

## 5. Analysis

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This section describes existing and future noise conditions within the General Study Area and Supplemental Study Area. The five scenarios described in **Section 3.2** were analyzed and noise changes were compared between the Proposed Action and No Action Alternative at the previously defined grid points. The following subsections summarize the noise-model input adjustments used to represent the Proposed Action and present the corresponding noise analysis results for each scenario.

### 5.1 Existing Conditions

The Existing Conditions represent aircraft noise from IFR flight operations at the 10 Study Airports during CY 2024, as modeled in AEDT. The Existing Conditions include a total of 48 procedures across the Study Airports, consisting of 20 conventional procedures (using conventional navigational aids [NAVAIDs]) and 28 RNAV procedures.

At PHX, 26 procedures were modeled, including 11 Standard Terminal Arrival (STAR) procedures—ARLIN, BLYTHE, BRUSR, BUNTR, COYOT, DSERT, EAGUL, HYDRR, JESSE, PIING, and SUNSS—and 15 Standard Instrument Departures (SIDs)—BALDY, BROAK, BUCKEYE, CHILY, ECLPS, FORPE, FYRBD, KEENS, MOBIE, MRBIL, QUAKY, ST. JOHNS, STANFIELD, STRRM, and ZEPER. Further details of the procedures are provided in **Chapter 3**.

For the existing T-Route, several Study Airports have flight tracks that follow portions of the route. Because the route traverses the entire study area, it was modeled in AEDT as one AAD operation at 10,000 feet MSL, evenly split between two general aviation piston aircraft.

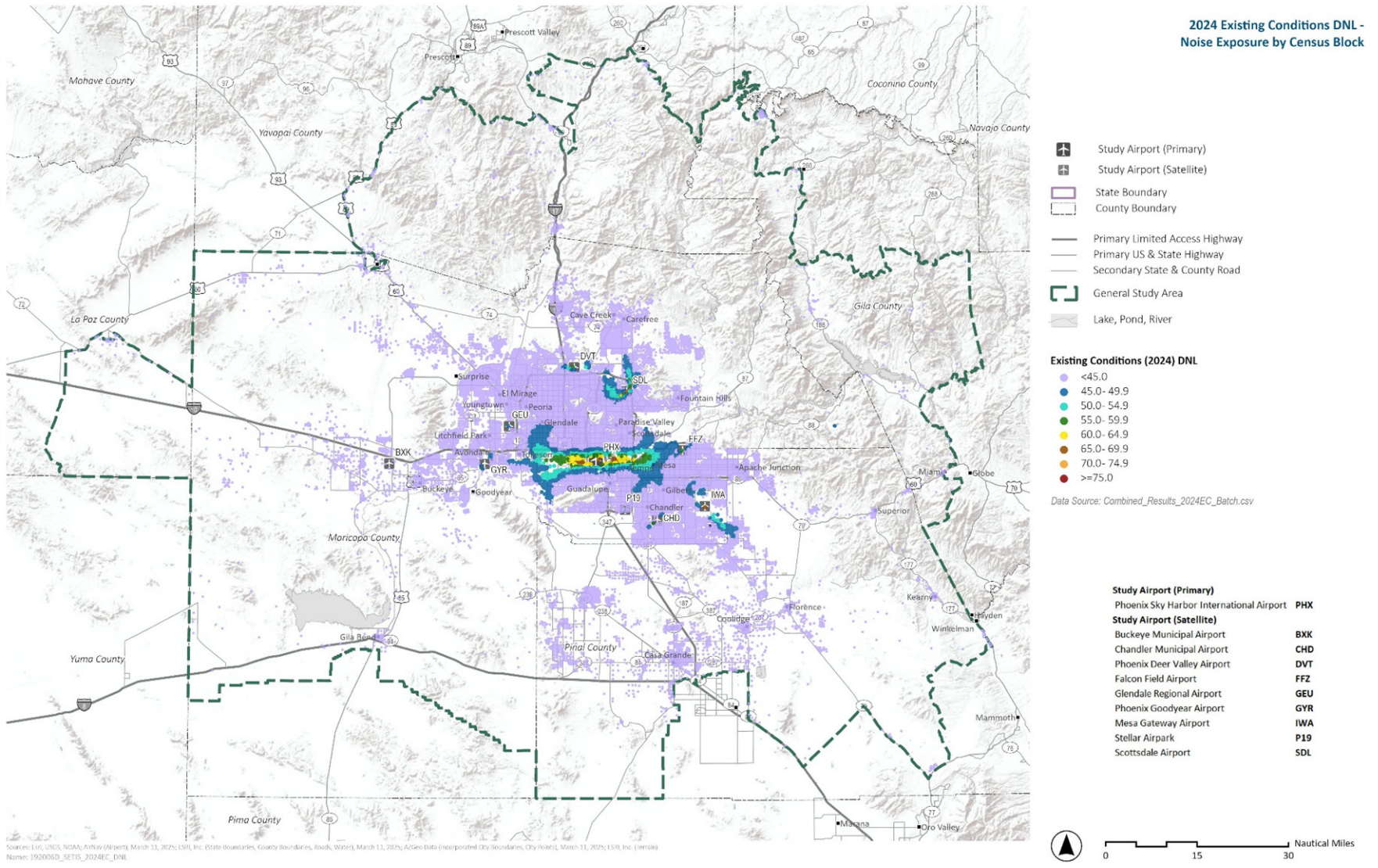
#### 5.1.1 Existing Aircraft Noise Exposure

**Table 8** identifies the total population exposed to aircraft noise between DNL 45 dB and 60 dB, DNL 60 dB and 65 dB, and DNL 65 dB and higher within the General Study Area. This data establishes a baseline for existing aircraft noise exposure. **Exhibit 7** provides a graphical representation of existing noise exposure in 5-dB increments based on 2024 radar data. Each point on the exhibit represents a U.S. Census block population centroid. As shown in **Exhibit 7**, areas exposed to higher DNL are generally aligned with Study Airport runways and areas with existing aircraft traffic.

**Table 8. Existing Conditions Population Exposure from Aircraft Noise (DNL) within the General Study Area**

DNL Range (dB)	Population
DNL 45 dB to less than DNL 60 dB	763,938
DNL 60 dB to less than DNL 65 dB	21,036
DNL 65 dB and Higher	4,691
<b>Total Above DNL 45 dB</b>	<b>789,665</b>

Notes: DNL = Day-Night Average Sound Level, dB = Decibel  
Sources: US Census Bureau 2020, AEDT 3g



**Exhibit 7. 2024 Existing Conditions DNL - Noise Exposure by Census Block**

## 5.1.2 Existing Conditions Grid Point Analysis

Under the Existing Conditions, 25 unique grid point locations have DNL levels of 65.0 dB or higher. These include 4 schools, 3 places of worship, 12 parks, and 6 historic sites. The names and DNL values for the parks and historical sites with DNL levels of 65.0 dB or higher are provided in **Attachment D**, and the names and DNL values for the schools and places of worship with DNL levels of 65.0 dB or higher are provided in **Attachment F**.

## 5.2 Future No Action Alternative

For nine of the Study Airports, no changes to existing procedures were identified under the No Action Alternative. BXK was converted from a VFR to IFR airport in March 2026. Accordingly, the future No Action Alternative for BXK includes RNAV (GPS) approaches to both runways.<sup>5</sup> The Existing Conditions tracks for BXK were modified to include the RNAV (GPS) approach; all other BXK tracks within the Study Areas remain the same as existing. The only other changes to BXK for the future No Action Alternative were to apply fleet mix and forecast adjustments.

For the remaining Study Airports, the only changes to the Existing Conditions and No Action Alternative were fleet mix and forecast adjustments. These adjustments are discussed in detail in **Appendix N** of the PHX EA. Aside from these adjustments, the 2027 and 2032 No Action Alternative model inputs were the same as the 2024 Existing Conditions. The existing T-Route was modeled with one AAD operation for 2027 and increased to two AAD operations for 2032.

### 5.2.1 2027 No Action Alternative Aircraft Noise Exposure

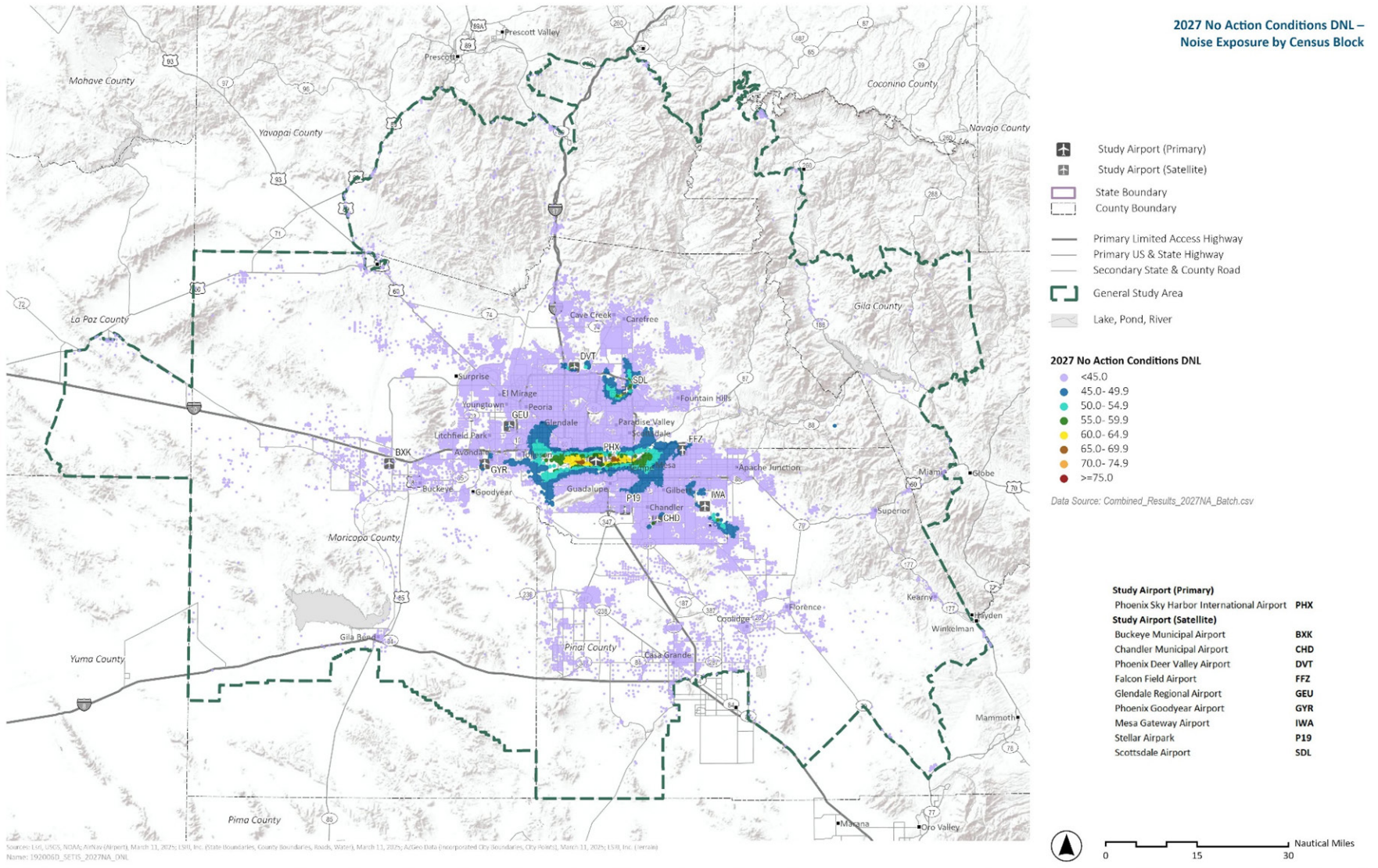
**Table 9** presents the total population exposure for the 2027 No Action Alternative. **Exhibit 8** depicts 2027 noise exposure within the General Study Area in 5-dB increments, based on modeled operations. Each point on the exhibit represents a Census block population centroid. As shown in **Exhibit 8**, areas exposed to higher DNL are generally aligned with Study Airport runways and areas with existing aircraft traffic.

**Table 9. 2027 No Action Alternative Population Exposure from Aircraft Noise (DNL) within the General Study Area**

DNL Range (dB)	Population
DNL 45 dB to less than DNL 60 dB	835,915
DNL 60 dB to less than DNL 65 dB	22,143
DNL 65 dB and Higher	6,401
<b>Total Above DNL 45 dB</b>	<b>864,459</b>

Notes: DNL = Day-Night Average Sound Level, dB = Decibel  
Sources: US Census Bureau 2020, AEDT 3g

<sup>5</sup> Approved through a separate NEPA action (CATEX) on June 5, 2025.



