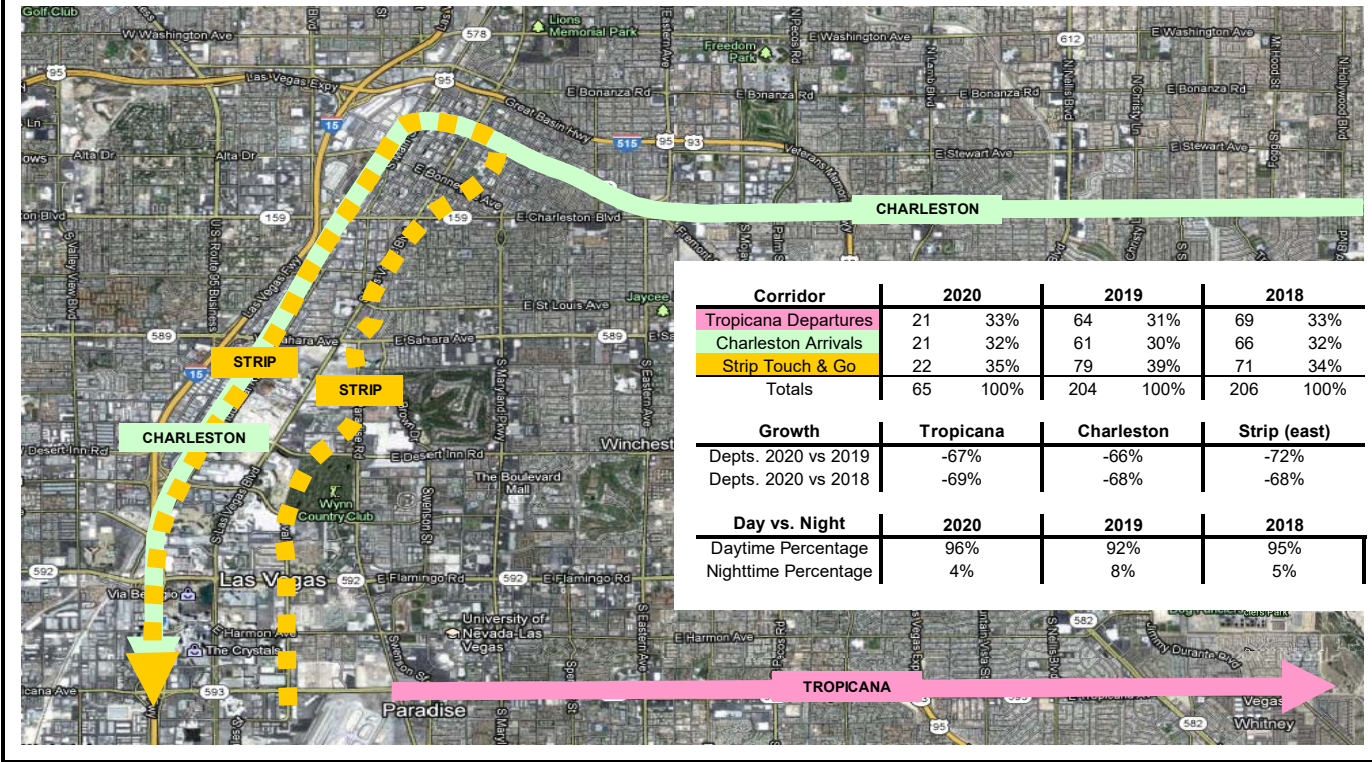
Year	2020		2019		2018	
Daytime Departures	62	92%	102	91%	107	90%
Nighttime Departures	5	8%	10	9%	12	10%
Total Departures	67	100%	112	100%	119	100%

Daytime Arrivals	60	94%	101	93%	101	93%
Nighttime Arrivals	4	6%	8	7%	8	7%
Total Arrivals	64	100%	109	100%	109	100%

