

Special Council Policy Session
FAA Flight Path Update
April 16, 2015

City of Phoenix



Council Direction

- December 16
 - Special Council Policy Session
 - Council directed staff to request FAA to return to previous flight procedures
- December 23
 - City Manager Ed Zuercher sent letter to FAA Administrator Michael Huerta
 - Insisted FAA immediately revert to previous procedures



FAA Administrator Huerta Letter



U.S. Department
of Transportation

Federal Aviation
Administration

Office of the Administrator

800 Independence Ave., S.W.
Washington, D.C. 20591

January 22, 2015

Mr. Ed Zuercher
City Manager, City of Phoenix
200 West Washington Street
Phoenix, AZ 85003

Dear Mr. Zuercher:

Thank you for your December 23, 2014, letter about the new air traffic procedures that the Federal Aviation Administration (FAA) implemented for Phoenix Sky Harbor International Airport last September.

We are working with airports, airlines, and communities all over the country to modernize the National Airspace System by taking full advantage of emerging technologies and aircraft navigation capabilities to improve safety and efficiency. The recently implemented Performance Based Navigation (PBN) procedures in Phoenix make a safe system even safer by automatically keeping arrival routes and departure routes separated from one another. Airlines program the procedures into their flight computers, and planes fly the routes automatically. This decreases communications between controllers and pilots, which reduces the chances for miscommunications. It also creates more predictable flight paths and provides more direct routings. An ancillary benefit is a reduction in fuel burned and associated CO₂ emissions.

We recognize communities around the airport have concerns about the noise generated by some of the new procedures. After becoming aware of this issue, the FAA quickly took steps to ensure aircraft remained for a greater distance on the charted departure routes, which are designed to fly over an industrial area instead of residential communities to the east. We're continuing to work with aircraft operators to ensure the procedures are being flown as intended. FAA representatives also attended two public meetings to receive input from residents and elected officials.

We are committed to partnering with the airport and airlines to explore other potential adjustments to the procedures to better manage noise issues. We will reconvene our Performance Based Navigation Working Group in February. As I told Mayor Stanton and Congressman Gallego when I met with them on Wednesday, January 21, the City of Phoenix is an important player in this process and we want city representatives to be part of this process.

Although we are committed to exploring possible adjustments to the new procedures, we cannot revert to the procedures that were in use before September 18, 2014. Making changes is not as

2

simple as turning one procedure off and turning another one on, and designing and developing possible adjustments will not be a simple or quick process.

The new arrival procedures are interdependent with the new departure procedures. Making changes to one would have a domino effect, requiring changes to others. Adjustments to the new procedures must be designed, subjected to a rigorous safety analysis, flight-checked, and charted. Air traffic control and aircraft automation systems must be updated, and air traffic control personnel must be retrained on any changes. We also must conduct the environmental reviews that further changes may require.

As we pursue improvements in safety and efficiency of the National Airspace System for the flying public, we remain committed to working with communities to manage noise issues associated with these changes. We will work closely with the Phoenix Department of Aviation and airlines to explore potential adjustments to the new procedures, and we will keep the community and Congress informed about our efforts.

If we can be of further assistance, please contact me or Molly Harris, Acting Assistant Administrator for Government and Industry Affairs.

Sincerely,


Michael P. Huerta
Administrator



Huerta Letter

- “...cannot revert to the procedures that were in use before September 18.”
- “...committed to partnering with the airport and airlines to explore other potential adjustments to the procedures to better manage noise issues.”



FAA Working Group

- The Honorable Congressman, Ed Pastor
- Assistant Aviation Director, Chad Makovsky
- Airspace Consultant, Tom Cornell

- February 12: Listening Session
- February 19: Discussed Process/Alternatives



FAA Alternatives Report

- FAA provided draft analysis April 7
- FAA only delivered modeling files for their preferred alternatives
- FAA indicated they did not create modeling files for remaining alternatives
- At request of City, FAA created additional files and transmitted to City on April 10



City's Initial Assessment

- FAA analyzed 14 alternatives
- FAA did not acknowledge city participation in working group
- FAA did not include noise mitigation in scope
- FAA did not consider some alternatives requested by city
- FAA rejected options that would move RNAV tracks
- FAA report lacked noise modeling and data to substantiate conclusions



City's Review of Potential Impact to Community

- Population Density Map
- Typical Aircraft: Boeing 737-700
- 75 dB Single Event Sound Equivalent Level (SEL)
= normal conversational speech

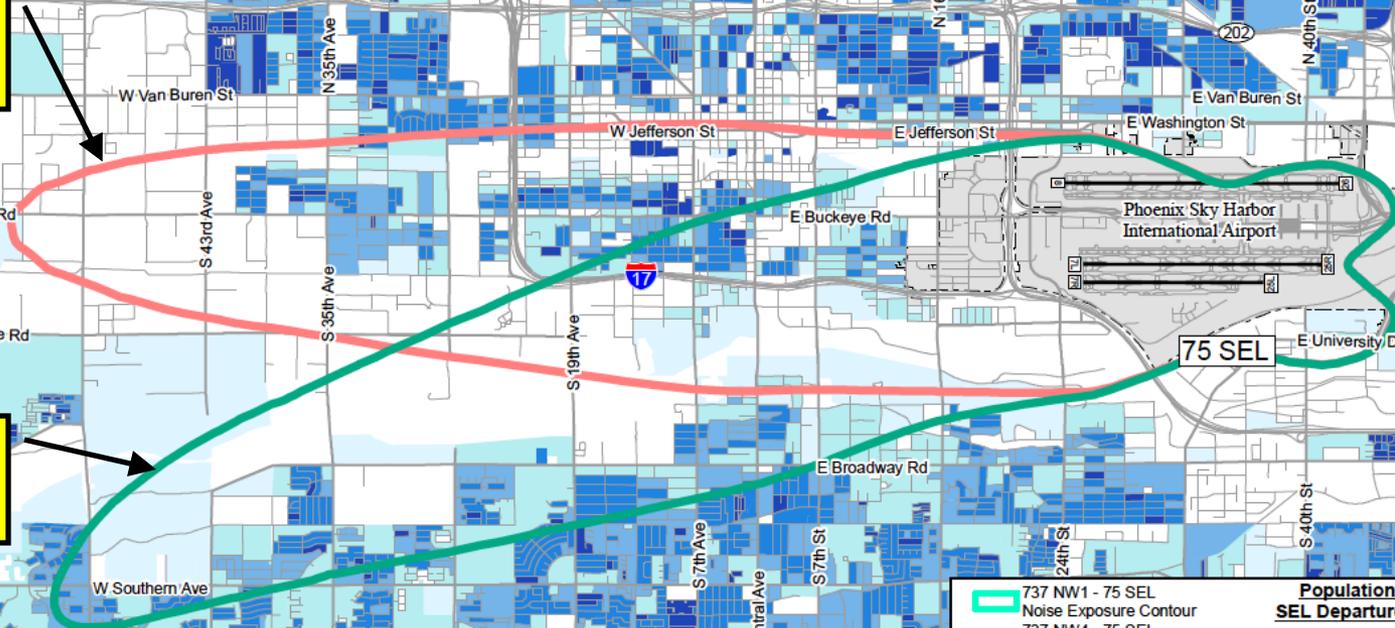
Louder noises at or within contour can disrupt or interfere with speech

- SEL is not a metric used by FAA for Noise Evaluation

Previous Flight Corridors: City's Requested Alternatives

Previous NW
Corridor

Previous SW
Corridor



Population Density SEL Departure Contours	
PERSONS PER ACRE	
[White]	0
[Light Blue]	<1
[Medium Blue]	1 - 5
[Dark Blue]	6 - 10
[Darkest Blue]	11 - 20
[Black]	≥21

[Green Line]	737 NW1 - 75 SEL Noise Exposure Contour
[Purple Line]	737 NW4 - 75 SEL Noise Exposure Contour
[Yellow Line]	737 NW5 - 75 SEL Noise Exposure Contour
[Red Line]	737 NW6 - 75 SEL Noise Exposure Contour
[Purple Line]	737 SW1 - 75 SEL Noise Exposure Contour
[Green Line]	737 SW3 - 75 SEL Noise Exposure Contour
[Orange Line]	737 SW4 - 75 SEL Noise Exposure Contour
[Black Line]	737 SW5 - 75 SEL Noise Exposure Contour
[Red Line]	737 W1 - 75 SEL Noise Exposure Contour
[Yellow Line]	737 NW171 - 75 SEL Noise Exposure Contour

[Pink Hatched]	Historic Properties
[Dashed Line]	Airport Property Boundary

0 2,000 4,000 6,000 Feet

75 SEL

Phoenix Sky Harbor
International Airport





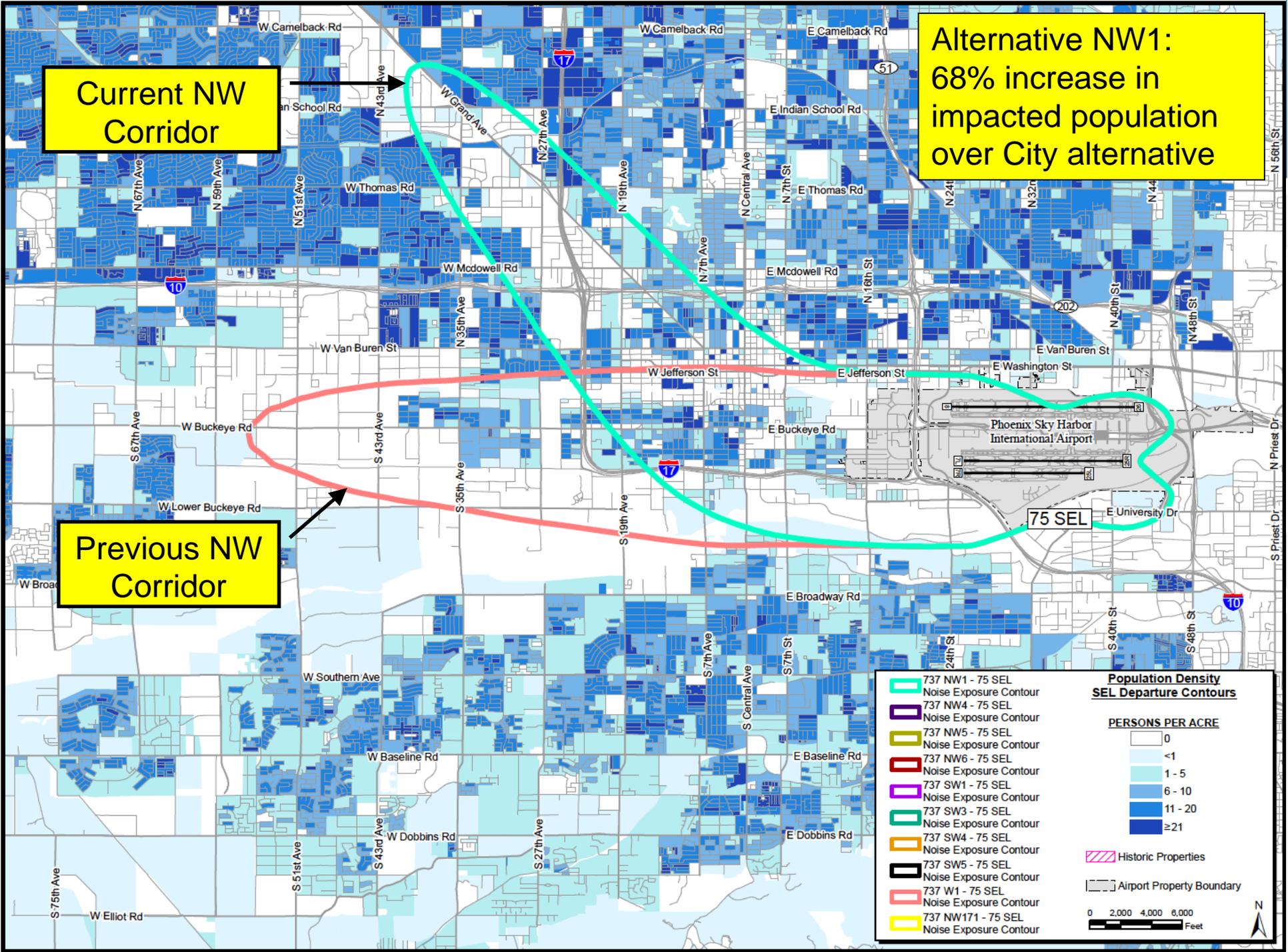
Alternative NW1 – FAA REJECTED

- Grand Avenue Corridor
- No Action Alternative

Current NW Corridor

Alternative NW1:
68% increase in impacted population over City alternative

Previous NW Corridor



Population Density	
SEL Departure Contours	
PERSONS PER ACRE	
[White]	0
[Lightest Blue]	<1
[Light Blue]	1 - 5
[Medium Blue]	6 - 10
[Dark Blue]	11 - 20
[Darkest Blue]	≥21
[Pink Hatched]	Historic Properties
[Grey Outline]	Airport Property Boundary
[Cyan Line]	737 NW1 - 75 SEL Noise Exposure Contour
[Purple Line]	737 NW4 - 75 SEL Noise Exposure Contour
[Green Line]	737 NW5 - 75 SEL Noise Exposure Contour
[Red Line]	737 NW6 - 75 SEL Noise Exposure Contour
[Purple Line]	737 SW1 - 75 SEL Noise Exposure Contour
[Teal Line]	737 SW3 - 75 SEL Noise Exposure Contour
[Orange Line]	737 SW4 - 75 SEL Noise Exposure Contour
[Black Line]	737 SW5 - 75 SEL Noise Exposure Contour
[Red Line]	737 W1 - 75 SEL Noise Exposure Contour
[Yellow Line]	737 NW171 - 75 SEL Noise Exposure Contour