**Exhibit 8. 2027 No Action Conditions DNL - Noise Exposure by Census Block**

## 5.2.2 2027 No Action Alternative Grid Point Analysis

Under the 2027 No Action Alternative, 32 unique grid point locations experience DNL levels 65.0 dB or higher, including 4 schools, 3 places of worship, 18 parks, and 7 historic sites. The names and DNL values for the parks and historical sites with DNL levels of 65.0 dB or higher are provided in **Attachment D**, and the names and DNL values for the schools and places of worship with DNL levels of 65.0 dB or higher are provided in **Attachment F**.

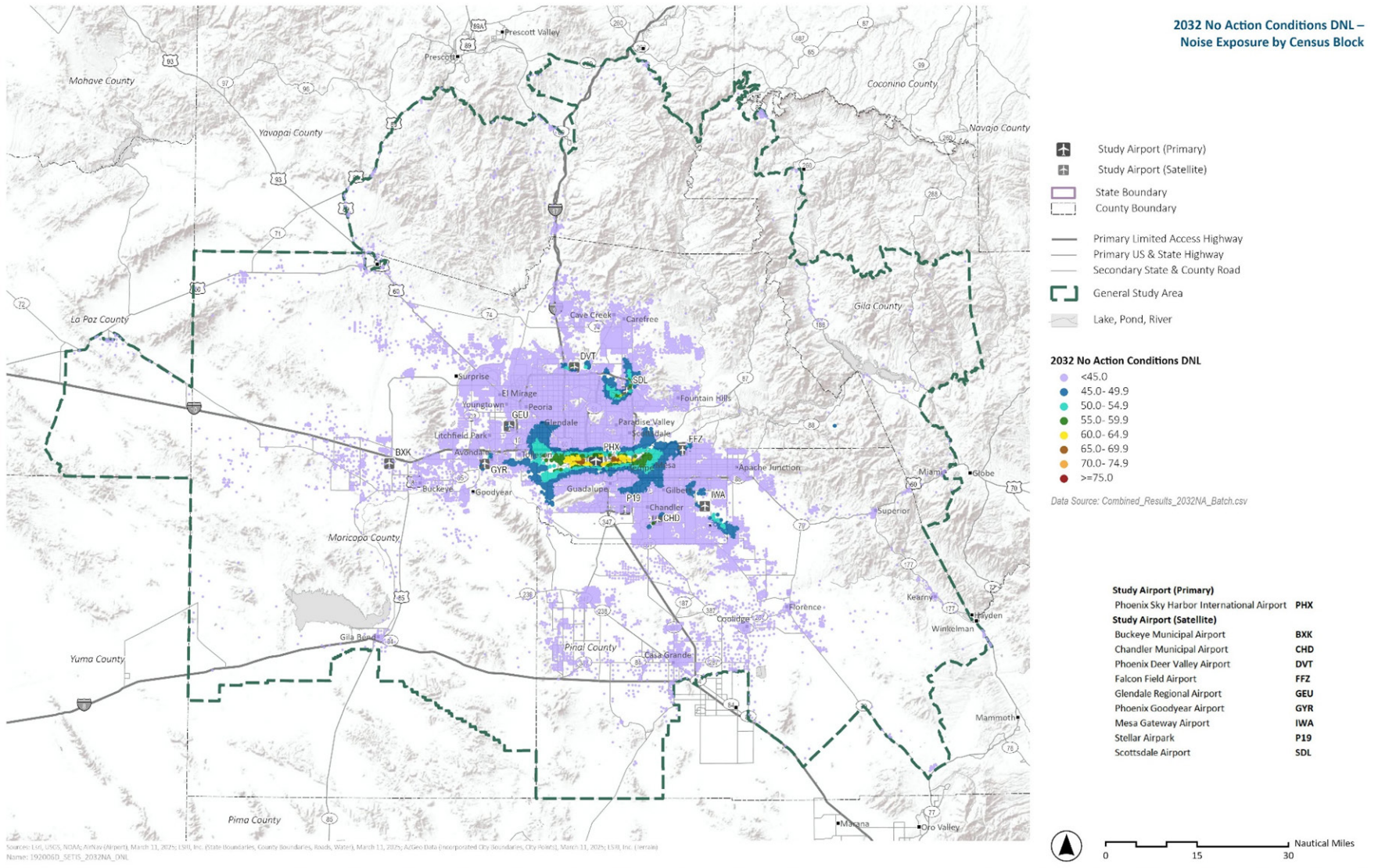
## 5.2.3 2032 No Action Alternative Aircraft Noise Exposure

**Table 10** identifies the total population noise exposure for the 2032 No Action Alternative. **Exhibit 9** presents modeled 2032 noise exposure within the General Study Area. Each point on the exhibit represents a Census block population centroid. As shown in **Exhibit 9**, areas exposed to higher DNL are generally aligned with Study Airport runways and areas with existing aircraft traffic.

**Table 10. 2032 No Action Alternative Population Exposure from Aircraft Noise (DNL) within the General Study Area**

DNL Range (dB)	Population
DNL 45 dB to less than DNL 60 dB	858,698
DNL 60 dB to less than DNL 65 dB	21,787
DNL 65 dB and Higher	7,652
<b>Total Above DNL 45 dB</b>	<b>888,137</b>

Notes: DNL = Day-Night Average Sound Level, dB = Decibel  
Sources: US Census Bureau 2020, AEDT 3g



**Exhibit 9. 2032 No Action Conditions DNL - Noise Exposure by Census Block**

## 5.2.4 2032 No Action Alternative Grid Point Analysis

For the 2032 No Action Alternative, 35 unique grid point locations experience DNL levels of 65.0 dB or higher, including 4 schools, 4 places of worship, 19 parks, and 8 historic sites. The names and DNL values for the parks and historical sites with DNL levels of 65.0 dB or higher are provided in **Attachment D**, and the names and DNL values for the schools and places of worship with DNL levels of 65.0 dB or higher are provided in **Attachment F**.

## 5.3 Future Proposed Action

The Proposed Action consists of new and modified air traffic procedures as discussed in **Chapter 3**. These modifications were incorporated in the noise modeling based on FAA procedure design information through adjustments to the flight track routing at the Study Airports or developing new tracks. Consultations with subject matter experts confirmed the assumptions made regarding the track adjustments. Utilization percentages of any new procedures for each airport were determined based on observations of operations in the flight data acquired to model the Existing Conditions scenario.

The Proposed Action does not involve capacity enhancements or induce growth of aircraft operations. Therefore, operation levels, fleet mix, and day/night distributions for the Proposed Action are identical to those used for the Alternative for both 2027 and 2032. Environmental inputs (i.e., temperature, humidity, barometric pressure, and headwind) were also the same among the No Action Alternative and Proposed Action.

The Proposed Action improves airspace efficiency by enhancing flexibility in transitioning aircraft, segregating arrivals and departures, reducing controller workload, and improving the predictability of traffic flows across both PHX and the surrounding satellite airports. The Proposed Action mitigates possible route conflicts, reduces the number and length of level-offs that aircraft are instructed to fly, and formalizes commonly used routes through the use of RNAV (GPS-based) or Required Navigational Performance (RNP) procedures that allow for greater control of aircraft in the airspace. This represents a greater use of standardized procedures that increase routing predictability, flexibility, and traffic segregation.

Across all Study Airports, the Proposed Action includes 31 RNAV procedures and no conventional NAVAID-based procedures. At PHX, 26 procedures are available, consisting of 9 STAR procedures (BRDEY, BTMNN, FYTRS, JNKYD, LEAGG, MCAIN, MRRVL, MZCAL and SNDVL) and 18 SIDs (AMLEA, ANOBL, BLJKX, BLOND, BNDYT, CSTLY, DNHIL, JEKLE, LALUZ, LOZST, PHEBI, RZORT, SLOTZ, SNRIZ, SNWBD, SOHOT, VURDE, and WHRSE). Further details of the procedures are provided in **Chapter 3**.

### 5.3.1 Departures

The Proposed Action reflects a shift from radar vector operational ATC procedures for portions of the departure trajectory toward increased use of RNAV SID procedures. There are no Conventional procedures remaining in the Proposed Action. In addition to PHX, six satellite airports have RNAV off-the-ground departures (CHD, DVT, FFZ, IWA and SDL). The changes between the Proposed Action and No Action Alternative routing for AEDT departure tracks from the Study Airports are shown in **Exhibit 10**. Proposed Action routes are depicted in yellow, and No Action Alternative routes are depicted in blue.

### 5.3.2 Arrivals

Arrival procedures under the Proposed Action similarly shift from ATC procedures for portions of the arrival trajectory toward increased use of RNAV STAR procedures. Furthermore, there is a general trend to update and implement new RNP and GPS-based IAPs. As such, there are no conventional procedures remaining in the Proposed Action.

The Proposed Action includes RNP approaches to four runway ends at PHX. Arrival tracks were developed to follow each STAR and follow the RNP to the landing runway. The changes between the Proposed Action and No Action Alternative routing for AEDT arrival tracks to the Study Airports are shown in **Exhibit 11**. Proposed Action routes are depicted in orange, and No Action Alternative routes are depicted in purple.

The conversion of BXK from VFR to IFR in March 2026 is also incorporated into the Proposed Action. As with the No Action Alternative, the future Proposed Action scenarios for BXK will include RNAV (GPS) approaches to both runways and will also include new STARs and SIDs that will serve BXK.

### 5.3.3 PHX RNP

RNP use is likely going to be constrained by the immediate number of arrivals that need to land and how an individual controller may plan to vector those aircraft in a timely manner. In addition, RNP procedures require both specific aircrew training and individual airframe authorization and such operations are identified as “RNP capable” for this evaluation. Analysis of the 2027 fleet indicates that 70 percent of daytime operations and 85 percent of nighttime operations will be RNP capable (or 72 percent of overall PHX arrivals). For the 2032 fleet mix used for PHX, the percentage of overall RNP capable arrivals is anticipated to be 78 percent of all arrival operations (76 percent of operations landing during the daytime hours (7:00 a.m. to 10:00 p.m.) and 88 percent in the nighttime hours (10:00 p.m. to 7:00 a.m.).

Further, the RNP use estimation is based on what other arrivals are inbound to PHX. In addition, aircraft coming from STARs that are already lined up for the landing runway (“short side”) are

assumed to have preference over aircraft coming from STARs opposing the landing runway and need to enter a downwind leg either north or south (“long side”).

For 2027, the initial year of implementation, the analysis assumed that any RNP-capable aircraft would use the short side RNP if no other aircraft were to land 2 minutes before and 2 minutes after it on any runway. Therefore, the aircraft had a total of a 4-minute landing window (or more). For the long side, the analysis assumed that no other aircraft lands on any runway 2 minutes 30 seconds before and 2 minutes 30 seconds after (a total of a 5-minute window or more to itself). The analysis looked at the time intervals for all landings (not just a single runway) because PHX cannot perform simultaneous RNP approaches to parallel runways. The entire calendar year 2024 sample provided the arrival sequence used for the analysis. The results of the analysis for 2027 are that on average 50.8 arrivals per day could use one of the RNP tracks out of 735.5 average daily arrivals (or 6.9 percent).

For 2032, 5 years after implementation, aircraft controllers may have training and tools to allow RNP requests to be approved more frequently, though simultaneous RNP approaches to parallel runways at PHX are not expected to be available. The analysis assumed that short side arrivals will be clear of other arriving aircraft on all runways 95 seconds (1 minute, 35 seconds) before and after the RNP aircraft lands (at least 3 minutes and 10 second total window). Aircraft using the RNP long side combinations would need 2 minutes free of other arrivals, on any runway, before and after it. In addition, aircraft that did not meet these criteria, though arriving directly after one another on the same STAR and runway, were assumed eligible since the RNP speed restrictions would inherently keep aircraft following each other on the same STAR appropriately spaced along the RNP approach to the runway. The results of the analysis for 2032 are that on average 142.7 arrivals per day could use one of the RNP tracks out of 798.6 average daily arrivals (or 17.9 percent).