Growth	Overall	Daytime	Nighttime
Depts. 2020 vs 2019	-40%	-40%	-48%
Depts. 2020 vs 2018	-44%	-43%	-57%
Arrivals 2020 vs 2019	-42%	-41%	-50%
Arrivals 2020 vs 2018	-42%	-41%	-53%

** Aircraft types: All aircraft with a maximum gross take off weight less than 75,000 pounds, excluding helicopters.

Exhibit 6: LAS Daily Average Operations by Corridor for Helicopter Tours - March 2020

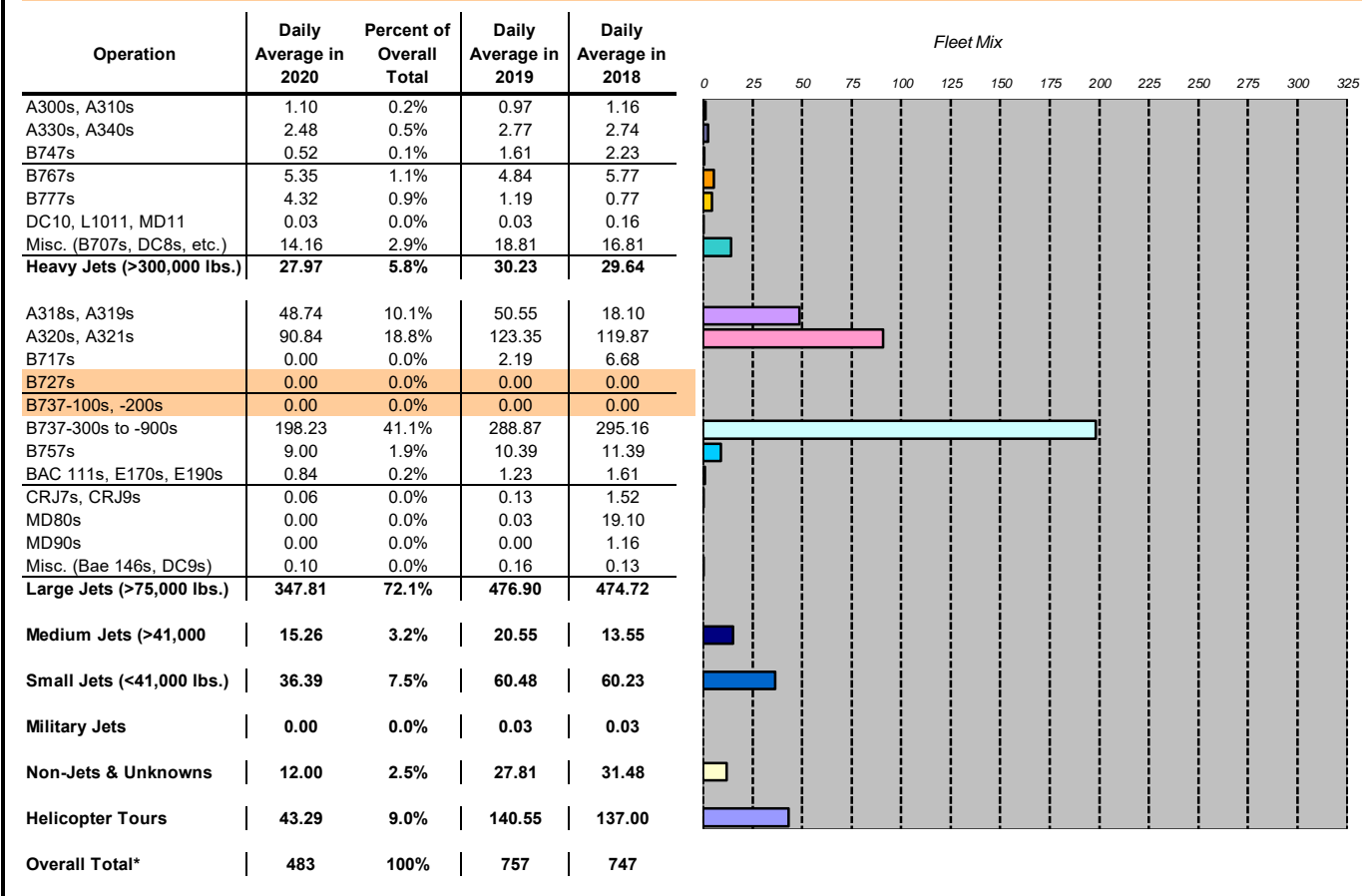


Corridor	2020	2019	2018
Tropicana Departures	21 33%	64 31%	69 33%
Charleston Arrivals	21 32%	61 30%	66 32%
Strip Touch & Go	22 35%	79 39%	71 34%
Totals	65 100%	204 100%	206 100%

Growth	Tropicana	Charleston	Strip (east)
Depts. 2020 vs 2019	-67%	-66%	-72%
Depts. 2020 vs 2018	-69%	-68%	-68%

Day vs. Night	2020	2019	2018
Daytime Percentage	96%	92%	95%
Nighttime Percentage	4%	8%	5%

Exhibit 7: LAS Aircraft Arrival Fleet Mix* - March 2020



** Overall Total: Note that operation type and runway use counts are estimated by Harris Corp. EnvironmentalVue Noise and Monitoring Operations system based on radar data. Due to limitations of radar data, information for aircraft weighing less than 75,000 lbs is inexact.

Exhibit 8: LAS General Departure Direction for Large Air Carrier Aircraft* - March 2020 to 2018