0 2,000 4,000 6,000 Feet

N



Alternative NW2 – FAA Preferred

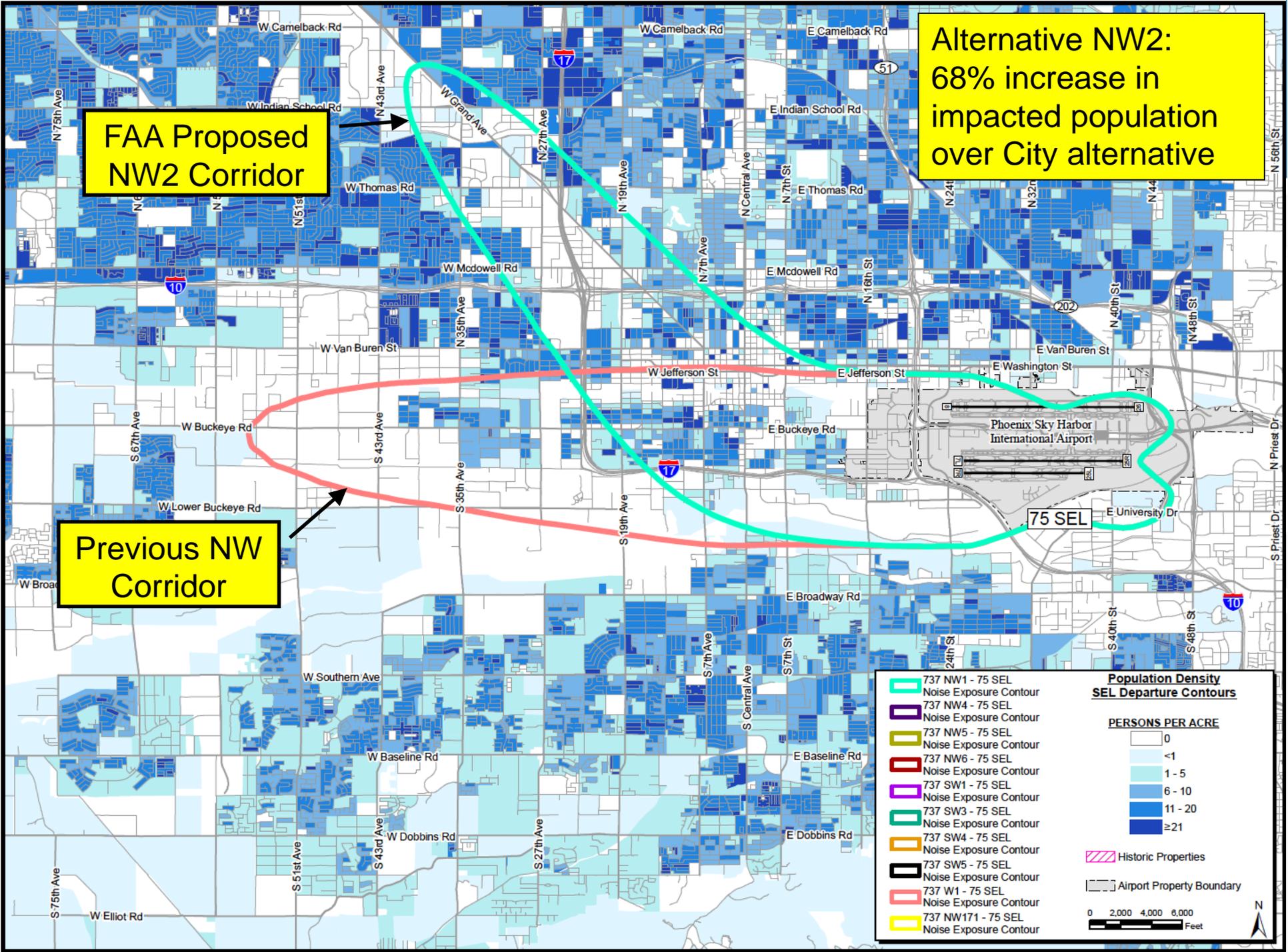
- Add second RNAV Waypoint
- Add altitude and speed restrictions



Alternative NW2:
68% increase in impacted population over City alternative

FAA Proposed NW2 Corridor

Previous NW Corridor



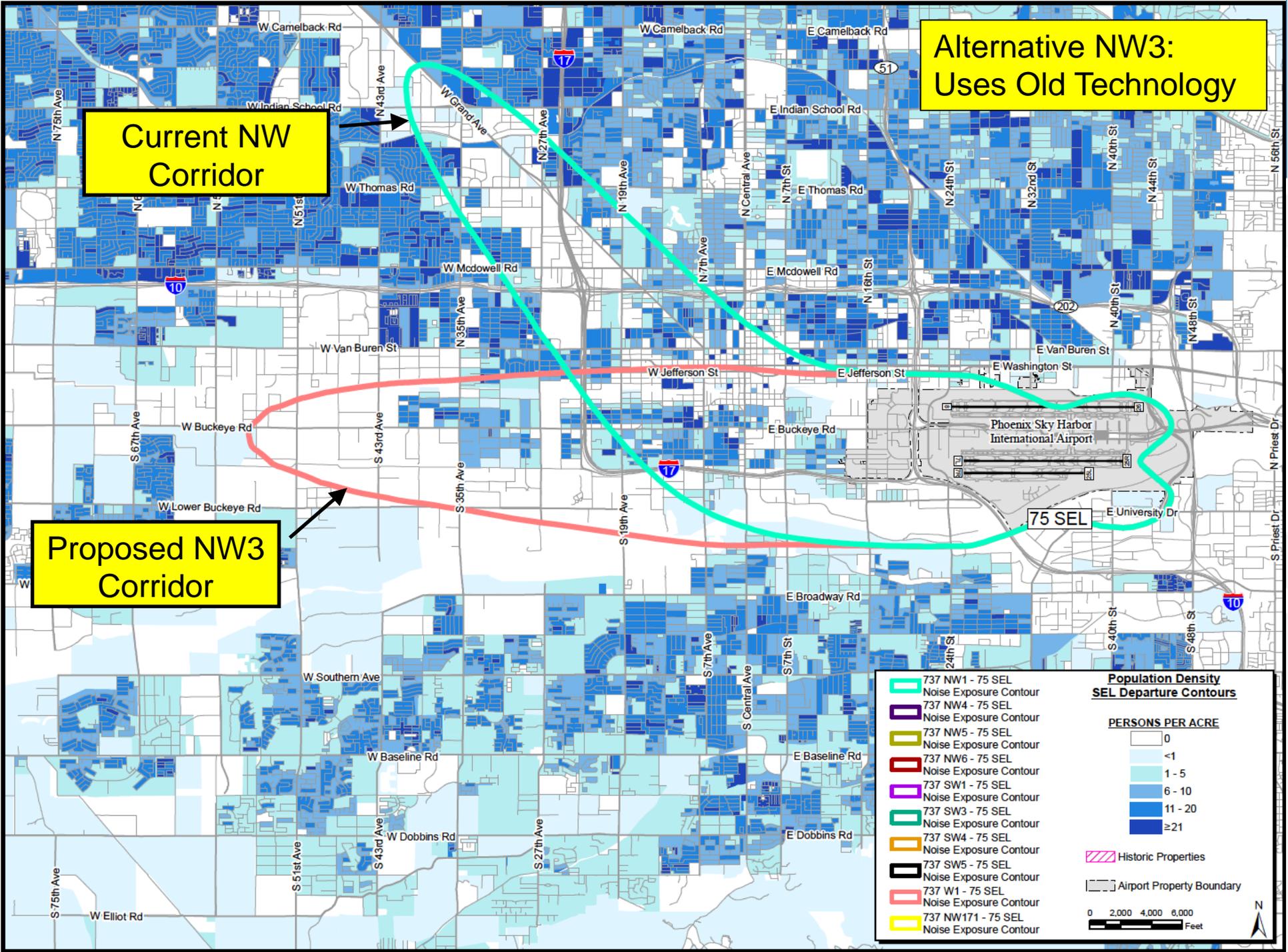
Population Density	
SEL Departure Contours	
PERSONS PER ACRE	
[White]	0
[Lightest Blue]	<1
[Light Blue]	1 - 5
[Medium Blue]	6 - 10
[Dark Blue]	11 - 20
[Darkest Blue]	≥21
[Pink Hatched]	Historic Properties
[Grey Hatched]	Airport Property Boundary
[Cyan Line]	737 NW1 - 75 SEL Noise Exposure Contour
[Purple Line]	737 NW4 - 75 SEL Noise Exposure Contour
[Green Line]	737 NW5 - 75 SEL Noise Exposure Contour
[Red Line]	737 NW6 - 75 SEL Noise Exposure Contour
[Purple Line]	737 SW1 - 75 SEL Noise Exposure Contour
[Green Line]	737 SW3 - 75 SEL Noise Exposure Contour
[Orange Line]	737 SW4 - 75 SEL Noise Exposure Contour
[Black Line]	737 SW5 - 75 SEL Noise Exposure Contour
[Red Line]	737 W1 - 75 SEL Noise Exposure Contour
[Yellow Line]	737 NW171 - 75 SEL Noise Exposure Contour

0 2,000 4,000 6,000 Feet

Alternative NW3: Uses Old Technology

**Current NW
Corridor**

**Proposed NW3
Corridor**



Population Density SEL Departure Contours	
	737 NW1 - 75 SEL Noise Exposure Contour
	737 NW4 - 75 SEL Noise Exposure Contour
	737 NW5 - 75 SEL Noise Exposure Contour
	737 NW6 - 75 SEL Noise Exposure Contour
	737 SW1 - 75 SEL Noise Exposure Contour
	737 SW3 - 75 SEL Noise Exposure Contour
	737 SW4 - 75 SEL Noise Exposure Contour
	737 SW5 - 75 SEL Noise Exposure Contour
	737 W1 - 75 SEL Noise Exposure Contour
	737 NW171 - 75 SEL Noise Exposure Contour