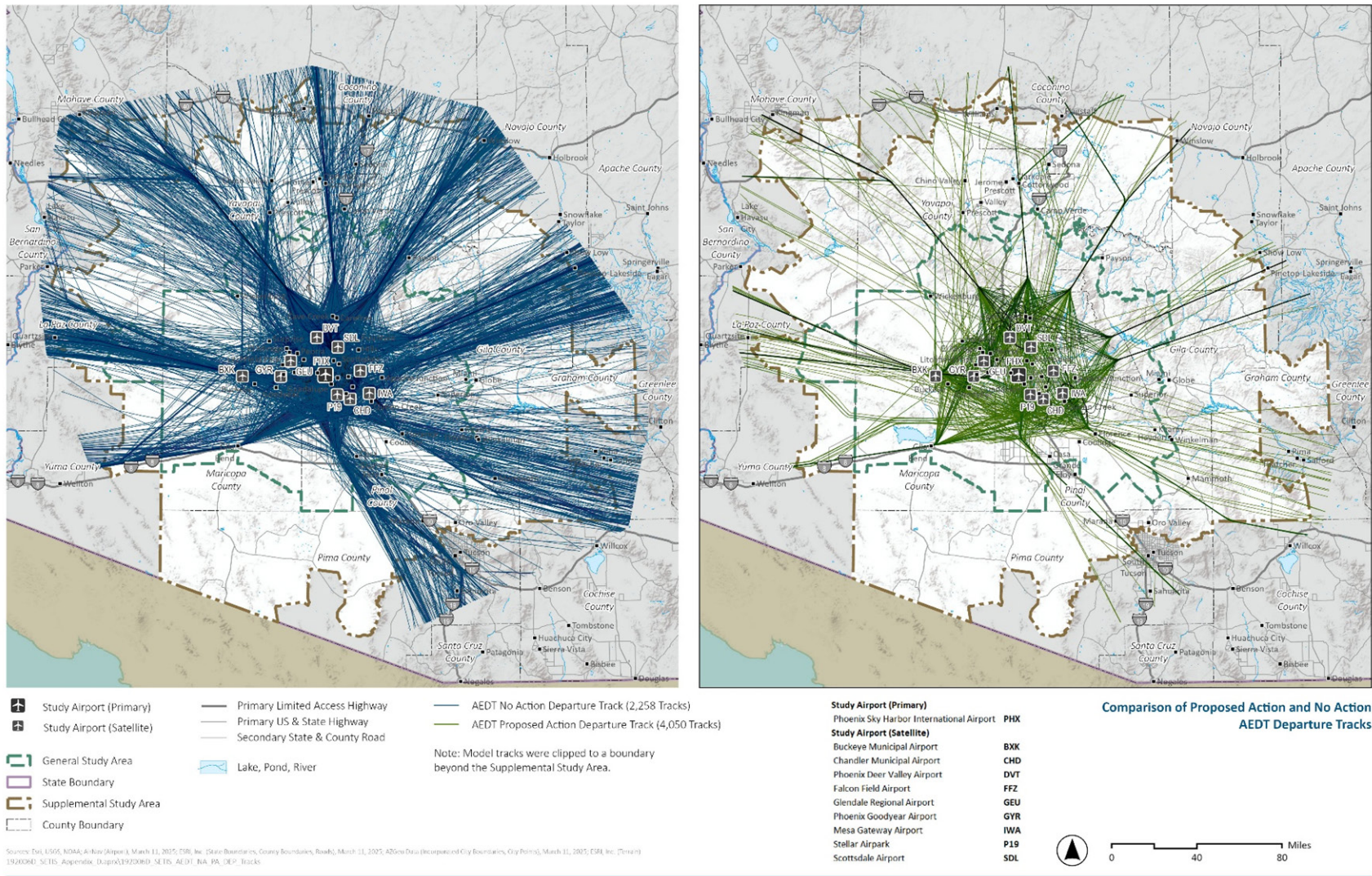
### **5.3.4 T-Routes**

The Proposed Action includes modifications to T-306 and added a new T-Route (T-327). In the Proposed Action, T-306 starts southwest of P50 airspace, heading west, then northwest to intercept the original west route exiting the Supplemental Study Area near Blythe, Arizona. The new T-Route (T-327) enters the Supplemental Study Area in the southeast near Tucson and heads north to PHX through the General Study Area following the original T-306 route. T-327 then continues north exiting the General Study Area and turning northwest and ending north of Prescott, Arizona.

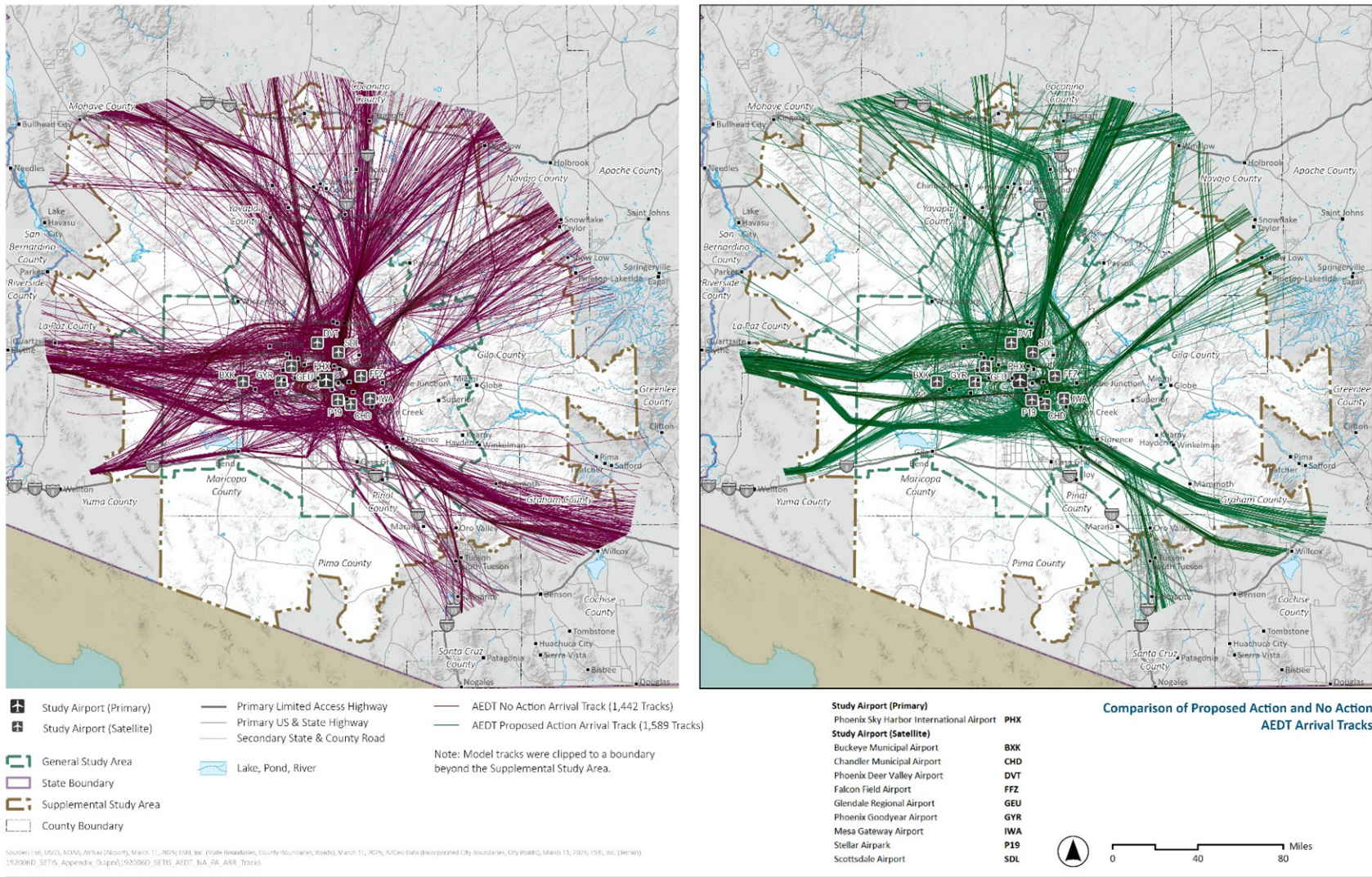
### **5.3.5 Proposed Action Flight Tracks**

Application of the Proposed Action procedures resulted in the development of 4,050 unique AEDT departure tracks for AEDT model input (backbones and sub-tracks). **Exhibit 10** presents the PHX EA AEDT departure tracks used in the modeling of future No Action Alternative (in

blue) and Proposed Action (in light green) scenarios. The analysis also resulted in the development of 1,589 AEDT unique arrival tracks (backbones and sub-tracks). **Exhibit 11** presents the PHX EA AEDT arrival tracks used in the modeling of future No Action Alternative (in maroon) and Proposed Action (in green) scenarios.



**Exhibit 10. Comparison of Proposed Action and No Action AEDT Departure Tracks**



**Exhibit 11. Comparison of Proposed Action and No Action AEDT Arrival Tracks**

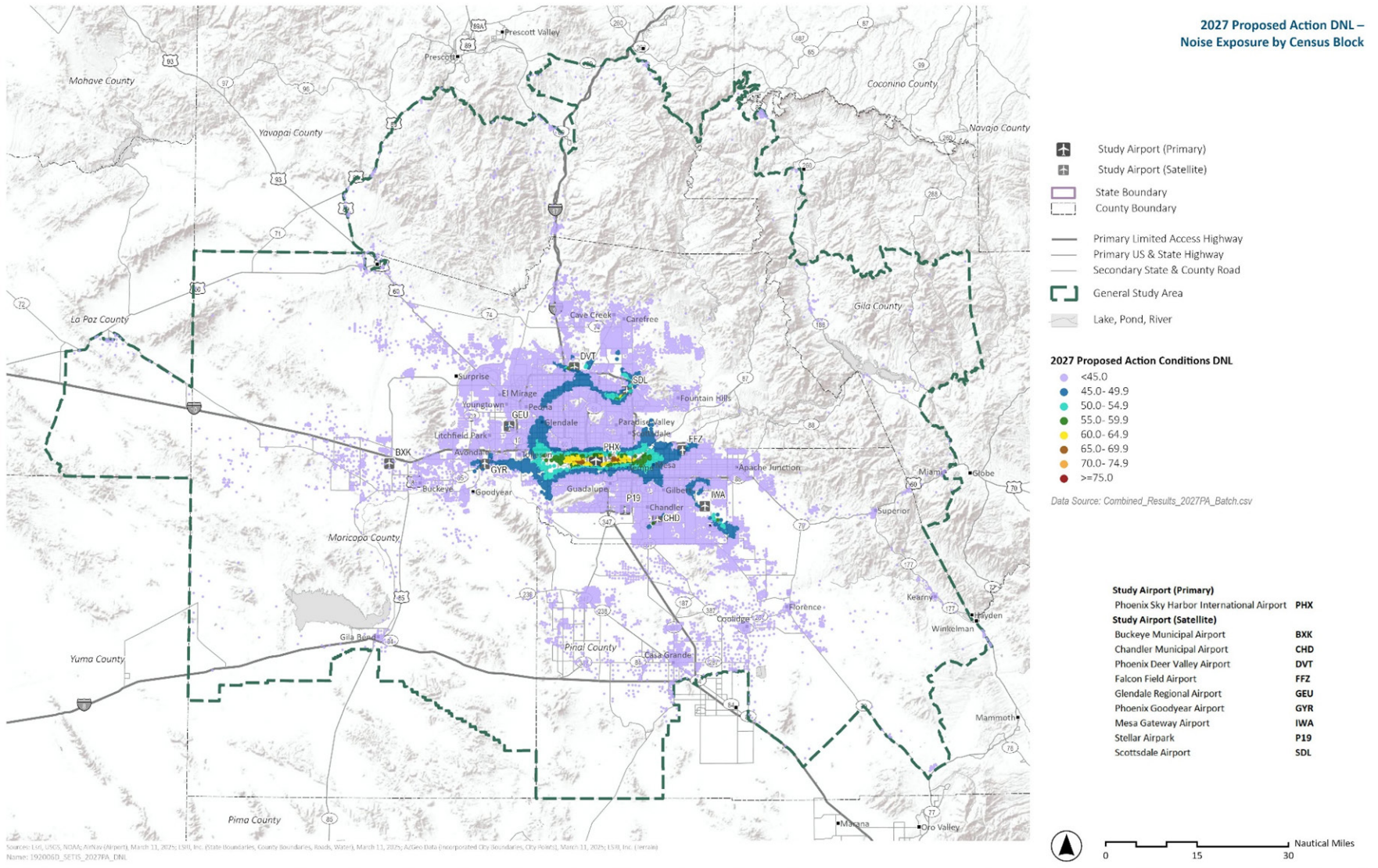
### 5.3.6 2027 Proposed Action Aircraft Noise Exposure

**Table 11** identifies the total population noise exposure for the 2027 Proposed Action. **Exhibit 12** presents modeled 2027 noise exposure within the General Study Area. Each point on the exhibit represents a Census block population centroid. As shown in **Exhibit 12**, areas exposed to higher DNL are generally aligned with Study Airport runways and areas with existing aircraft traffic.