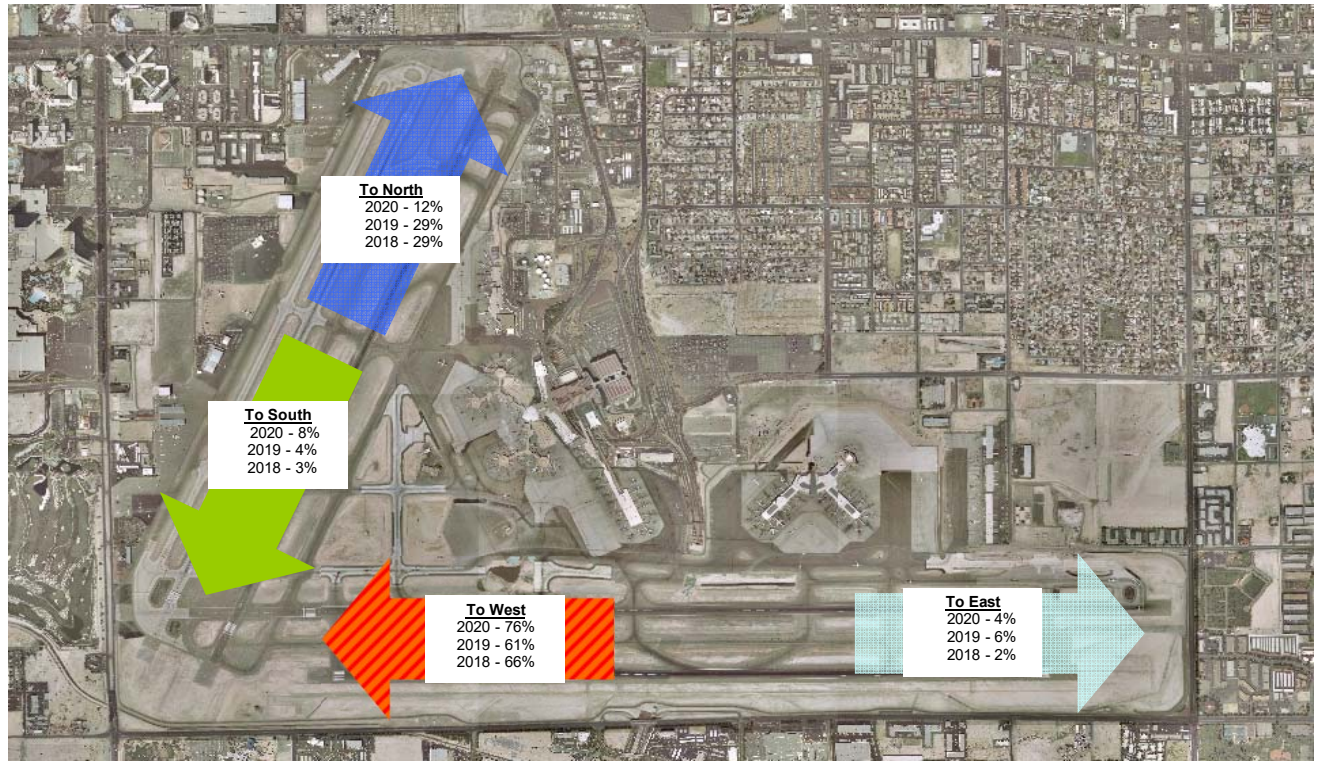