PERSONS PER ACRE	
	0
	<1
	1 - 5
	6 - 10
	11 - 20
	≥21

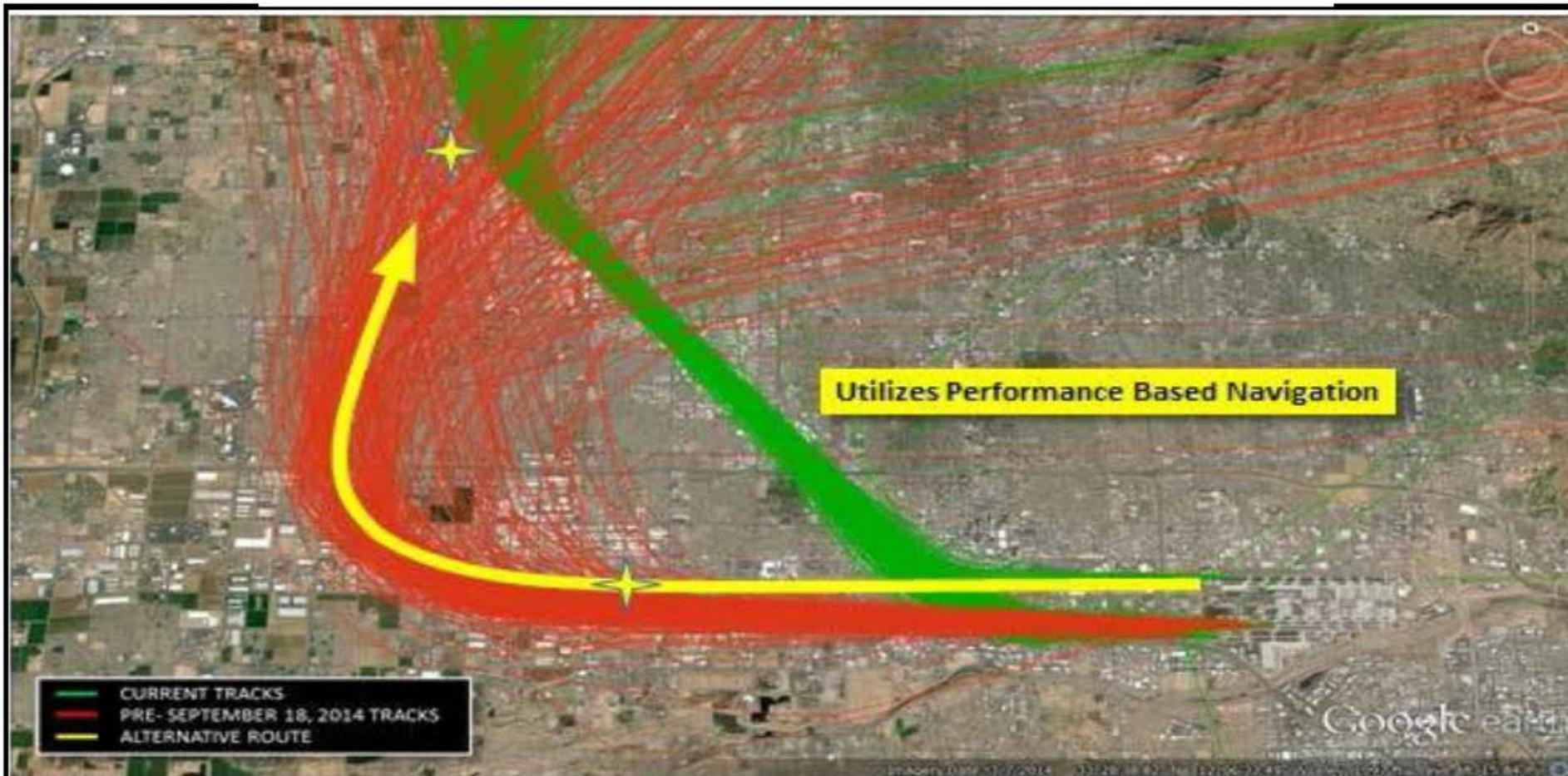
- Historic Properties
- Airport Property Boundary

0 2,000 4,000 6,000 Feet



Alternative NW4 – FAA REJECTED

- Revert to previous routing (RNAV Technology)
- City Preferred Alternative



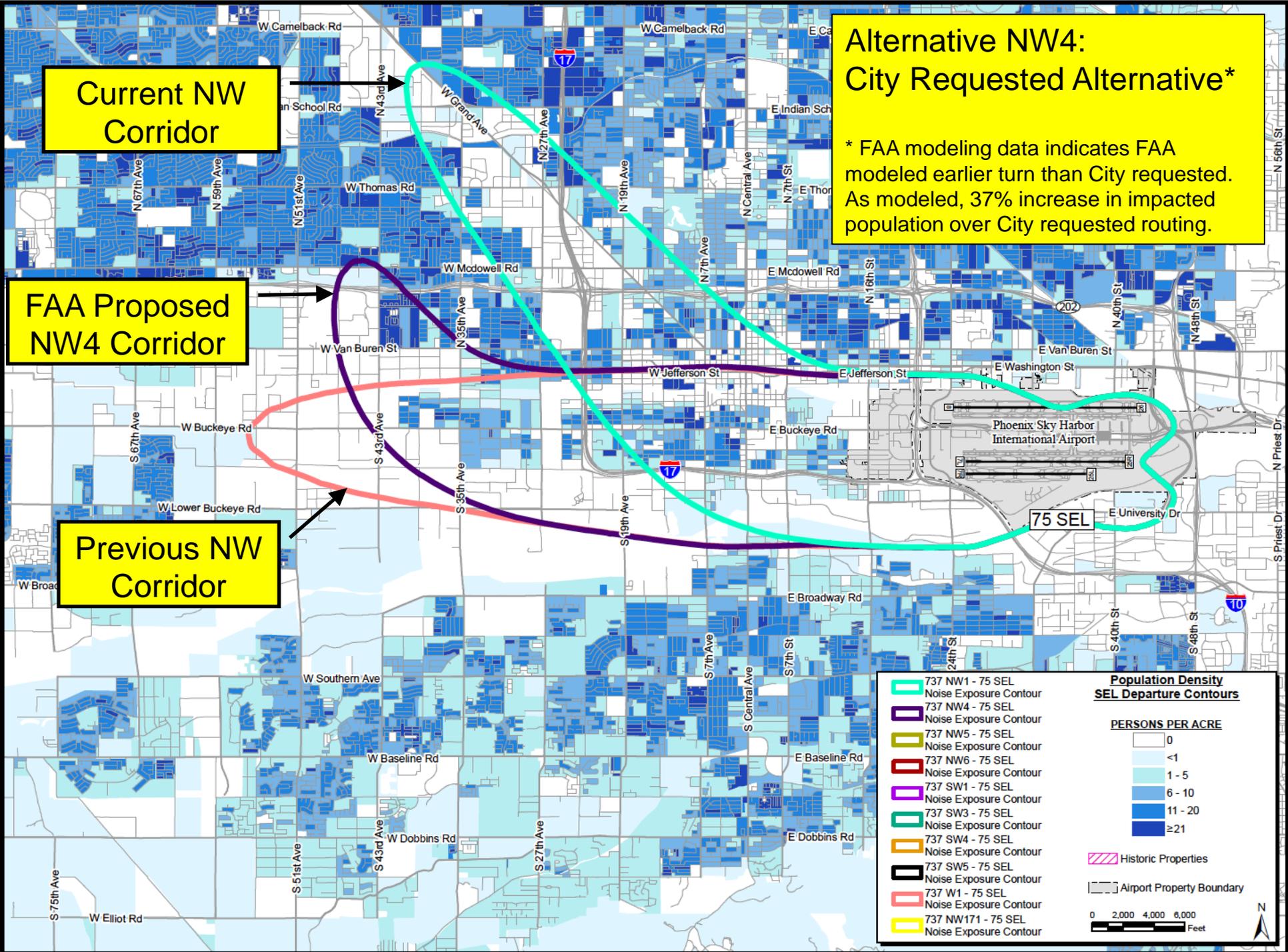
Current NW Corridor

FAA Proposed NW4 Corridor

Previous NW Corridor

Alternative NW4: City Requested Alternative*

* FAA modeling data indicates FAA modeled earlier turn than City requested. As modeled, 37% increase in impacted population over City requested routing.

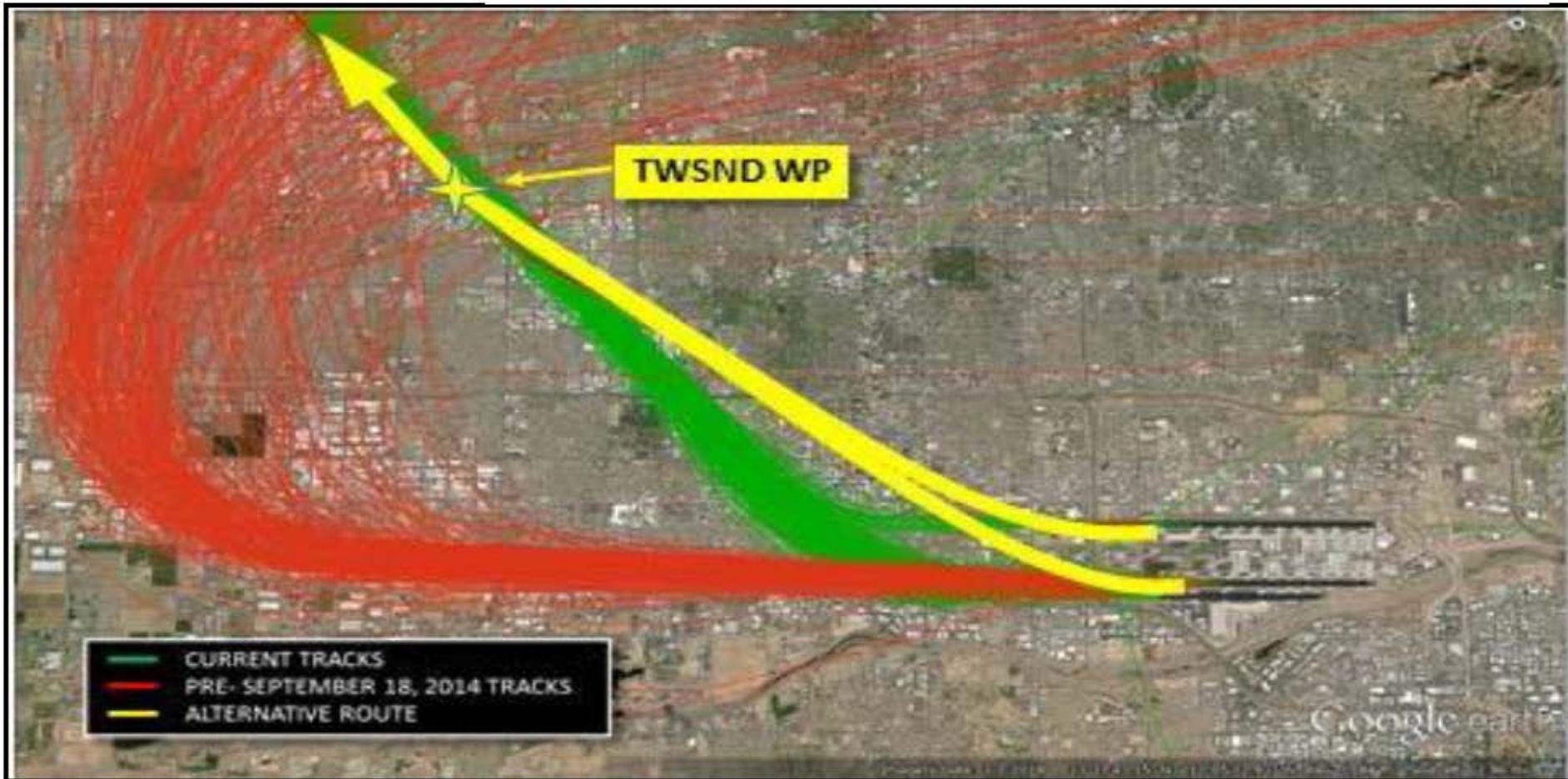


Population Density	
SEL Departure Contours	
	737 NW1 - 75 SEL Noise Exposure Contour
	737 NW4 - 75 SEL Noise Exposure Contour
	737 NW5 - 75 SEL Noise Exposure Contour
	737 NW6 - 75 SEL Noise Exposure Contour
	737 SW1 - 75 SEL Noise Exposure Contour
	737 SW3 - 75 SEL Noise Exposure Contour
	737 SW4 - 75 SEL Noise Exposure Contour
	737 SW5 - 75 SEL Noise Exposure Contour
	737 W1 - 75 SEL Noise Exposure Contour
	737 NW171 - 75 SEL Noise Exposure Contour
	0 PERSONS PER ACRE
	<1
	1 - 5
	6 - 10
	11 - 20
	≥21
	Historic Properties
	Airport Property Boundary
0 2,000 4,000 6,000 Feet	