**Table 11. 2027 Proposed Action Population Exposure from Aircraft Noise (DNL) within the General Study Area**

DNL Range (dB)	Population
DNL 45 dB to less than DNL 60 dB	922,029
DNL 60 dB to less than DNL 65 dB	22,367
DNL 65 dB and Higher	6,447
<b>Total Above DNL 45 dB</b>	<b>950,843</b>

Notes: DNL = Day-Night Average Sound Level, dB = Decibel  
Sources: US Census Bureau 2020, AEDT 3g



**Exhibit 12. 2027 Proposed Action DNL - Noise Exposure by Census Block**

### 5.3.7 2027 Proposed Action Grid Point Analysis

For the 2027 Proposed Action, 31 unique grid point locations experience DNL levels of 65.0 dB or higher, including 4 schools, 3 places of worship, 17 parks, and 7 historic sites. The names and DNL values for the parks and historical sites with DNL levels of 65.0 dB or higher are provided in **Attachment D**, and the names and DNL values for the schools and places of worship with DNL levels of 65.0 dB or higher are provided in **Attachment F**.

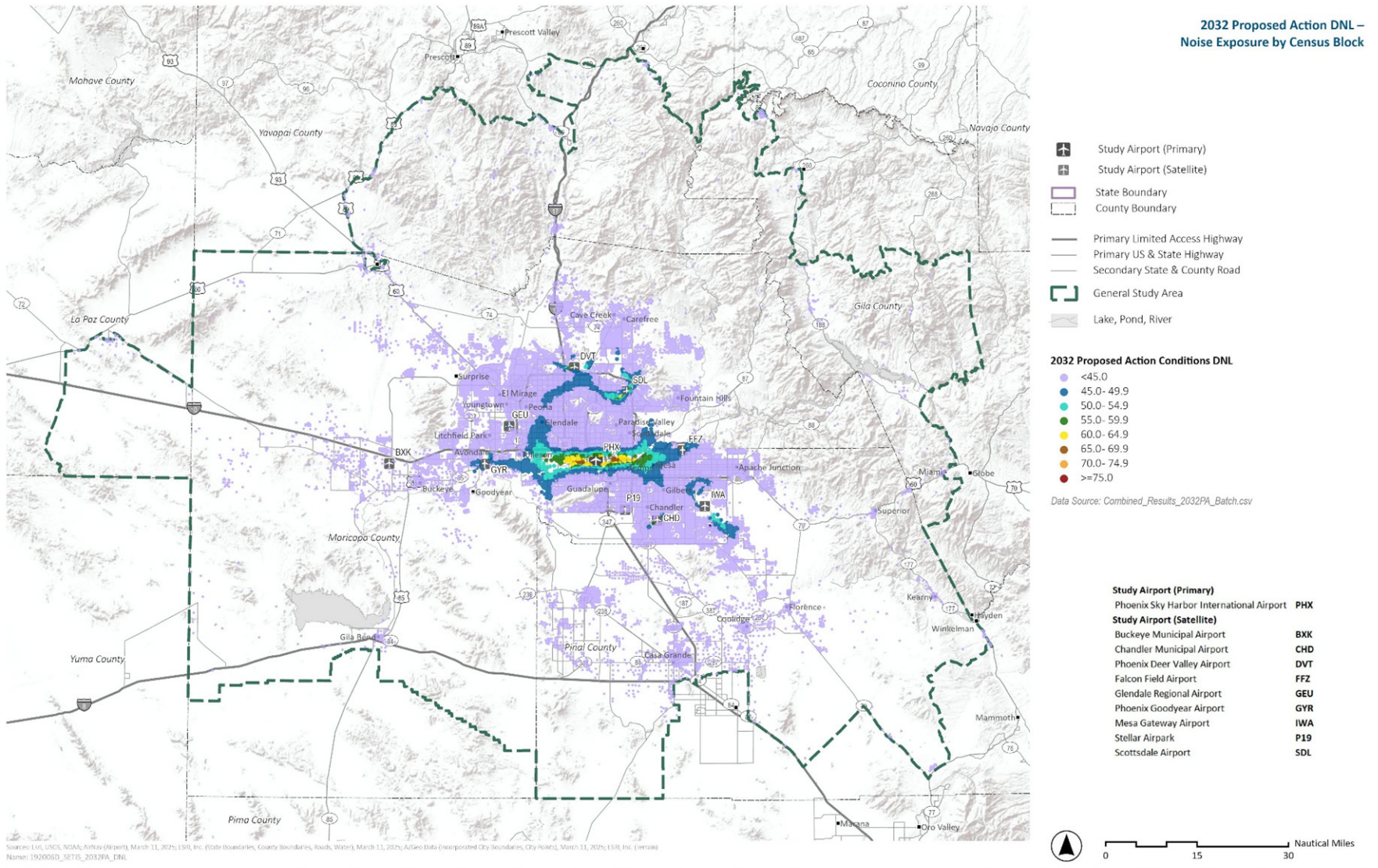
### 5.3.8 2032 Proposed Action Aircraft Noise Exposure

**Table 12** identifies the total population noise exposure under the 2032 Proposed Action. **Exhibit 13** presents modeled 2032 noise exposure within the General Study Area. Each point on the exhibit represents a Census block population centroid. As shown in **Exhibit 13**, areas exposed to higher DNL are generally aligned with Study Airport runways and areas with existing aircraft traffic.

**Table 12. 2032 Proposed Action Population Exposure from Aircraft Noise (DNL) within the General Study Area**

DNL Range (dB)	Population
DNL 45 dB to less than DNL 60 dB	944,560
DNL 60 dB to less than DNL 65 dB	21,496
DNL 65 dB and Higher	7,629
<b>Total Above DNL 45 dB</b>	<b>973,685</b>

Notes: DNL = Day-Night Average Sound Level, dB = Decibel  
Sources: US Census Bureau 2020, AEDT 3g



**Exhibit 13. 2032 Proposed Action DNL - Noise Exposure by Census Block**

### 5.3.9 2032 Proposed Action Grid Point Analysis

For the 2032 Proposed Action, 32 unique grid point locations experience DNL levels of 65.0 dB or higher, including 4 schools, 3 places of worship, 17 parks, and 8 historic sites. The names and DNL values for the parks and historical sites with DNL levels of 65.0 dB or higher are provided in **Attachment D**, and the names and DNL values for the schools and places of worship with DNL levels of 65.0 dB or higher are provided in **Attachment F**.

### 5.3.10 No Action Alternative and Proposed Action Comparison (2027)

The number of people exposed to a DNL 65 dB or greater noise level for the 2027 Proposed Action is greater than the No Action Alternative. Differences in population exposure between the Proposed Action and No Action Alternatives result from changes in flight procedures, given that total aircraft operations and runway use are held constant across scenarios. As shown in **Table 13**, the number of people increases by 46 in the Proposed Action as compared to the No Action Alternative.

**Table 13. 2027 No Action Alternative and Proposed Action Population Comparison within the General Study Area**

DNL Range (dB)	No Action Alternative Population	Proposed Action Population	Change in Population
DNL 45 dB to less than DNL 60 dB	835,915	922,029	86,114
DNL 60 dB to less than DNL 65 dB	22,143	22,367	224
DNL 65 dB and Higher	6,401	6,447	46
<b>Total Above DNL 45 dB</b>	<b>864,459</b>	<b>950,843</b>	<b>86,384</b>

Notes: DNL = Day-Night Average Sound Level, dB = Decibel  
Sources: US Census Bureau 2020, AEDT 3g

### 5.3.11 No Action Alternative and Proposed Action Comparison (2032)

The number of people exposed to a DNL 65 dB or greater noise level for the 2032 Proposed Action is less than the No Action Alternative. The change in the number of people because of the Proposed Action is due to changes in flight procedures as the number of aircraft flight operations and runway use remains the same between the No Action Alternative and the Proposed Action. As shown in **Table 14**, the number of people decreases by 23 in the Proposed Action as compared to the No Action Alternative.

**Table 14. 2032 No Action Alternative and Proposed Action Population Comparison within the General Study Area**

DNL Range (dB)	No Action Alternative Population	Proposed Action Population	Change in Population
DNL 45 dB to less than DNL 60 dB	858,698	944,560	85,862
DNL 60 dB to less than DNL 65 dB	21,787	21,496	-291
DNL 65 dB and Higher	7,652	7,629	-23
<b>Total Above DNL 45 dB</b>	<b>888,137</b>	<b>973,685</b>	<b>85,548</b>

Notes: DNL = Day-Night Average Sound Level, dB = Decibel  
Sources: US Census Bureau 2020, AEDT 3g

## 5.4 Impact Analysis Results

This section presents the results of the impact analysis comparing the Proposed Action and No Action Alternative. The summary includes results from the 2027 and 2032 scenarios, evaluated across U.S. 2020 Census population centroids, the uniform spaced grid points, noise-sensitive sites, unique Section 4(f)/Section 106 resource points and airport area grid points.

For 2027, no significant noise impact was identified (defined as a +1.5 dB DNL increase within the Proposed Action DNL of 65 dB or higher) over noise-sensitive land use. There is an area greater than or equal to DNL 65 dB with a 1.5 dB increase off airport property to the northeast of Runway 21 at SDL. This area is over the Champions Course at TPC Scottsdale Golf Course and while a 1.5 dB increase, it is not considered a significant impact as the land use is compatible with aircraft noise greater than DNL 65 dB.

There are three census centroid receptor points southwest of Runway 3 at SDL, representing 113 people who experienced a +3.0 dB increase between the Proposed Action DNL 60 and 65 dB. There are three airport grid points with a +3.0 dB increase between the Proposed Action DNL 60 and 65 dB northeast of Runway 21 at SDL and nine airport grid points southwest of Runway 3 at SDL.

There are 542 census centroid receptor points representing 65,674 people who experienced a +5.0 dB increase between the Proposed Action DNL 45 and 60 dB. In addition 41 uniform grid receptor points experienced a +5.0 dB increase within the same range. Finally, eight Section 4(f)/Section 106 receptor points, representing eight named resources, experienced a +5.0 dB increase between the Proposed Action DNL 45 and 60 dB. The areas with 5 dB changes between DNL 45 and 60 dB due to the Proposed Action are near SDL, DVT, north of PHX and a small area just northeast of the runway at CHD.

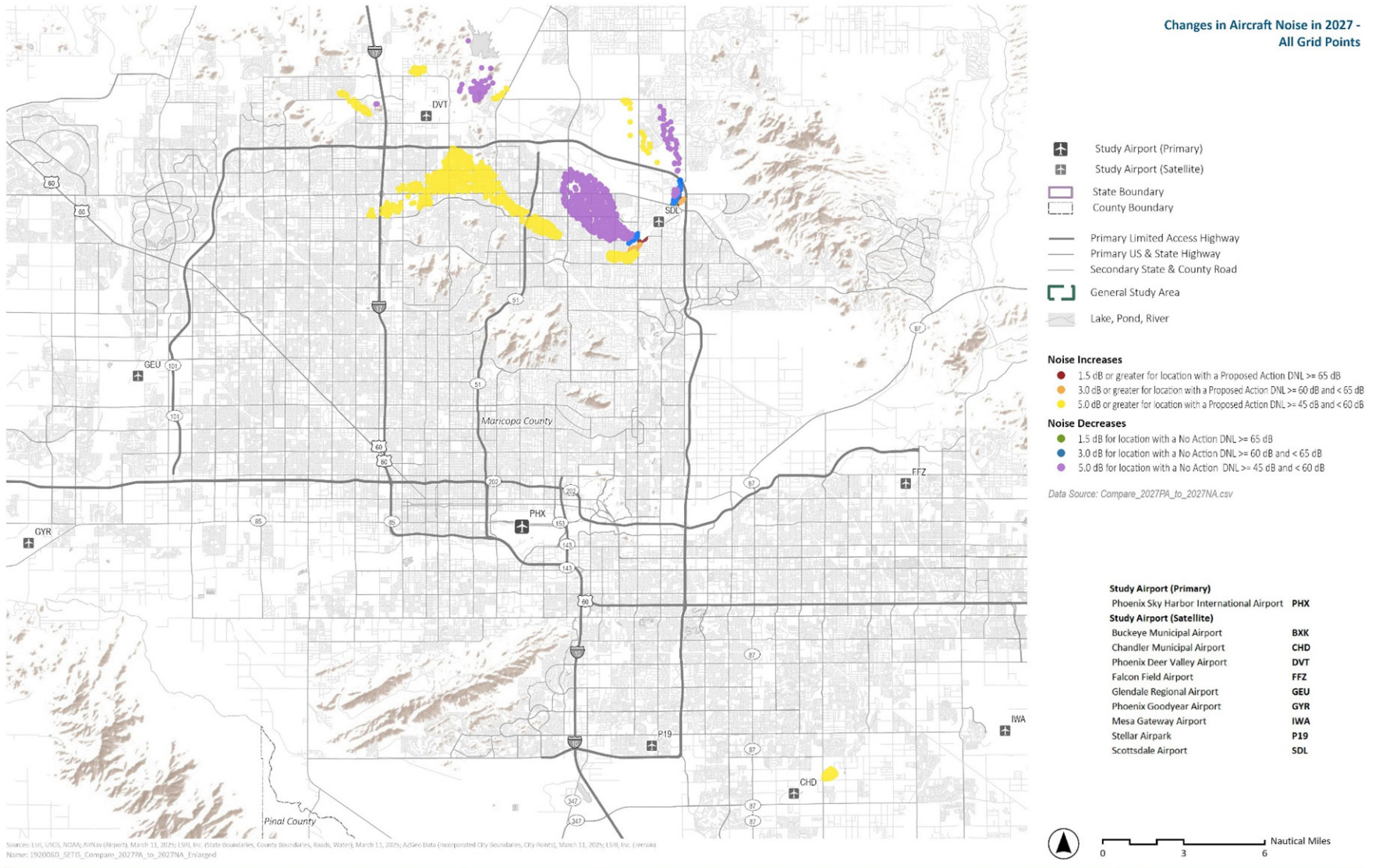
For 2032, no significant noise impact (+1.5 dB DNL resulting in 65 dB DNL or higher) was identified over noise-sensitive land use. There is an area greater than or equal to DNL 65 dB with a 1.5 dB increase off airport property to the northeast of Runway 21 at SDL. This area is

over the Champions Course at TPC Scottsdale Golf Course and while a 1.5 dB increase, it is not considered a significant impact as the land use is compatible with aircraft noise greater than DNL 65 dB.