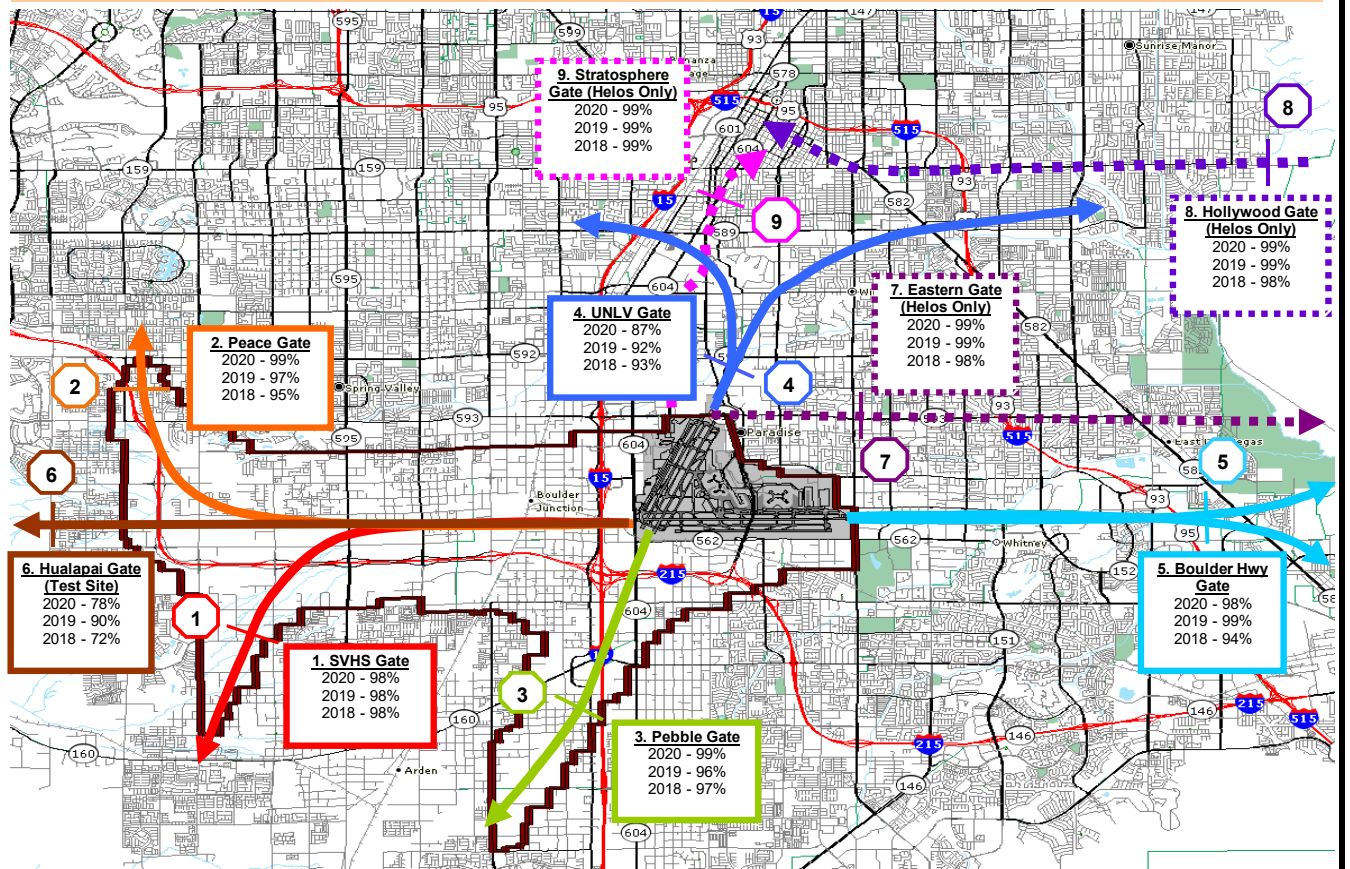