Alternative NW5 – FAA REJECTED

- Immediate turn to RNAV Waypoint

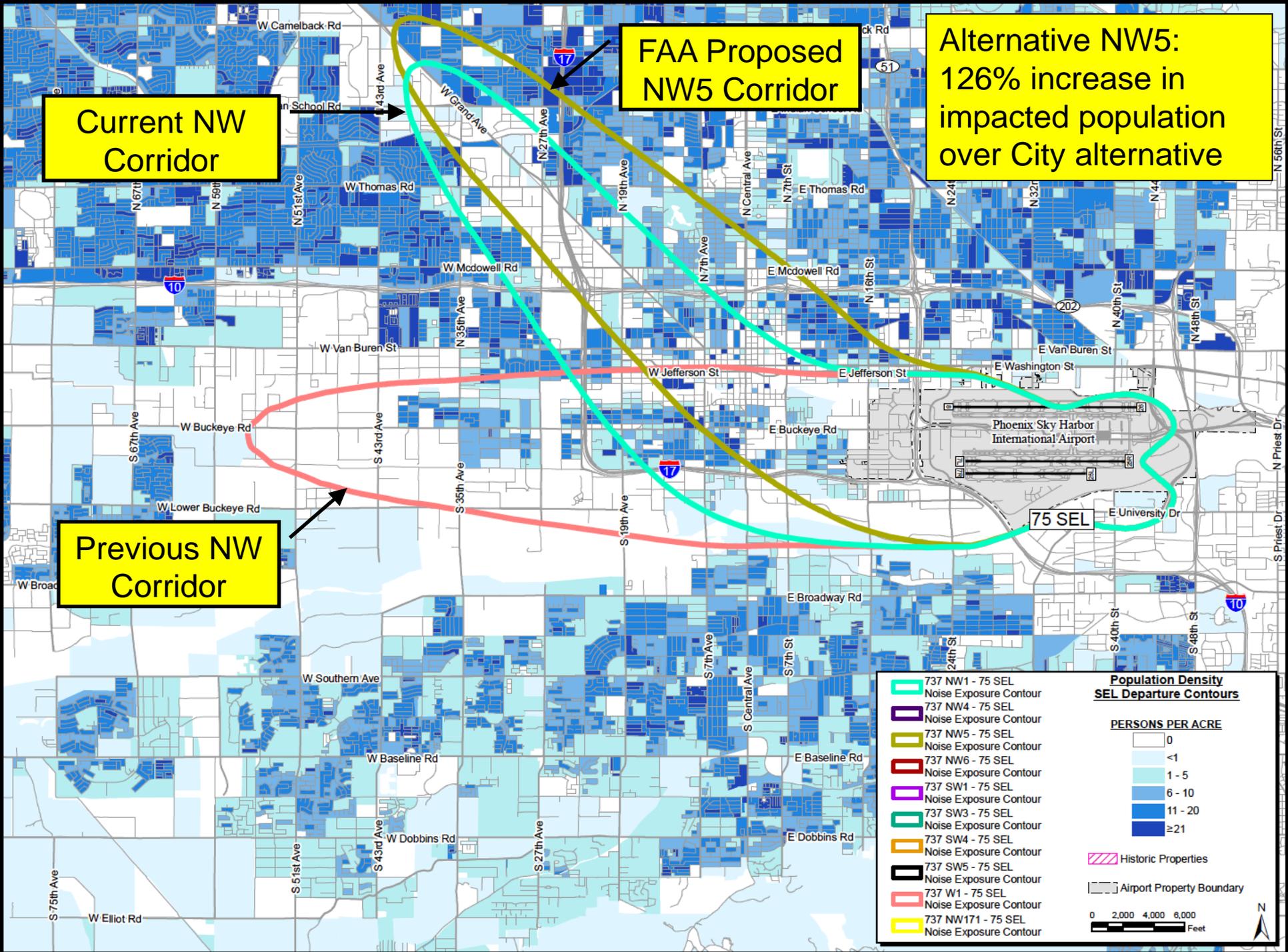


Current NW Corridor

FAA Proposed NW5 Corridor

Alternative NW5: 126% increase in impacted population over City alternative

Previous NW Corridor



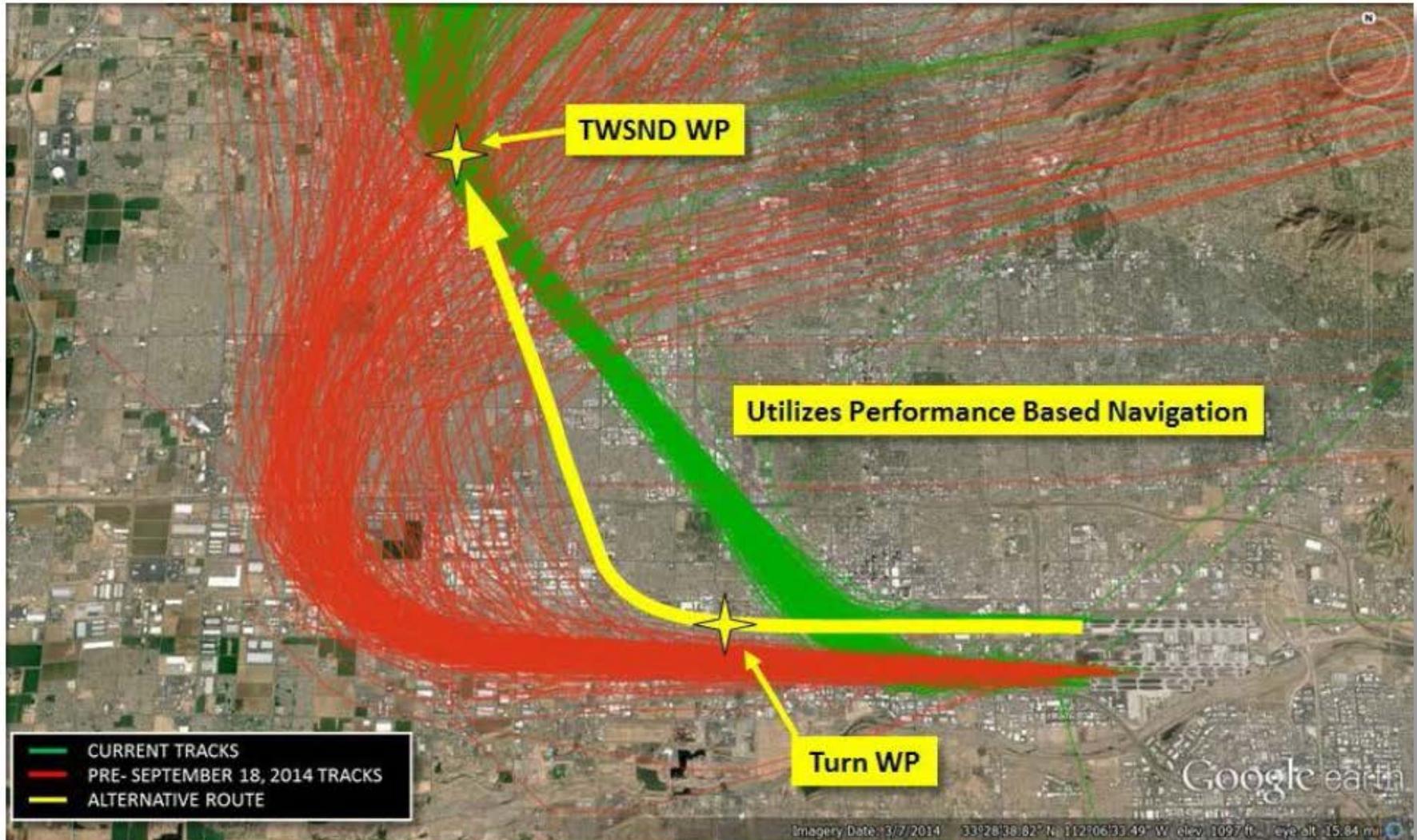
Population Density	
SEL Departure Contours	
PERSONS PER ACRE	
[Lightest Blue]	0
[Light Blue]	<1
[Medium-Light Blue]	1 - 5
[Medium Blue]	6 - 10
[Dark Blue]	11 - 20
[Darkest Blue]	≥21
[Pink Hatched]	Historic Properties
[Grey Hatched]	Airport Property Boundary
[Cyan Line]	737 NW1 - 75 SEL Noise Exposure Contour
[Purple Line]	737 NW4 - 75 SEL Noise Exposure Contour
[Olive Green Line]	737 NW5 - 75 SEL Noise Exposure Contour
[Red Line]	737 NW6 - 75 SEL Noise Exposure Contour
[Magenta Line]	737 SW1 - 75 SEL Noise Exposure Contour
[Teal Line]	737 SW3 - 75 SEL Noise Exposure Contour
[Orange Line]	737 SW4 - 75 SEL Noise Exposure Contour
[Black Line]	737 SW5 - 75 SEL Noise Exposure Contour
[Pink Line]	737 W1 - 75 SEL Noise Exposure Contour
[Yellow Line]	737 NW171 - 75 SEL Noise Exposure Contour

0 2,000 4,000 6,000 Feet



Alternative NW6 – FAA REJECTED

- Extend initial turn further west

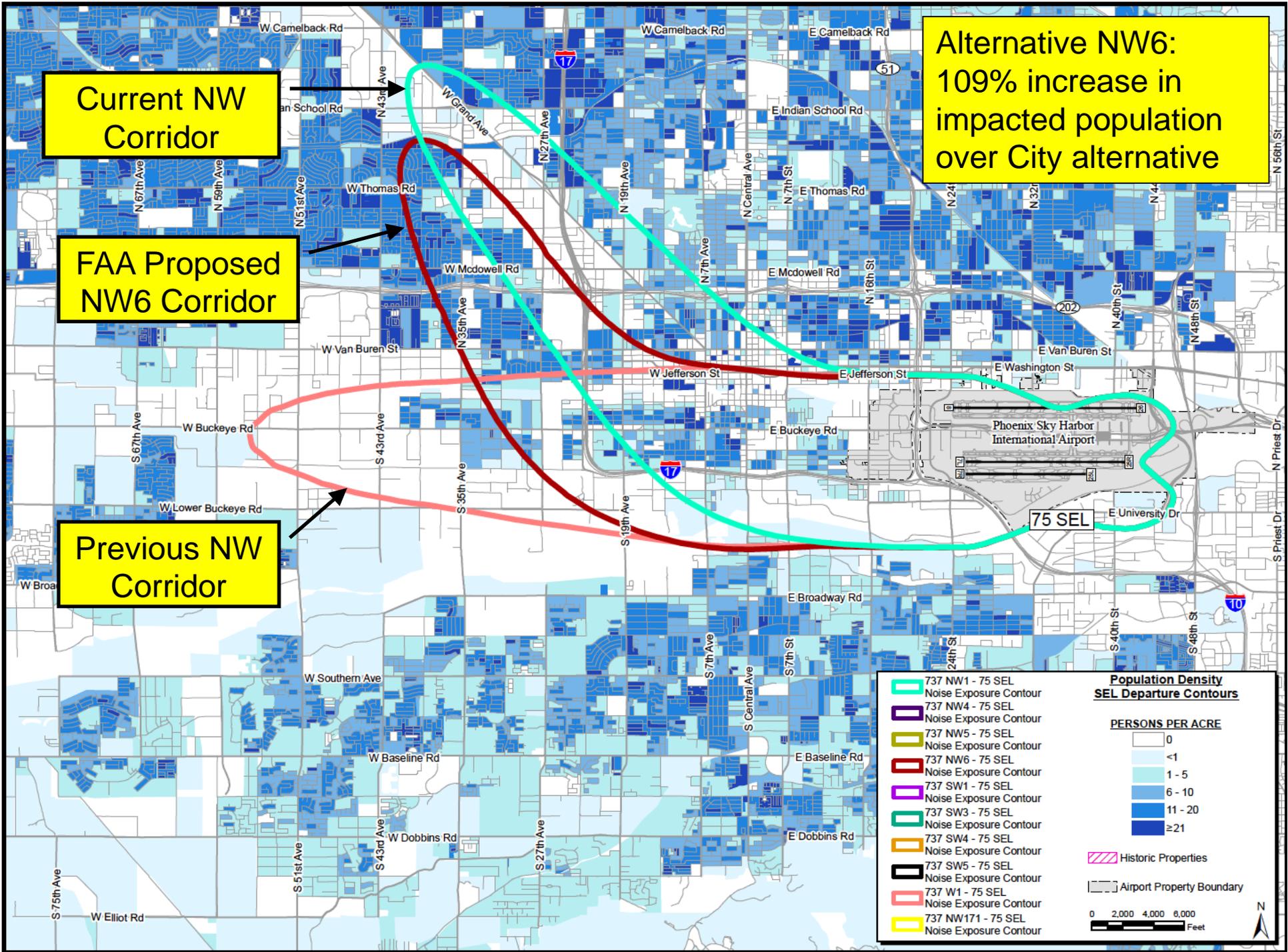


Alternative NW6:
109% increase in
impacted population
over City alternative

Current NW
Corridor

FAA Proposed
NW6 Corridor

Previous NW
Corridor



Population Density	
SEL Departure Contours	
PERSONS PER ACRE	
[White Box]	0
[Lightest Blue Box]	<1
[Light Blue Box]	1 - 5
[Medium Blue Box]	6 - 10
[Dark Blue Box]	11 - 20
[Darkest Blue Box]	≥21
[Pink Hatched Box]	Historic Properties
[Grey Box]	Airport Property Boundary