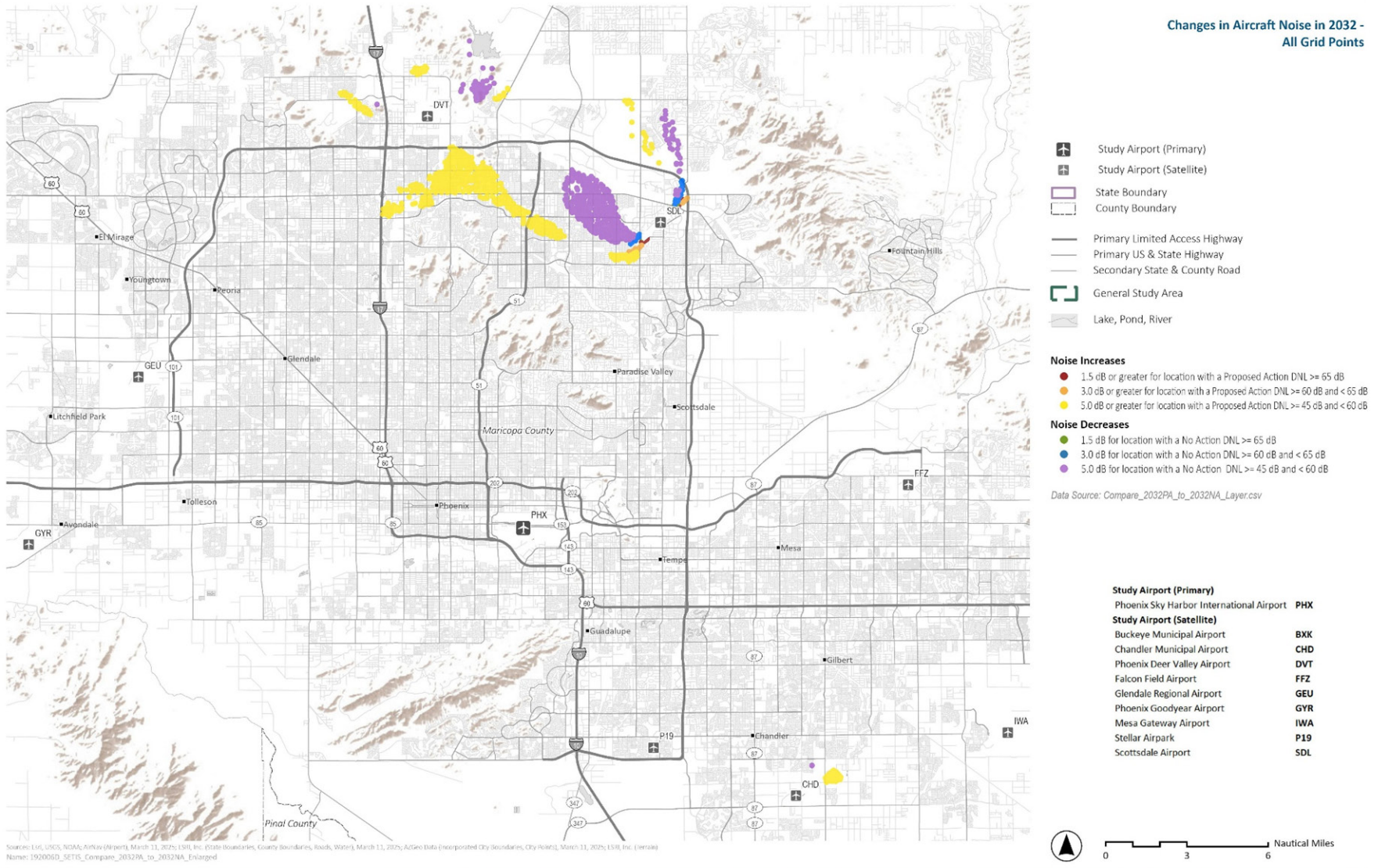
There are two census centroid receptor points, representing 67 people who experienced a +3.0 dB increase between the Proposed Action DNL 60 and 65 dB. There are four airport grid points with a +3.0 dB increase between the Proposed Action DNL 60 and 65 dB northeast of Runway 21 at SDL and 10 airport grid points southwest of Runway 3 at SDL.

There are 537 census centroid receptor points representing 65,475 people who experienced a +5.0 dB increase between the Proposed Action DNL 45 and 60 dB. In addition, 38 uniform grid receptor points experienced a +5.0 dB increase within the same range. Finally, seven Section 4(f)/Section 106 receptor points, representing seven named resources, experienced a +5.0 dB increase between the Proposed Action DNL 45 and 60 dB. The areas with 5 dB changes between DNL 45 and 60 dB due to the Proposed Action are near SDL, DVT, north of PHX and a small area just northeast of the runway at CHD.

All modeled grid points with reportable changes in noise for 2027 are presented in **Exhibit 14**, and all modeled grid points with reportable changes in noise for 2032 are presented in **Exhibit 15**.



**Exhibit 14. Changes in Aircraft Noise in 2027 – All Grid Points**



**Exhibit 15. Changes in Aircraft Noise in 2032 – All Grid Points**

### 5.4.1 Population Data

**Table 15** presents the change in potential population exposed to increased aircraft noise under the Proposed Action for 2027 conditions. The analysis indicates that the Proposed Action would not result in an increase of DNL 1.5 dB in areas exposed to DNL of 65 dB and higher. However, the 2027 Proposed Action did result in a reportable noise increase of DNL 3.0 dB in a residential area southwest of SDL within the Proposed Action DNL 60 dB to 65 dB. According to census data, a total of 113 people, associated with three population centroids, would be exposed to a reportable DNL 3.0 dB or greater noise increase. The 2027 Proposed Action also resulted in a reportable noise increase of DNL 5.0 dB in areas exposed to DNL 45 dB to 60 dB. According to census data, a total of 65,674 people, associated with 542 population centroids, would be exposed to a reportable DNL 5.0 dB or greater noise increase.

The analysis indicates that the Proposed Action would not result in a decrease of DNL 1.5 dB in areas exposed to DNL of 65 dB and higher. However, the 2027 Proposed Action did result in a reportable noise decrease in a residential area west of the Runway 3 end at SDL. According to census data, a total of 110 people, associated with three population centroids, would be exposed to a reportable DNL 3.0 dB or greater noise decrease. The 2027 Proposed Action also resulted in a reportable noise decrease of DNL 5.0 dB in areas exposed to DNL 45 dB to 60 dB. According to census data, a total of 28,065 people, associated with 348 population centroids, would be exposed to a reportable DNL 5.0 dB or greater noise decrease.

The population centroids with reportable changes are located in three general areas. The first area is located near DVT due to the implementation of RNAV-off-the-ground departures (all SIDs), the second area is located near SDL due to the implementation of RNAV-off-the-ground departures (all SIDs), and the third area is located north of PHX due to the common route of the DNHIL, SNRIZ and SNWBD SIDs. Details for these population centroids are presented in **Attachment C** and shown in **Exhibit 16**.

**Table 15. Change in Potential Population Exposed to a Change in Aircraft Noise – 2027**

DNL Noise Exposure Level Under the Proposed Action	Change in DNL with the Proposed Action	Population Exposed to Noise that Exceeds the Threshold
DNL 65 dB and higher	DNL 1.5 dB or greater	0
DNL 60 dB to 65 dB	DNL 3.0 dB or greater	113
DNL 45 dB to 60 dB	DNL 5.0 dB or greater	65,674
DNL 65 dB and higher	DNL -1.5 dB or greater	0
DNL 60 dB to 65 dB	DNL -3.0 dB or greater	110
DNL 45 dB to 60 dB	DNL -5.0 dB or greater	28,065

Notes: DNL = Day-Night Average Sound Level, dB = Decibel  
Sources: US Census Bureau 2020, AEDT 3g

**Table 16** presents the change in potential population exposed to increased aircraft noise under the 2032 Proposed Action. The analysis indicates that the Proposed Action would not result in a DNL 1.5 dB increase in areas exposed to DNL of 65 dB and higher. However, the 2032 Proposed Action did result in a reportable noise increase of DNL 3.0 dB in a residential area southwest of SDL within the Proposed Action DNL 60 dB to 65 dB. According to census data, a total of 67 people, associated with two population centroids, would be exposed to a reportable DNL 3.0 dB or greater noise increase. The 2032 Proposed Action also resulted in a reportable noise increase of DNL 5.0 dB in areas exposed to DNL 45 dB to 60 dB. According to census data, a total of 65,475 people, associated with 537 population centroids, would be exposed to a reportable DNL 5.0 dB or greater noise increase due to the Proposed Action.

The analysis indicates that the Proposed Action would not result in a decrease of DNL 1.5 dB in areas exposed to DNL of 65 dB and higher. However, the 2032 Proposed Action did result in a reportable noise decrease in a residential area west of the Runway 3 end at SDL. According to census data, a total of 110 people, associated with three population centroids, would be exposed to a reportable DNL 3.0 dB or greater noise decrease. The 2032 Proposed Action also resulted in a reportable noise decrease of DNL 5.0 dB in areas exposed to DNL 45 dB to 60 dB. According to census data, a total of 26,652 people, associated with 342 population centroids, would be exposed to a reportable DNL 5.0 dB or greater noise decrease.

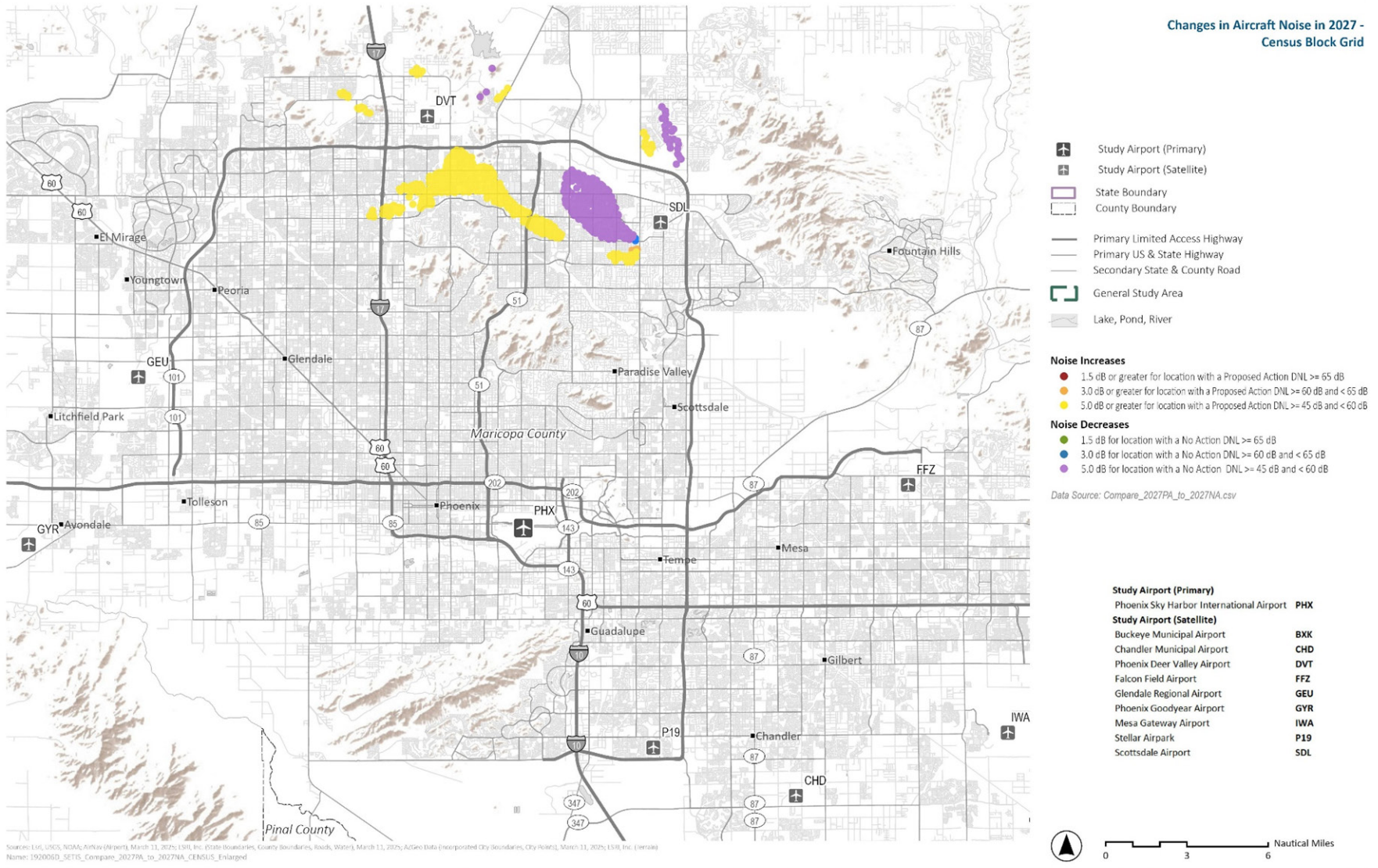
The population centroids with reportable changes are located in three general areas. The first area is located near DVT due to the implementation of RNAV-off-the-ground departures (all SIDs), the second area is located near SDL due to the implementation of RNAV-off-the-ground departures (all SIDs), and the third area is located north of PHX due to the common route of the DNHIL, SNRIZ and SNWBD SIDs. There is also one centroid northeast of CHD located at the Crossroads Towne shopping center. Details for these population centroids are presented in **Attachment C** and shown in **Exhibit 17**.