Exhibit 9: "Gate" Compliance for Large Aircraft* & LAS Helicopter Tours - March 2020



* Aircraft types: All aircraft with a maximum gross take of weight of at least 75,000 pounds, including but not limited to, A306, A310, A311, A318, A319, A320, A330, A370, B707, B717, B727, B737, B747, B757, B767, B777, CRJ7, CRJ9, DC8, DC9, DC10, E170, E190, HA4T, L1011, MD80, MD90, MD10, MD11, VC10.

Exhibit 10: Land Use Application Reviews & Comments - March 2020

Land Use Application Review Summary	Clark County	City of Henderson	City of Las Vegas	City of North Las Vegas	2020 Total	2019 Total	2018 Total
No. of Land Use Applications Reviewed	87	73	67	12	239	373	N/A
No. of Applications where CCDOA Issued a Comment	1	10	1	2	14	12	N/A
Percent of Applications where Comment Issued	1%	14%	1%	17%	6%	3%	N/A

Exhibit 11: Land Use Application Comments by Airport Concern - March 2020

Summary by Comment Type	Clark County	City of Henderson	City of Las Vegas	City of North Las Vegas	2020 Total	2019 Total	2018 Total
Deed Restrictions	1	0	0	0	1	0	N/A
Height-Penetrates Part 77 100:1 Surfaces >200'	0	10	1	0	11	9	N/A
Height-Penetrates Part 77 PATH-C Surfaces*	0	0	0	0	0	0	N/A
Helipad/Helipad	0	0	0	0	0	0	N/A
Noisy-Commercial within AEOD**	0	0	0	1	1	3	N/A
Noisy-Residential within the AEOD**	0	0	0	0	0	0	N/A
Noisy-Residential Just Outside the AEOD**	1	8	0	1	10	3	N/A
Total***	2	18	1	2	23	15	N/A

* Primary, Approach, Transition, Horizontal, Conical as defined by Federal Aviation Regulation (FAR) Part 77.

**AEOD-Airport Environs Overlay District (defined below).

***Comment Concern totals will not always match Comment Applications total. Some applications are issued more than one type of CCDOA comment.

Exhibit 12: Dwelling Units per Commented Application* - March 2020

Dwelling Units Proposed in Commented Applications	Clark County	City of Henderson	City of Las Vegas	City of North Las Vegas	2020 Total	2019 Total	2018 Total
Within the AEOD	0	0	0	0	0	0	N/A
Just Outside the AEOD	242	1,023	0	104	1,369	1,013	N/A

*Due to high variability in many land use proposals, dwelling units proposed may not reflect actual number of units built. In addition, some projects will require more than one type of application, resulting in the project total counted more than once.