[Cyan Line]	737 NW1 - 75 SEL
[Purple Line]	Noise Exposure Contour
[Dark Purple Line]	737 NW4 - 75 SEL
[Dark Purple Line]	Noise Exposure Contour
[Green Line]	737 NW5 - 75 SEL
[Green Line]	Noise Exposure Contour
[Red Line]	737 NW6 - 75 SEL
[Red Line]	Noise Exposure Contour
[Purple Line]	737 SW1 - 75 SEL
[Purple Line]	Noise Exposure Contour
[Teal Line]	737 SW3 - 75 SEL
[Teal Line]	Noise Exposure Contour
[Orange Line]	737 SW4 - 75 SEL
[Orange Line]	Noise Exposure Contour
[Black Line]	737 SW5 - 75 SEL
[Black Line]	Noise Exposure Contour
[Pink Line]	737 W1 - 75 SEL
[Pink Line]	Noise Exposure Contour
[Yellow Line]	737 NW171 - 75 SEL
[Yellow Line]	Noise Exposure Contour

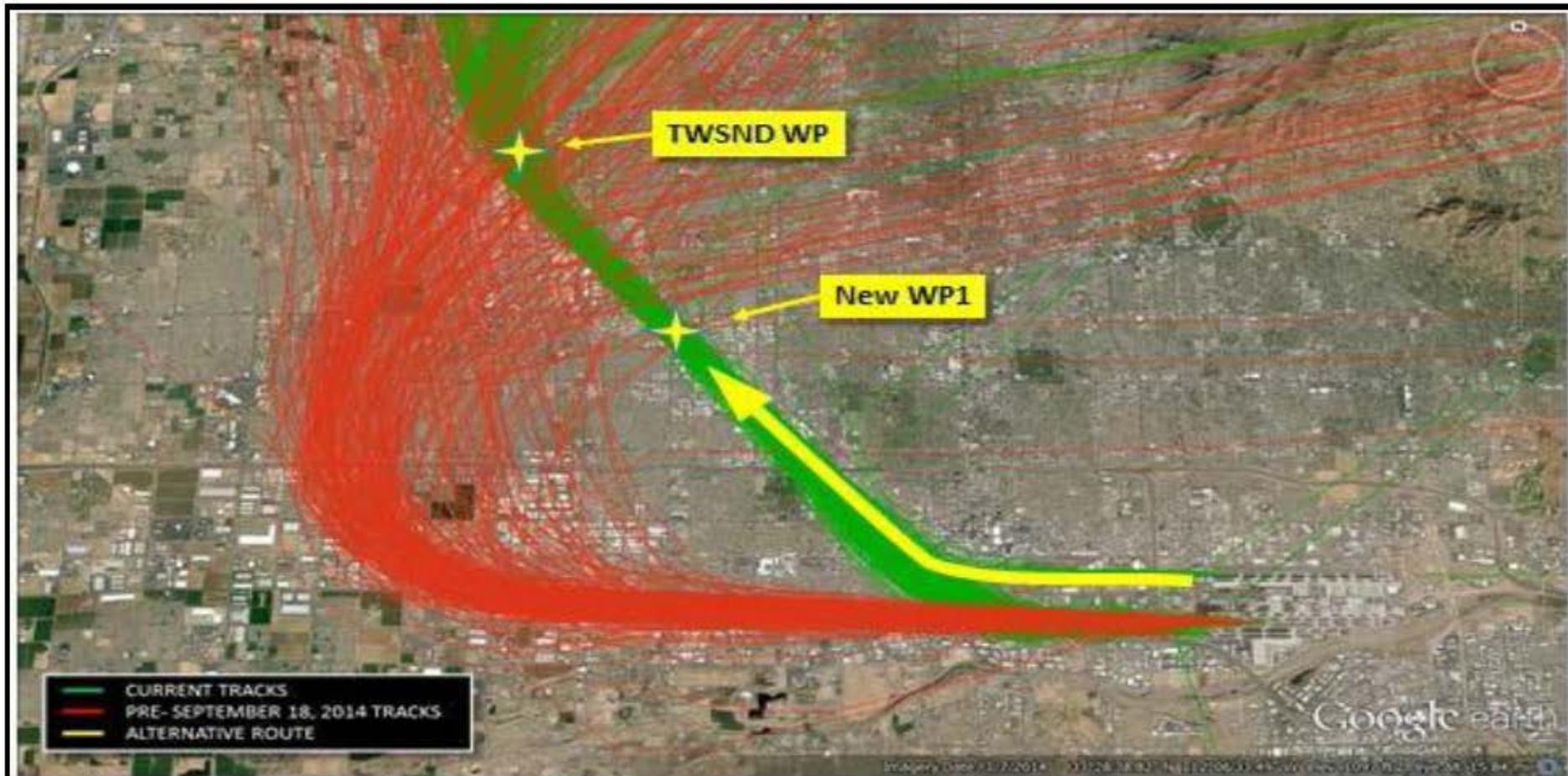
0 2,000 4,000 6,000 Feet

N



Alternative NW7 – FAA REJECTED

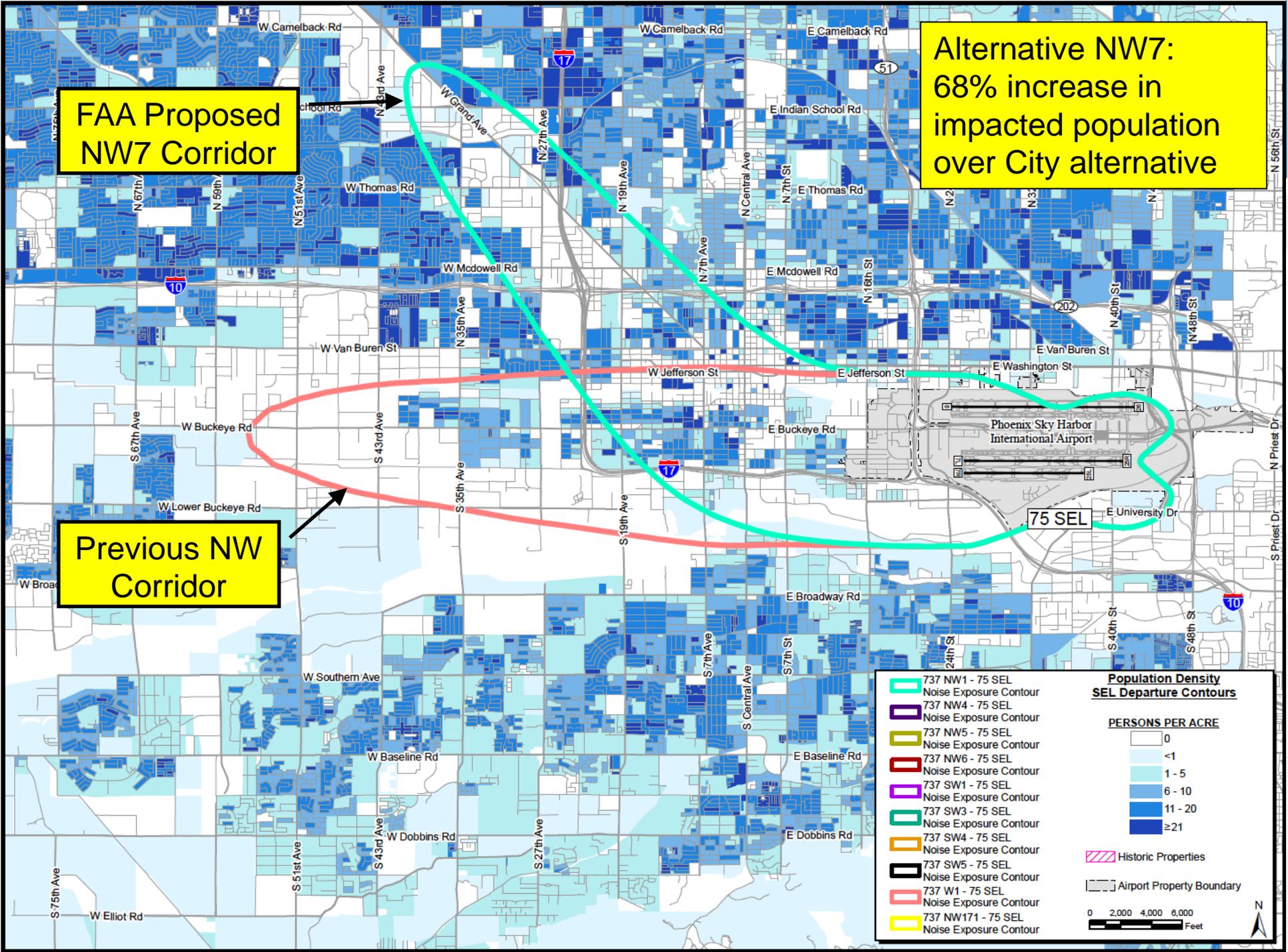
- Add RF Leg (Tightens Turn Radius)



**FAA Proposed
NW7 Corridor**

**Previous NW
Corridor**

**Alternative NW7:
68% increase in
impacted population
over City alternative**



Population Density SEL Departure Contours	
PERSONS PER ACRE	
[White]	0
[Lightest Blue]	<1
[Light Blue]	1 - 5
[Medium Blue]	6 - 10
[Dark Blue]	11 - 20
[Darkest Blue]	≥21
[Pink Hatched]	Historic Properties
[Grey Hatched]	Airport Property Boundary

[Cyan Line]	737 NW1 - 75 SEL Noise Exposure Contour
[Purple Line]	737 NW4 - 75 SEL Noise Exposure Contour
[Green Line]	737 NW5 - 75 SEL Noise Exposure Contour
[Red Line]	737 NW6 - 75 SEL Noise Exposure Contour
[Purple Line]	737 SW1 - 75 SEL Noise Exposure Contour
[Teal Line]	737 SW3 - 75 SEL Noise Exposure Contour
[Orange Line]	737 SW4 - 75 SEL Noise Exposure Contour
[Black Line]	737 SW5 - 75 SEL Noise Exposure Contour
[Red Line]	737 W1 - 75 SEL Noise Exposure Contour
[Yellow Line]	737 NW171 - 75 SEL Noise Exposure Contour