**Table 16. Change in Potential Population Exposed to a Change in Aircraft Noise – 2032**

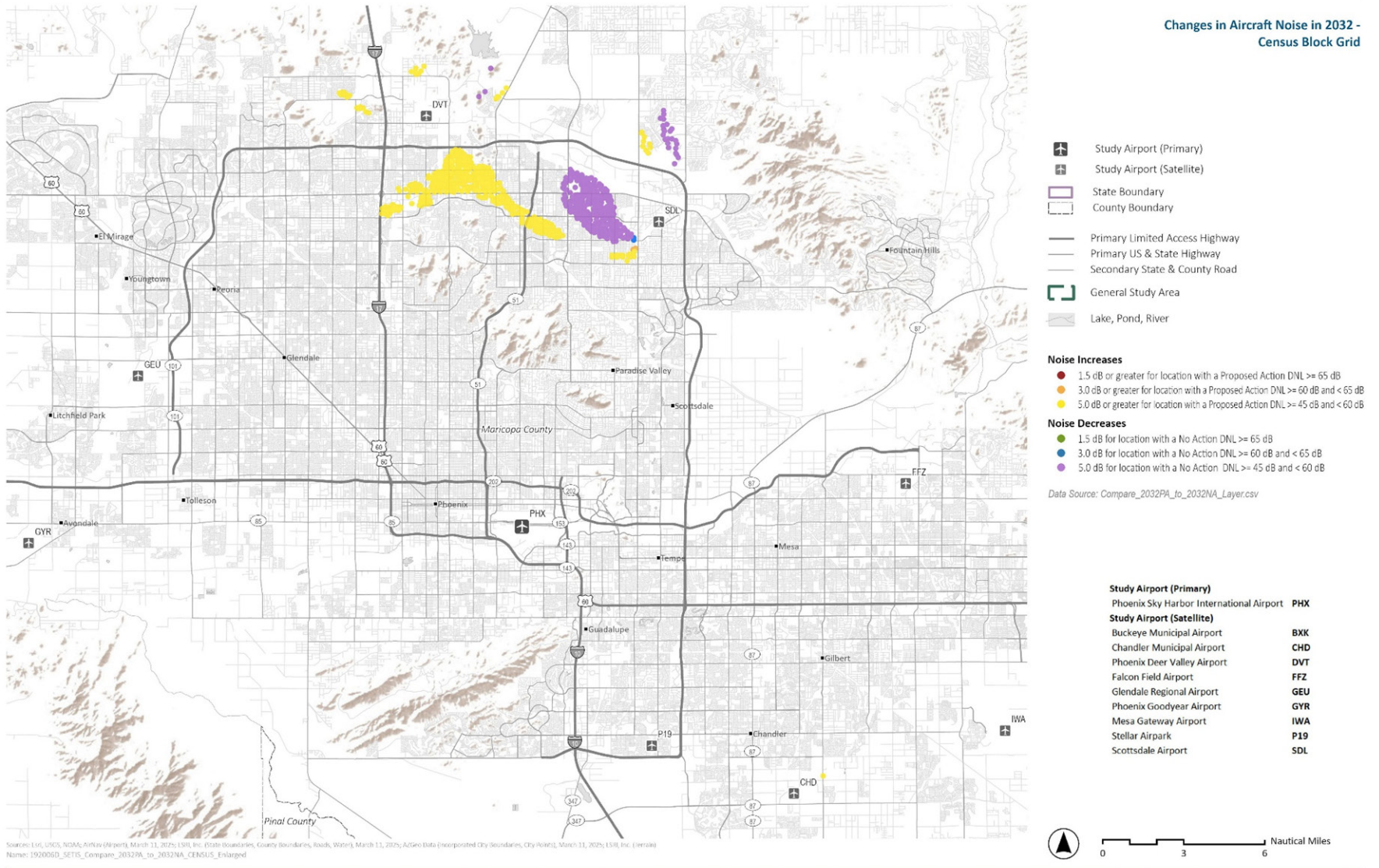
DNL Noise Exposure Level Under the Proposed Action	Increase in DNL with the Proposed Action	Population Exposed to Noise that Exceeds the Threshold
DNL 65 dB and higher	DNL 1.5 dB or greater	0
DNL 60 dB to 65 dB	DNL 3.0 dB or greater	67
DNL 45 dB to 60 dB	DNL 5.0 dB or greater	65,475
DNL 65 dB and higher	DNL -1.5 dB or greater	0
DNL 60 dB to 65 dB	DNL -3.0 dB or greater	110
DNL 45 dB to 60 dB	DNL -5.0 dB or greater	26,652

Notes: DNL = Day-Night Average Sound Level, dB = Decibel

Sources: US Census Bureau 2020, AEDT 3g



**Exhibit 16. Changes in Aircraft Noise in 2027 - Census Block Grid**



**Exhibit 17. Changes in Aircraft Noise in 2032 – Census Block Grid**

## 5.4.2 Section 4(f), Historic, and Cultural Resources

For the Section 4(f), Historic, and Cultural Resources areas in the 2027 scenarios, the analysis indicates that the Proposed Action would not result in a DNL 1.5 dB increase in areas exposed to DNL of 65 dB and higher, nor would it result in a reportable noise increase of DNL 3.0 dB in areas exposed to DNL 60 dB to 65 dB compared with the 2027 No Action Alternative. However, the 2027 Proposed Action did result in a reportable noise increase of DNL 5.0 dB at eight Section 4(f) locations exposed to DNL 45 dB to 60 dB.

The analysis indicates that the Proposed Action would not result in a DNL 1.5 dB decrease in areas exposed to DNL of 65 dB and higher, nor would it result in a reportable noise decrease of DNL 3.0 dB in areas exposed to DNL 60 dB to 65 dB compared with the 2027 No Action Alternative. However, the 2027 Proposed Action did result in a reportable noise decrease of DNL 5.0 dB at seven Section 4(f) locations exposed to DNL 45 dB to 60 dB. There are no noise changes exceeding any FAA thresholds for any Historic or Cultural Resources due to the Proposed Action for 2027.

The locations of these Section 4(f) reportable noise points are in the same three general areas as the reportable noise population centroids found in the 2027 scenarios. The first area is located near DVT due to the implementation of RNAV-off-the-ground departures (all SIDs), the second area is located near SDL due to the implementation of RNAV-off-the-ground departures (all SIDs), and the third area is located north of PHX due to the common route of the DNHIL, SNRIZ and SNWBD SIDs. These Section 4(f) areas with reportable noise changes are shown in **Exhibit 18**.

Similarly, for the Section 4(f), Historic, and Cultural Resources areas in the 2032 scenarios, the analysis indicates that the Proposed Action would not result in a DNL 1.5 dB increase in areas exposed to DNL of 65 dB and higher, nor would it result in a reportable noise increase DNL 3.0 dB in areas exposed to DNL 60 dB to 65 dB compared with the 2032 No Action Alternative. The 2032 Proposed Action did result in a reportable noise increase of DNL 5.0 dB or more in areas exposed to DNL 45 dB to 60 dB at seven Section 4(f) grid locations.

The analysis indicates that the Proposed Action would not result in a DNL 1.5 dB decrease in areas exposed to DNL of 65 dB and higher, nor would it result in a reportable noise decrease of DNL 3.0 dB in areas exposed to DNL 60 dB to 65 dB compared with the 2032 No Action Alternative. However, the 2032 Proposed Action did result in a reportable noise decrease of DNL 5.0 dB at eight Section 4(f) locations exposed to DNL 45 dB to 60 dB. There are no noise changes exceeding any FAA thresholds for any Historic or Cultural Resources due to the Proposed Action for 2032.

The locations of these Section 4(f) reportable noise points are in similar areas as the noise impacted population centroids found in the 2032 scenarios. The first area is located near DVT due to the implementation of RNAV-off-the-ground departures (all SIDs), the second area is located near SDL due to the implementation of RNAV-off-the-ground departures (all SIDs), and the third area is located north of PHX due to the common route of the DNHIL, SNRIZ and SNWBD SIDs. These Section 4(f) areas with reportable noise changes are shown in **Exhibit 19**.

Detailed information and noise results for Section 4(f), Historic, and Cultural Resources sites with noise levels DNL 65 dB or greater and all sites with reportable noise increases for all Section 4(f) resources are provided in **Attachment D**.

### 5.4.3 Uniform Grid Point Results

For the uniform grid point data in both the 2027 and 2032 scenarios, the analysis indicates the Proposed Action would not result in a DNL 1.5 dB increase in areas exposed to DNL of 65 dB and higher. Moreover, the 2027 and 2032 Proposed Action scenarios also did not result in a DNL 3.0 dB increase in areas exposed to DNL 60 dB to 65 dB compared to the No Action Alternative for the same year.

For the 2027 scenarios, 41 grid points would experience a greater than DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB in the Proposed Action. There are also 23 grid points that would experience a greater than DNL 5 dB decrease in areas exposed to DNL between 45 dB and 60 dB in the Proposed Action. The locations of these grid points are in similar areas as the noise-impacted population centroids found in the 2027 scenarios.

For the 2032 scenarios, 38 grid points would experience a greater than DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB in the Proposed Action and 23 grid points would experience a greater than DNL 5 dB decrease in areas exposed to DNL between 45 dB and 60 dB in the Proposed Action. The locations of these grid points are in similar areas as the noise-impacted population centroids found in the 2032 scenarios. The uniform grid reportable noise impact points for the 2027 and 2032 scenarios are shown in **Exhibit 20** and **Exhibit 21**, respectively. Detailed information for all uniform grid points with noise levels DNL 65 dB or greater is provided in **Attachment E**.

Similar to the population centroid results, the likely cause of the reportable noise changes in the 2027 and 2032 Proposed Action are due to the implementation of RNAV-off-the-ground departures (all SIDs) at DVT and SDL. The third area is located north of PHX due to the common route for the DNHIL, SNRIZ and SNWBD SIDs.

### 5.4.4 Noise-Sensitive Land Use Areas

For the noise-sensitive sites in both the 2027 and 2032 scenarios, the analysis indicates the Proposed Action would not result in a DNL 1.5 dB increase in areas exposed to DNL of 65 dB and

higher. Moreover, the 2027 and 2032 Proposed Action did not result in a DNL 3.0 dB increase in areas exposed to DNL 60 dB to 65 dB compared to the No Action Alternative for the same year. The 2027 and 2032 Proposed Action scenarios also did not result in a DNL 5.0 dB increase in areas exposed to DNL 45 dB to 60 dB compared to the No Action Alternative for the same year for the noise-sensitive sites inventoried.