Exhibit 13: Land Use Applications Denied and/or Opposed - March 2020

Summary of LUA Opposed	Clark County	City of Henderson	City of Las Vegas	City of North Las Vegas	2020 Total	2019 Total	2018 Total
Recommend Denial	0	0	0	0	0	1	N/A
Opposed at Hearings	0	0	0	0	0	0	N/A

Exhibit 14: Airport Environs Overlay Districts & Noisy Comments - Valley Wide - March 2020

AEOD - Airport Environs Overlay Districts - Noise Contours
Clark County Code (CCC) 30.48.010. The AEOD is established to:

1. Provide for a range of uses compatible with airport hazard and noise exposure areas.
2. Prohibit the development of incompatible uses that are detrimental to the general health, safety, and welfare.
3. Require noise attenuated construction, as indicated by Table 30.48-AE, in accordance with the noise attenuation construction standards of Chapter 22.22 of the CCC, within these airport environs. The regulations of the AEOD shall supersede the regulations of the underlying district if there is a conflict.
4. Comply with the Federal Aviation Administration regulations.

2008-Most recent update to the AEOD in CCC, updated the AEOD for McCarran (LAS), and added an AEOD to the North Las Vegas Airport (VGT) and the Henderson Executive Airport (HND).

2011-AEOD adopted by the cities of North Las Vegas and Henderson.

The AEOD has not been formally adopted by the City of Las Vegas. Only a small, already developed portion of the VGT AEOD lies within the incorporated City of Las Vegas boundaries.

Salmon color indicates a 1 mile zone outside the AEOD.