0 2,000 4,000 6,000 Feet



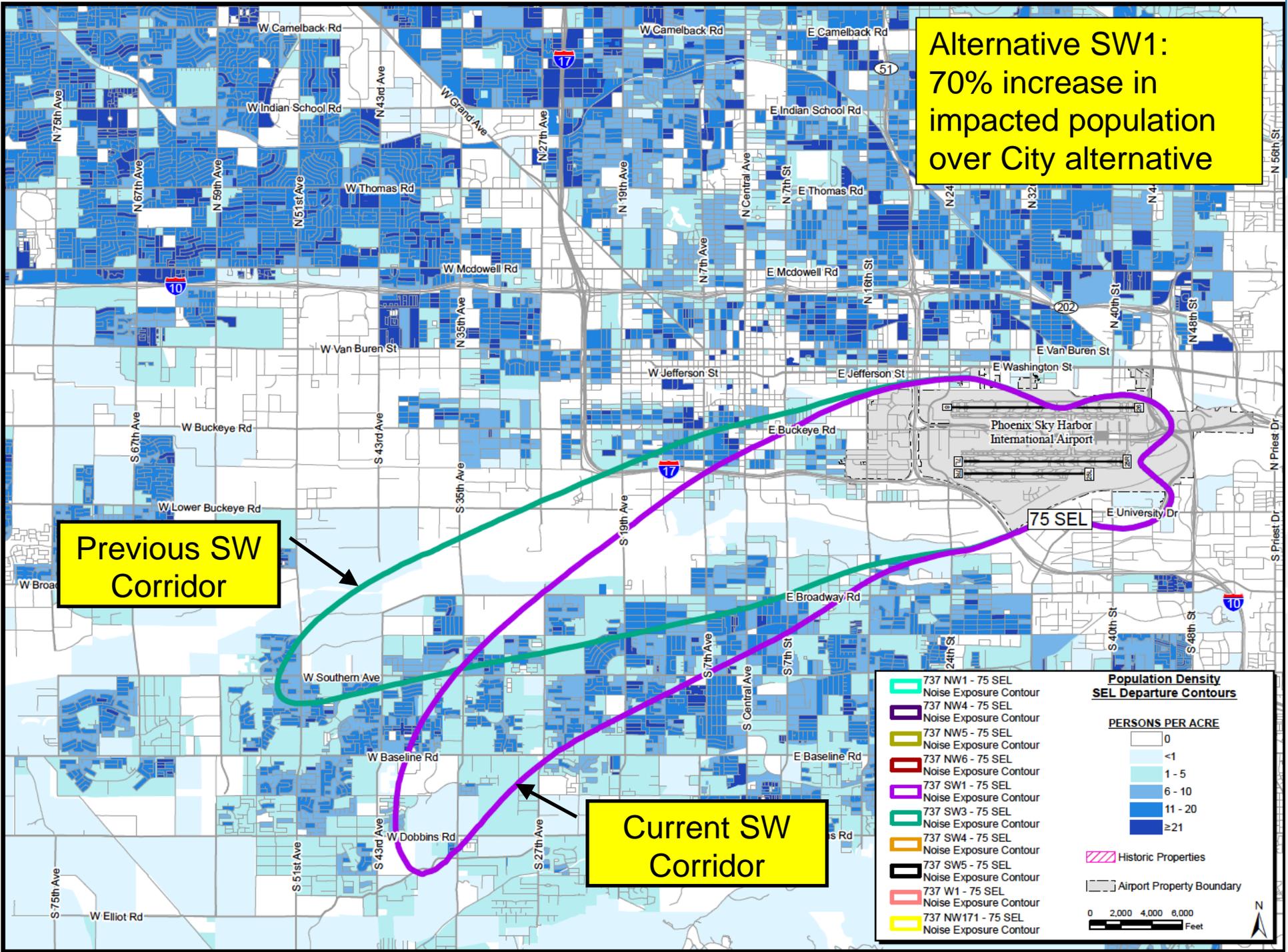
Alternative SW1 – FAA REJECTED

- Laveen Flightpath Corridor
- No Action Alternative

**Alternative SW1:
70% increase in
impacted population
over City alternative**

**Previous SW
Corridor**

**Current SW
Corridor**



Population Density SEL Departure Contours	
PERSONS PER ACRE	
[White]	0
[Lightest Blue]	<1
[Light Blue]	1 - 5
[Medium Blue]	6 - 10
[Dark Blue]	11 - 20
[Darkest Blue]	≥21

[Pink Hatched]	Historic Properties
[Grey Outline]	Airport Property Boundary

[Green Outline]	737 NW1 - 75 SEL Noise Exposure Contour
[Purple Outline]	737 NW4 - 75 SEL Noise Exposure Contour
[Yellow Outline]	737 NW5 - 75 SEL Noise Exposure Contour
[Red Outline]	737 NW6 - 75 SEL Noise Exposure Contour
[Magenta Outline]	737 SW1 - 75 SEL Noise Exposure Contour
[Teal Outline]	737 SW3 - 75 SEL Noise Exposure Contour
[Orange Outline]	737 SW4 - 75 SEL Noise Exposure Contour
[Black Outline]	737 SW5 - 75 SEL Noise Exposure Contour
[Red Outline]	737 W1 - 75 SEL Noise Exposure Contour
[Red Outline]	737 W3 - 75 SEL Noise Exposure Contour
[Yellow Outline]	737 NW171 - 75 SEL Noise Exposure Contour

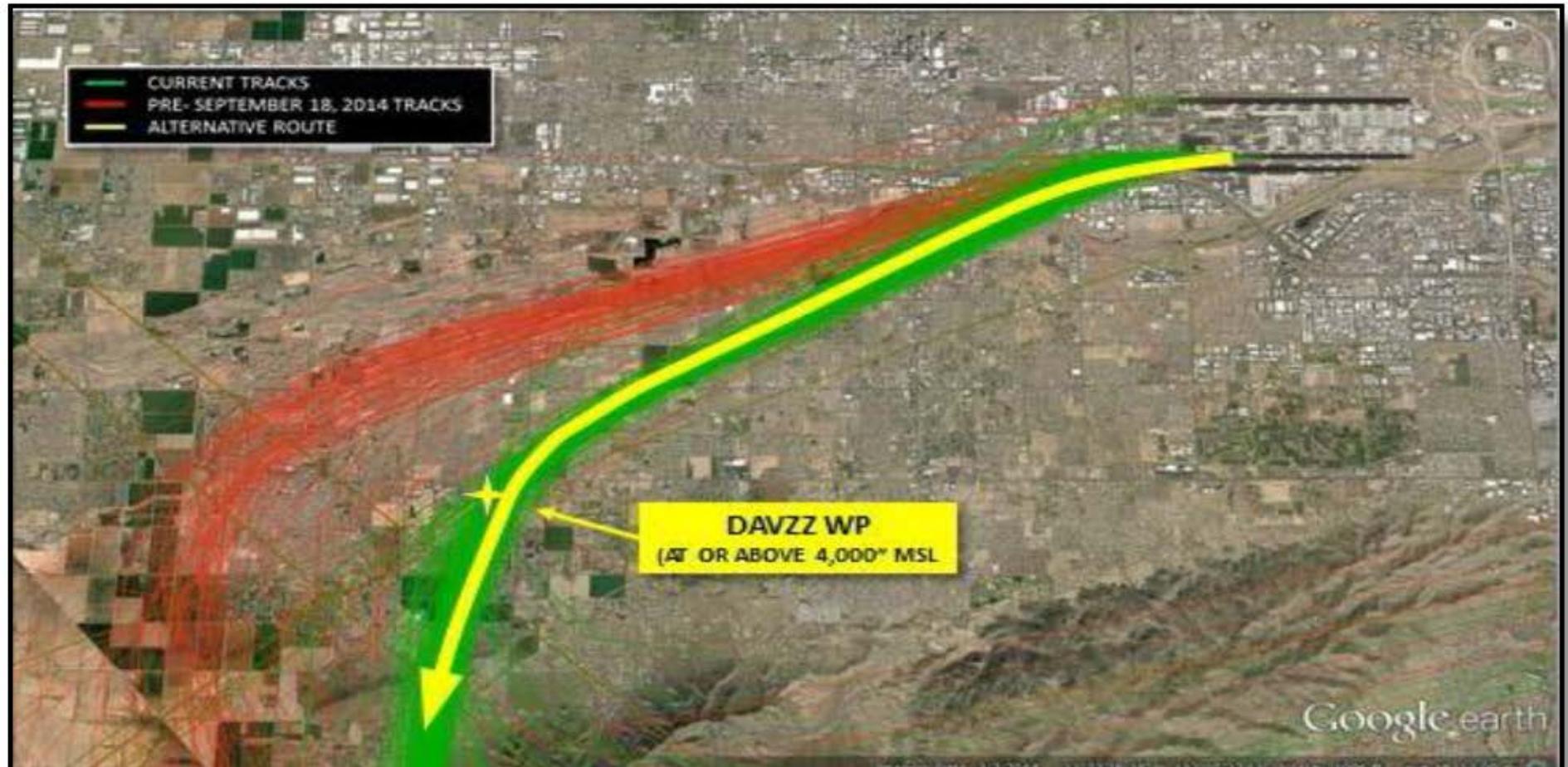
0 2,000 4,000 6,000 Feet

N



Alternative SW2 – FAA Preferred

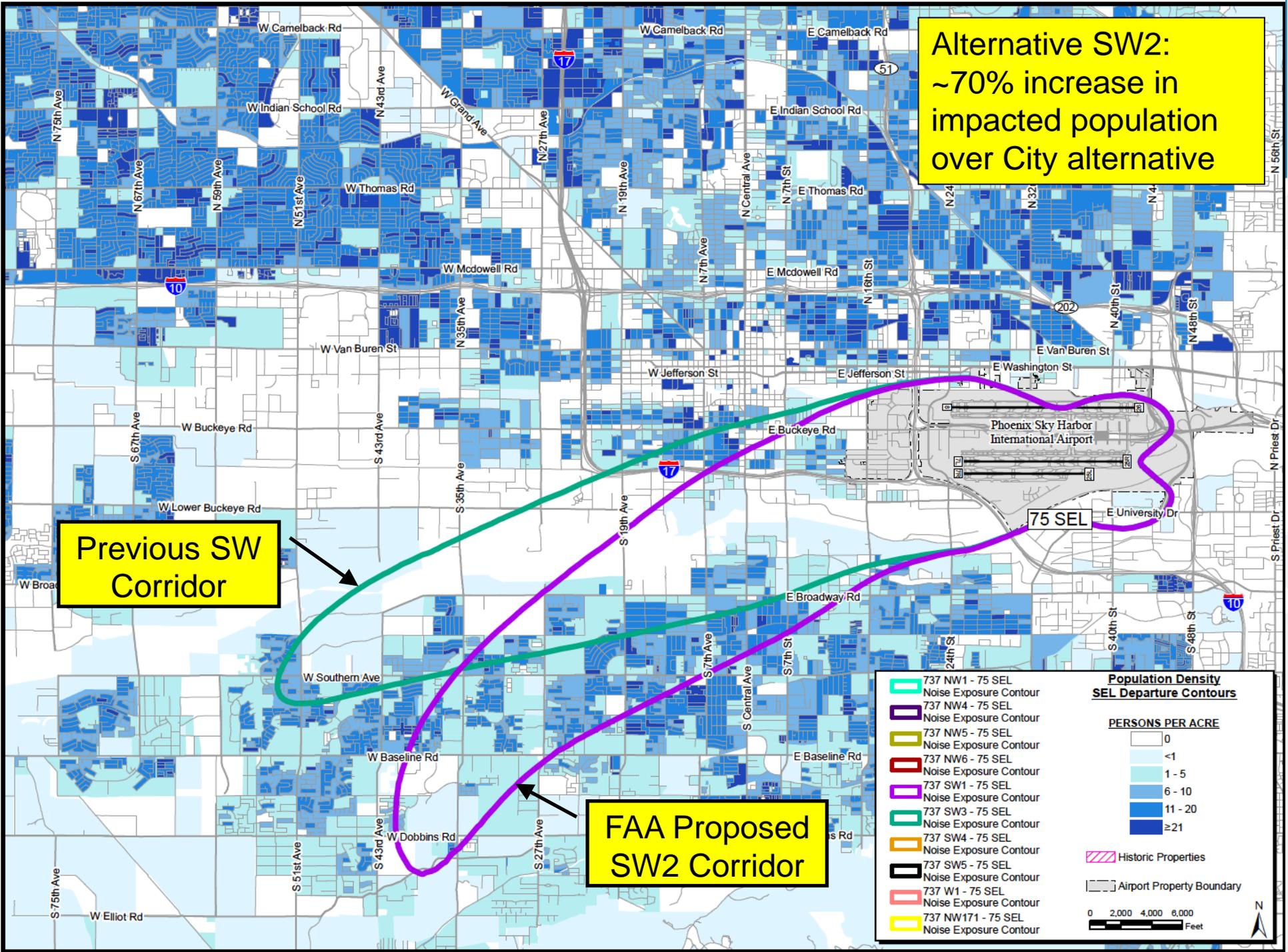
- Add altitude and speed restrictions



Alternative SW2:
 ~70% increase in impacted population over City alternative

Previous SW Corridor

FAA Proposed SW2 Corridor



Population Density SEL Departure Contours	
PERSONS PER ACRE	
[White Box]	0
[Light Blue Box]	<1
[Medium Light Blue Box]	1 - 5
[Medium Blue Box]	6 - 10
[Dark Blue Box]	11 - 20
[Darkest Blue Box]	≥21
[Pink Hatched Box]	Historic Properties
[Grey Box]	Airport Property Boundary