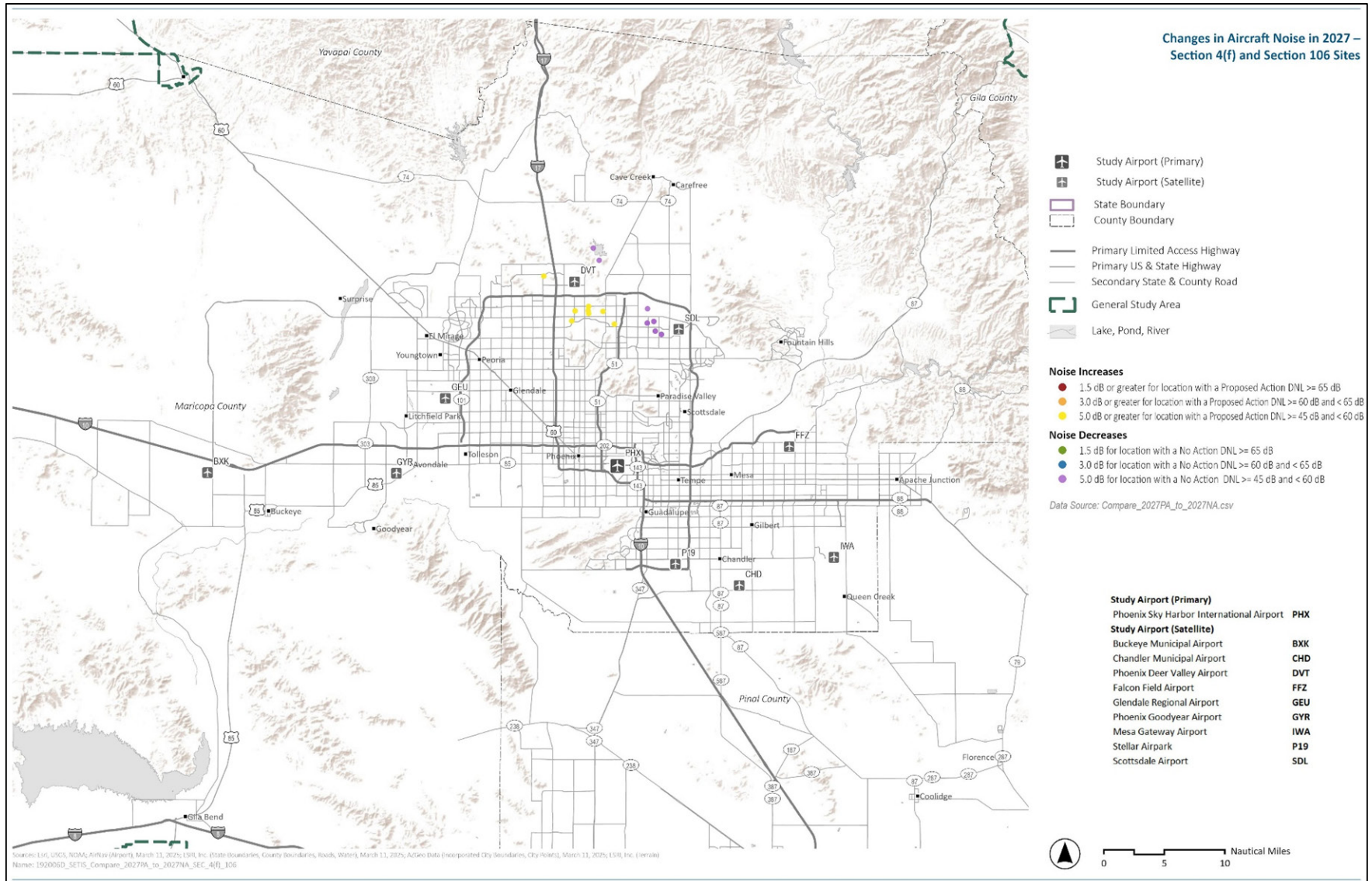
For the noise-sensitive sites in both the 2027 and 2032 scenarios, the analysis indicates the Proposed Action would not result in a DNL 1.5 dB decrease in areas exposed to DNL of 65 dB and higher. Moreover, the 2027 and 2032 Proposed Action did not result in a DNL 3.0 dB decrease in areas exposed to DNL 60 dB to 65 dB compared to the No Action Alternative for the same year. The 2027 and 2032 Proposed Action scenarios also did not result in a DNL 5.0 dB decrease in areas exposed to DNL 45 dB to 60 dB compared to the No Action Alternative for the same year for the noise-sensitive sites inventoried.

**Exhibit 15.** Detailed information for all noise-sensitive sites with noise levels DNL 65 dB or greater is provided in **Attachment F**.

#### **5.4.5 Airport Area Grid**

For the airport area grid in both the 2027 and 2032 scenarios, the analysis indicates the Proposed Action would result in a DNL 1.5 dB increase in areas exposed to DNL of 65 dB and higher just northeast of SDL. Although a +1.5 dB increase occurs at airport-area grids exposed to DNL 65 dB or greater, these locations occur over compatible land uses and do not represent noise-sensitive receptors; therefore, the increase does not constitute a significant noise impact.. The 2027 and 2032 Proposed Action also results in a DNL 3.0 dB increase in areas exposed to DNL 60 dB to 65 dB compared to the No Action Alternative for the same year near SDL. There is also a small area of 1.5 dB decrease northeast of SDL over compatible land uses and areas of 3.0 dB decreases due to the Proposed Action northeast and west of SDL. The 2027 and 2032 Proposed Action scenarios did result in a DNL 5.0 dB increase in areas exposed to DNL 45 dB to 60 dB compared to the No Action Alternative for the same year in a commercial area northeast of Runway 22L/R at CHD, northwest of Runway 21 and south of Runway 3 at SDL and to the east and west of DVT. The 2027 and 2032 Proposed Action scenarios also result in a DNL 5.0 dB decrease in areas exposed to DNL 45 dB to 60 dB compared to the No Action Alternative for the same year at one location northwest of Runway 22L/R at CHD, north of Runway 21 and northwest of Runway 3 at SDL and to the east and west of DVT.

Any airport area reportable noise change points for the 2027 and 2032 scenarios are shown in **Exhibit 22** and **Exhibit 23**, respectively. Detailed information for all off-airport area grid points with significant noise changes are provided in **Attachment G**.



**Exhibit 18. Changes in Aircraft Noise in 2027 – Section 4(f) and Section 106 Sites**

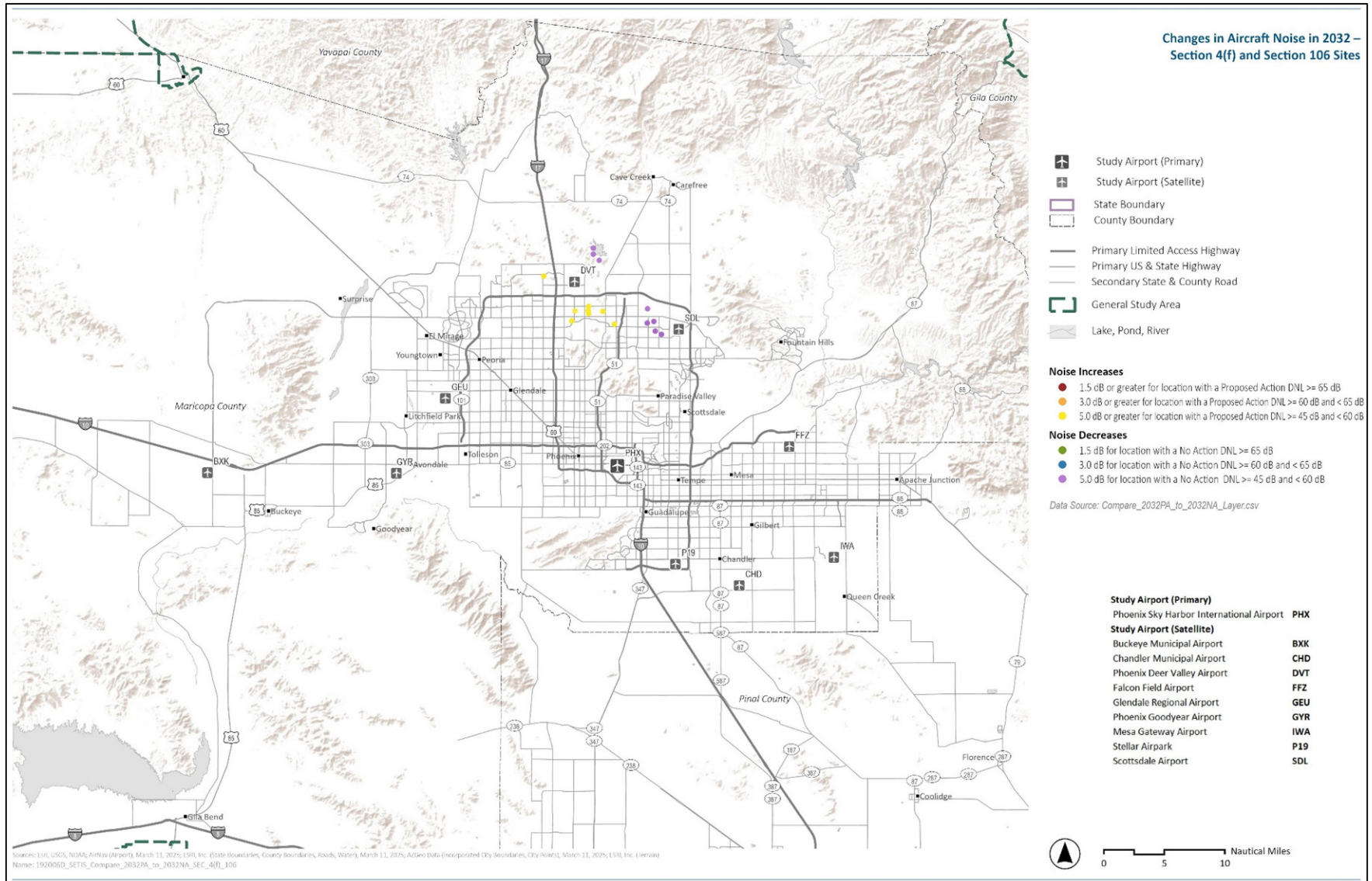
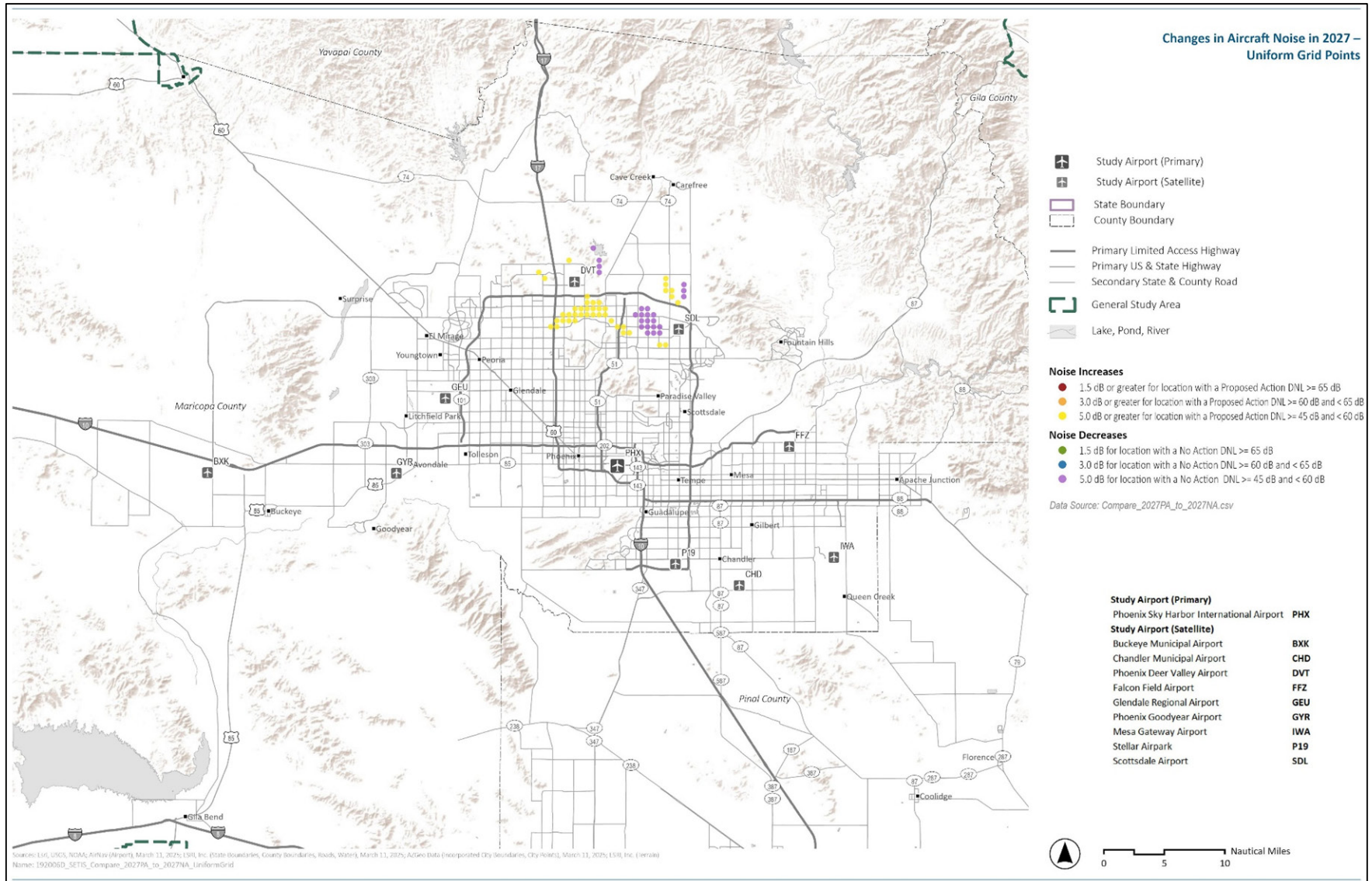
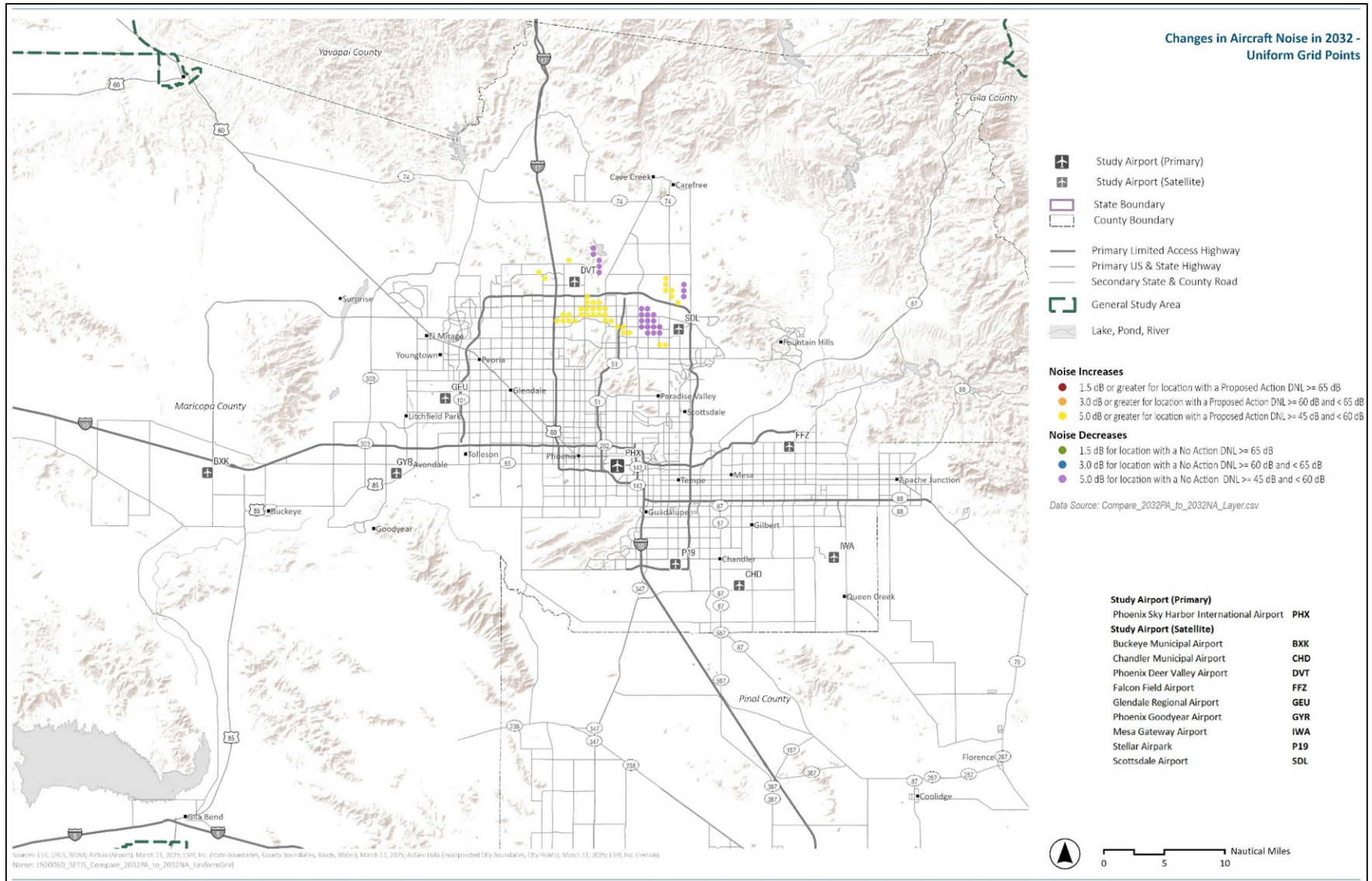