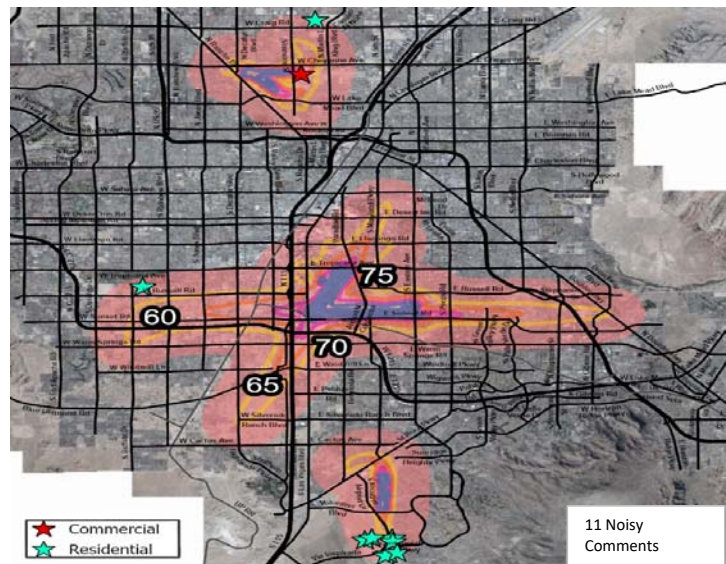


Exhibit 15: Noisy Comments - LAS Detail - March 2020

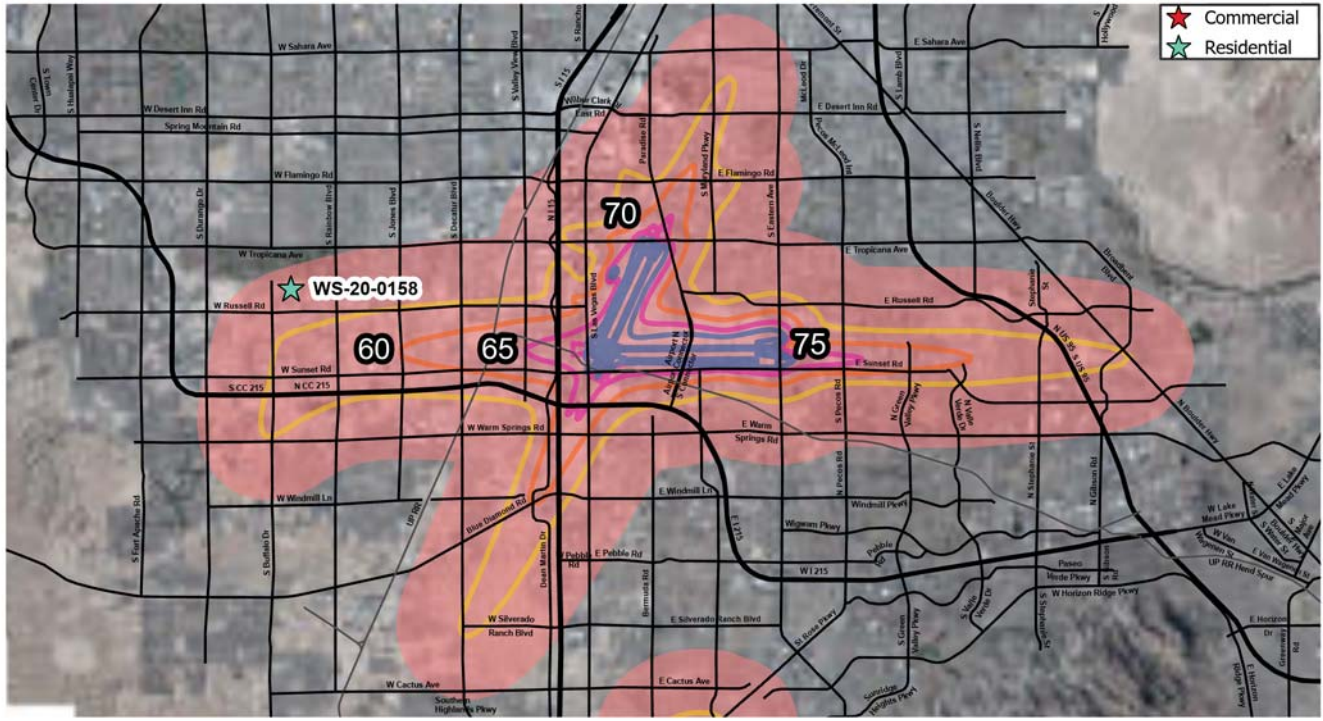


Exhibit 16: Noisy Comments - HND Detail - March 2020

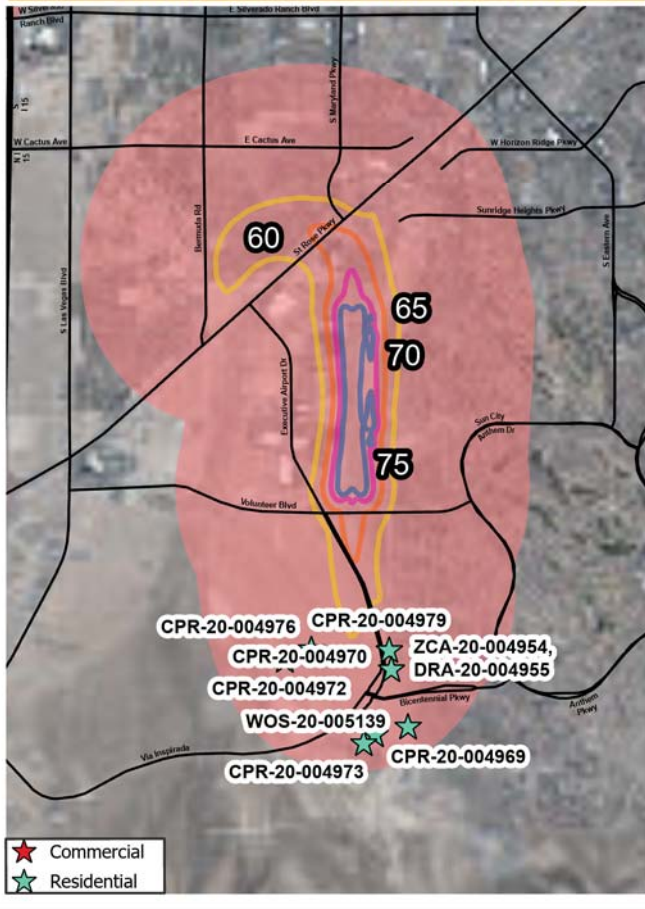


Exhibit 17: Noisy Comments - VGT Detail - March 2020