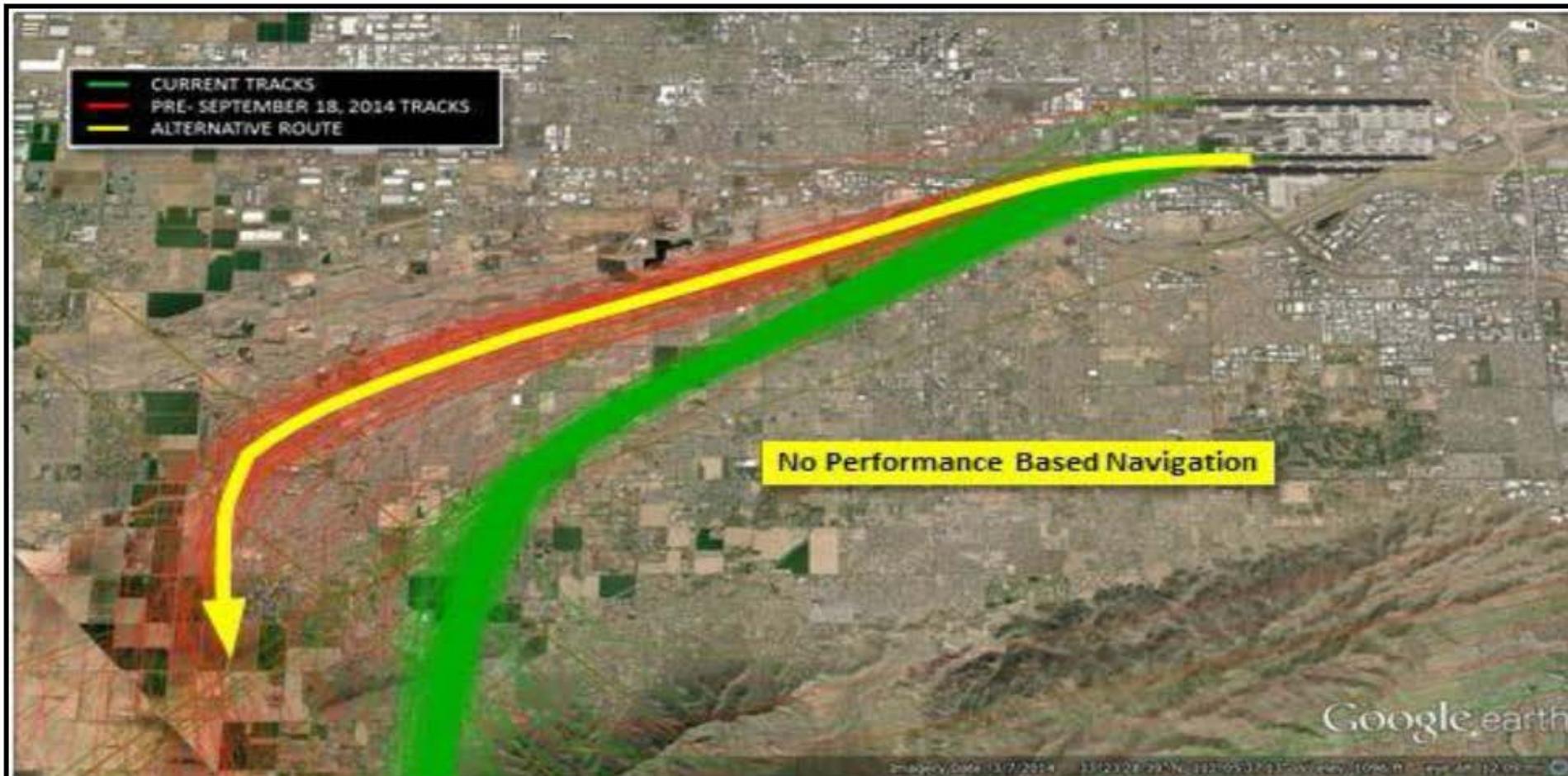
[Green Line]	737 NW1 - 75 SEL Noise Exposure Contour
[Purple Line]	737 NW4 - 75 SEL Noise Exposure Contour
[Yellow-Green Line]	737 NW5 - 75 SEL Noise Exposure Contour
[Red Line]	737 NW6 - 75 SEL Noise Exposure Contour
[Purple Line]	737 SW1 - 75 SEL Noise Exposure Contour
[Teal Line]	737 SW3 - 75 SEL Noise Exposure Contour
[Orange Line]	737 SW4 - 75 SEL Noise Exposure Contour
[Black Line]	737 SW5 - 75 SEL Noise Exposure Contour
[Red Line]	737 W1 - 75 SEL Noise Exposure Contour
[Yellow Line]	737 NW171 - 75 SEL Noise Exposure Contour

0 2,000 4,000 6,000 Feet



Alternative SW3 – FAA REJECTED

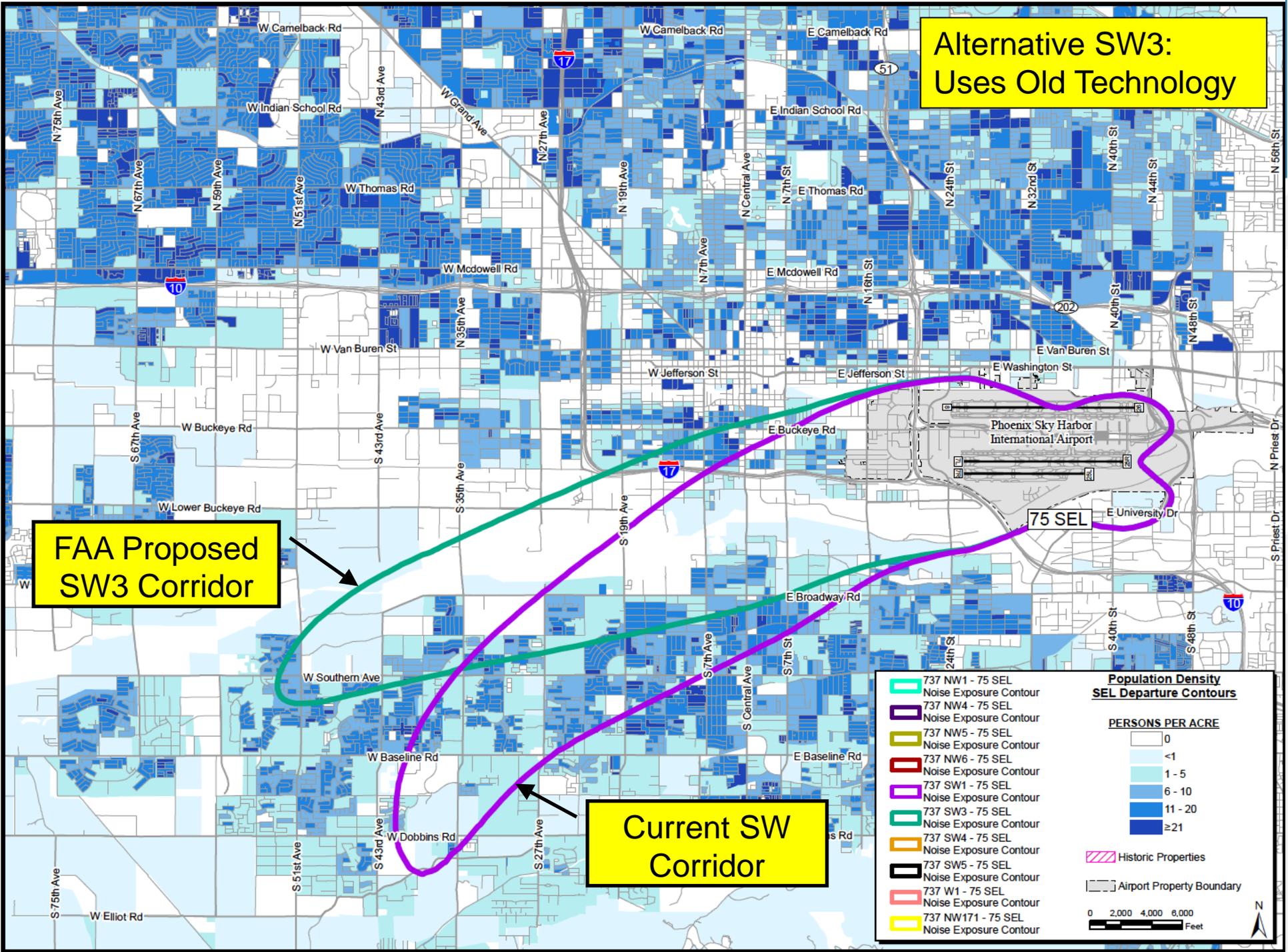
- Revert to Pre 9/18 routing (Legacy Technology)
- Most similar to City requested alternative



Alternative SW3: Uses Old Technology

**FAA Proposed
SW3 Corridor**

**Current SW
Corridor**



Population Density SEL Departure Contours	
PERSONS PER ACRE	
[Lightest Blue]	0
[Light Blue]	<1
[Medium-Light Blue]	1 - 5
[Medium Blue]	6 - 10
[Dark Blue]	11 - 20
[Darkest Blue]	≥21

[Green Line]	737 NW1 - 75 SEL Noise Exposure Contour
[Purple Line]	737 NW4 - 75 SEL Noise Exposure Contour
[Yellow-Green Line]	737 NW5 - 75 SEL Noise Exposure Contour
[Red Line]	737 NW6 - 75 SEL Noise Exposure Contour
[Magenta Line]	737 SW1 - 75 SEL Noise Exposure Contour
[Teal Line]	737 SW3 - 75 SEL Noise Exposure Contour
[Orange Line]	737 SW4 - 75 SEL Noise Exposure Contour
[Black Line]	737 SW5 - 75 SEL Noise Exposure Contour
[Pink Line]	737 W1 - 75 SEL Noise Exposure Contour
[Red Line]	737 W1 - 75 SEL Noise Exposure Contour
[Yellow Line]	737 NW171 - 75 SEL Noise Exposure Contour