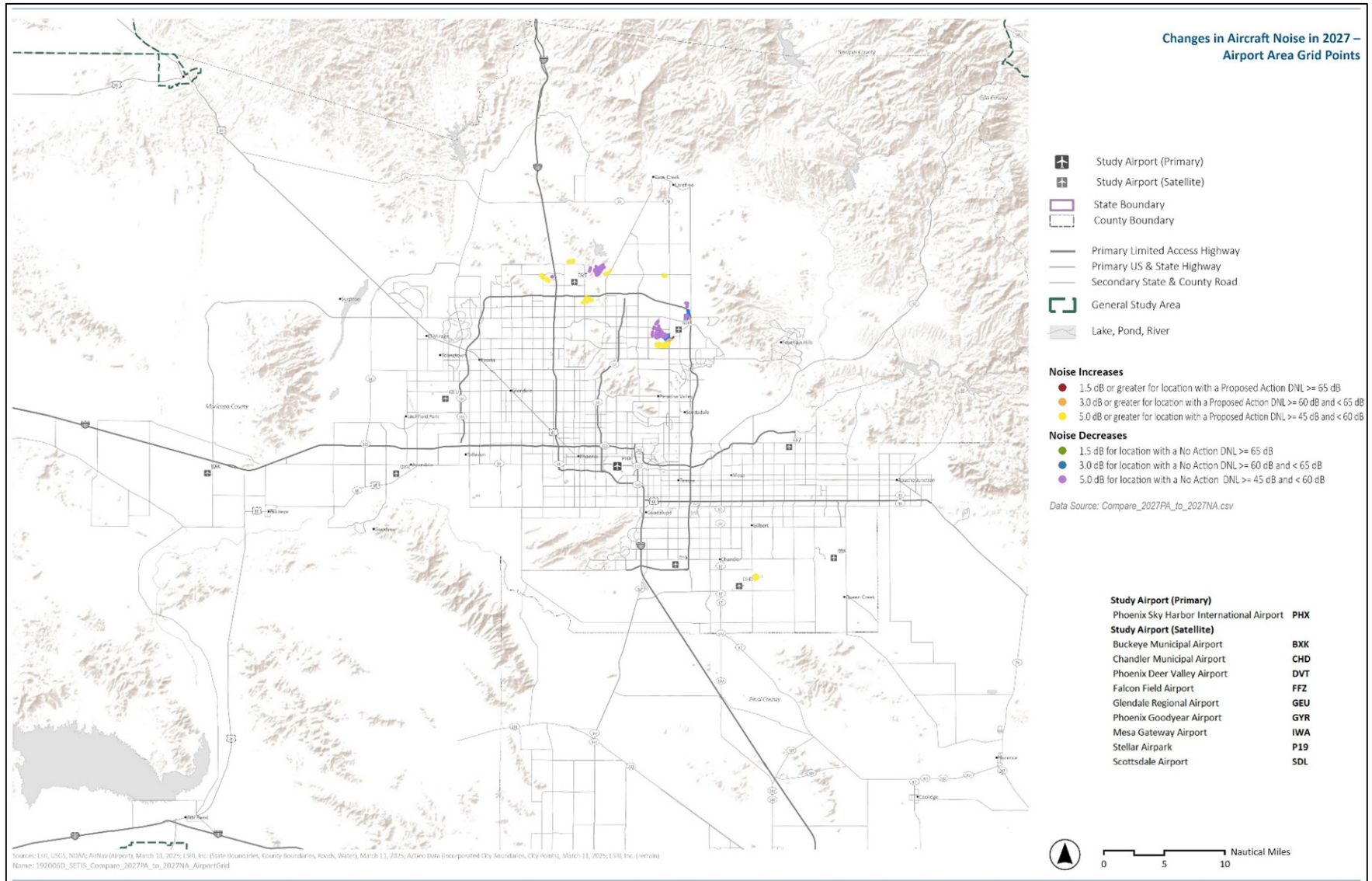
Exhibit 19. Changes in Aircraft Noise in 2032 - Section 4(f) and Section 106 Sites



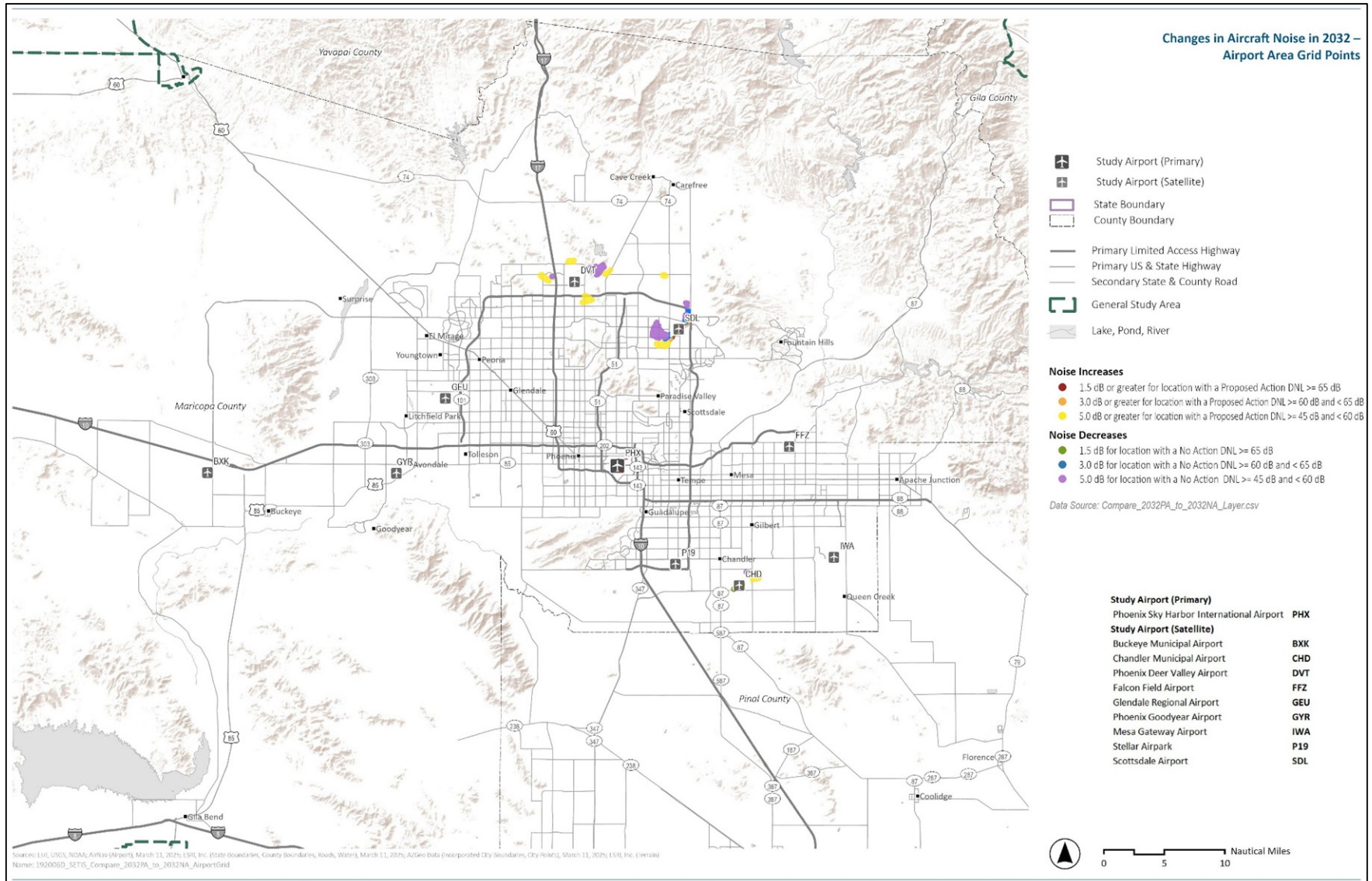
**Exhibit 20. Changes in Aircraft Noise in 2027 - Uniform Grid Points**



**Exhibit 21. Changes in Aircraft Noise in 2032 - Uniform Grid Points**



**Exhibit 22. Changes in Aircraft Noise in 2027 – Airport Area Grid Points**



**Exhibit 23. Changes in Aircraft Noise in 2032 – Airport Area Grid Points**

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