[Hatched Box]	Historic Properties
[Dashed Box]	Airport Property Boundary

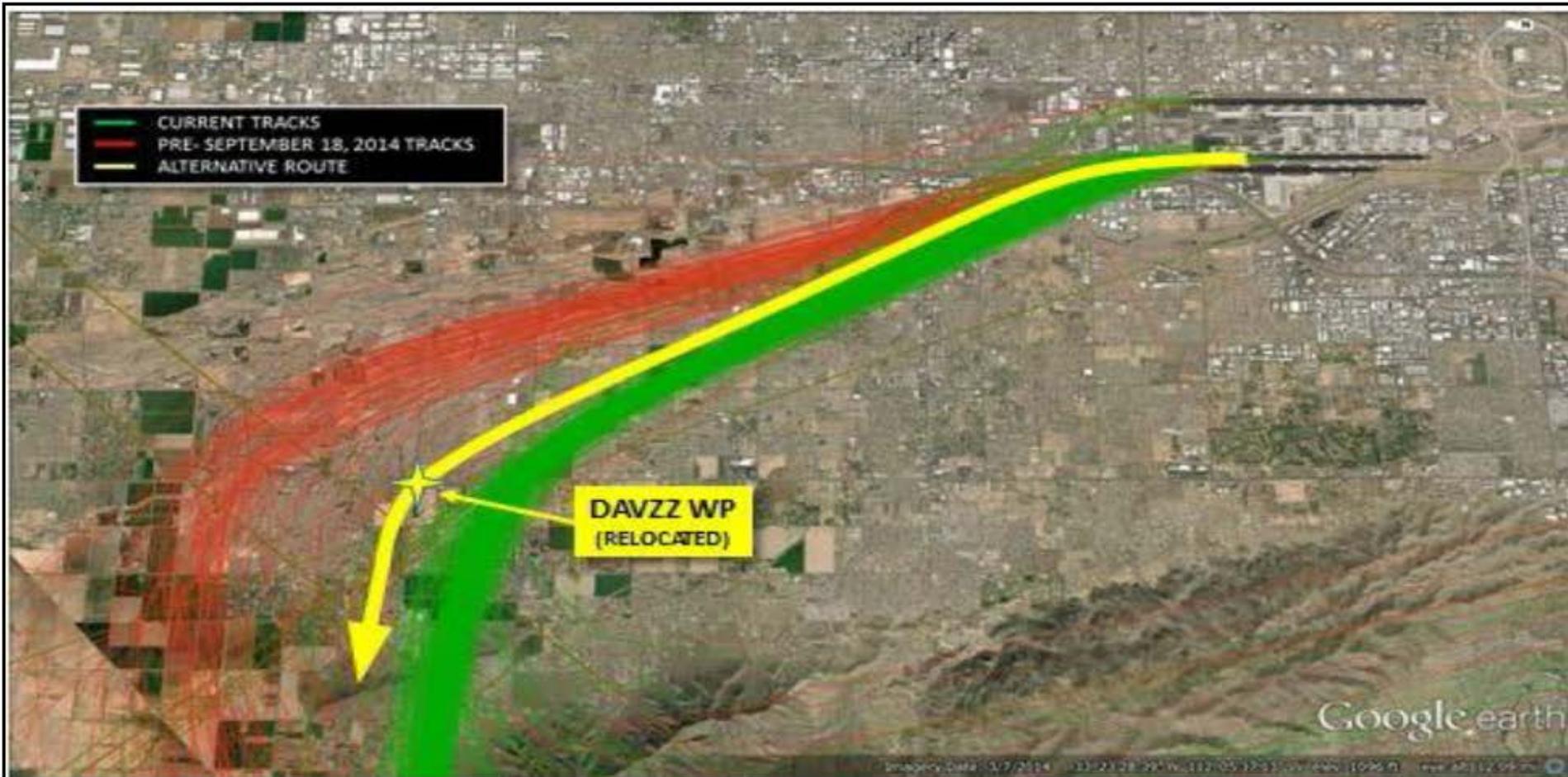
0 2,000 4,000 6,000 Feet

N



Alternative SW4 – FAA REJECTED

- Relocate RNAV Waypoint West

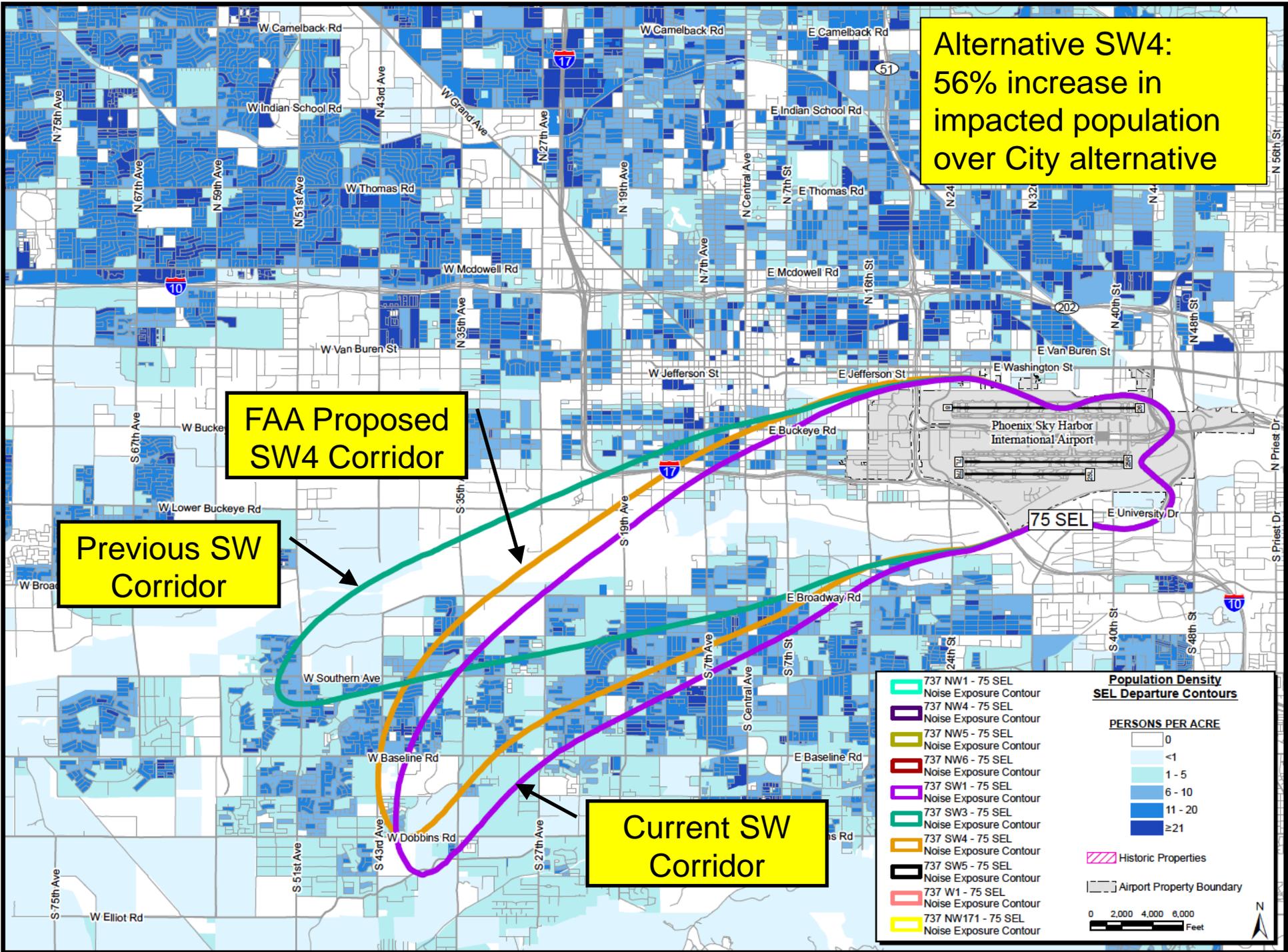


**Alternative SW4:
56% increase in
impacted population
over City alternative**

**FAA Proposed
SW4 Corridor**

**Previous SW
Corridor**

**Current SW
Corridor**



Population Density	
SEL Departure Contours	
PERSONS PER ACRE	
[Lightest Blue]	0
[Light Blue]	<1
[Medium-Light Blue]	1 - 5
[Medium Blue]	6 - 10
[Dark Blue]	11 - 20
[Darkest Blue]	≥21
[Pink Hatched]	Historic Properties
[Grey Outline]	Airport Property Boundary

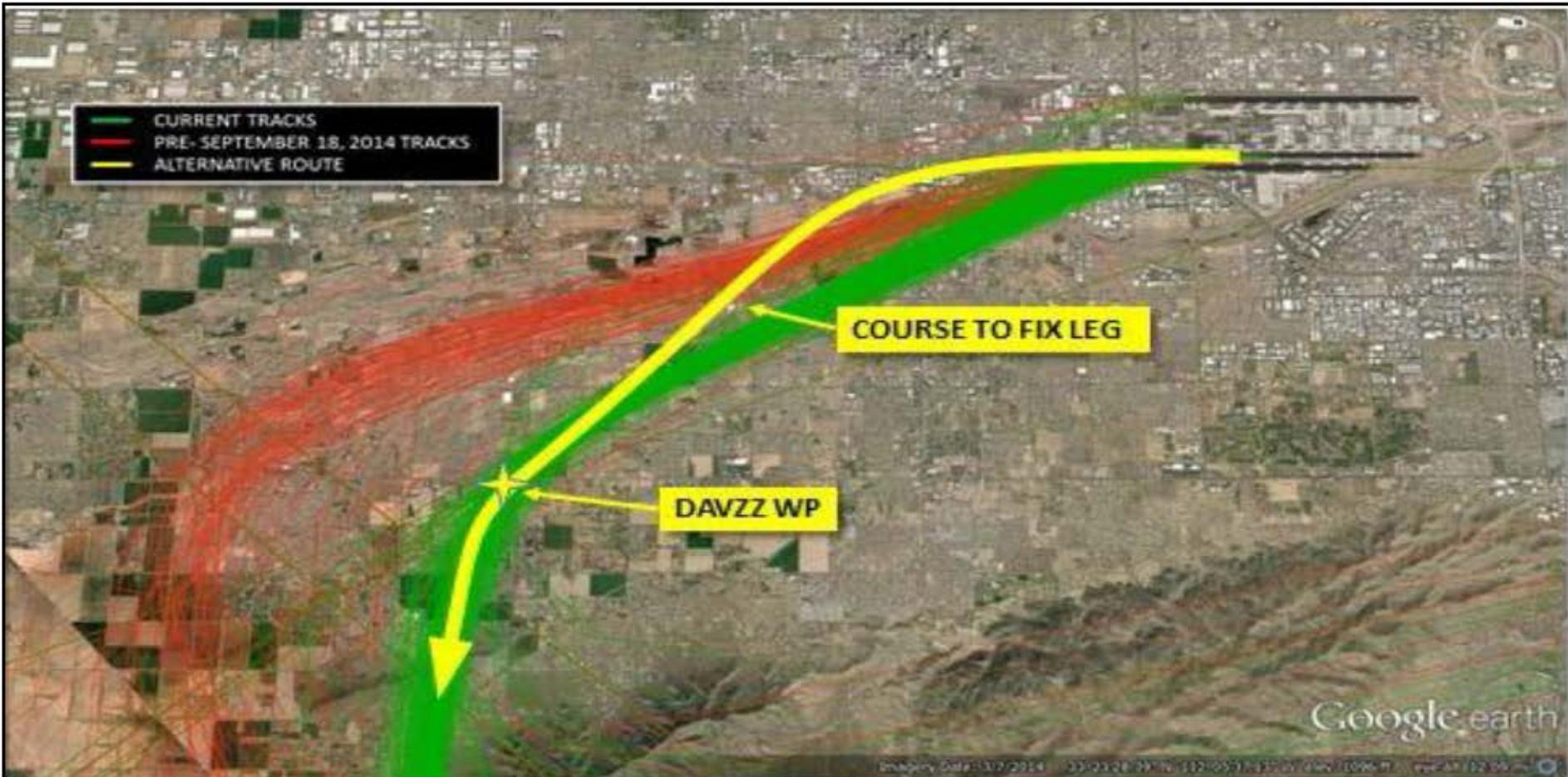
[Green Line]	737 NW1 - 75 SEL Noise Exposure Contour
[Purple Line]	737 NW4 - 75 SEL Noise Exposure Contour
[Yellow-Green Line]	737 NW5 - 75 SEL Noise Exposure Contour
[Red Line]	737 NW6 - 75 SEL Noise Exposure Contour
[Purple Line]	737 SW1 - 75 SEL Noise Exposure Contour
[Green Line]	737 SW3 - 75 SEL Noise Exposure Contour
[Orange Line]	737 SW4 - 75 SEL Noise Exposure Contour
[Green Line]	737 SW5 - 75 SEL Noise Exposure Contour
[Black Line]	737 W1 - 75 SEL Noise Exposure Contour
[Red Line]	737 W1 - 75 SEL Noise Exposure Contour
[Yellow Line]	737 NW171 - 75 SEL Noise Exposure Contour

0 2,000 4,000 6,000 Feet



Alternative SW5 – FAA REJECTED

- Extend turn further west

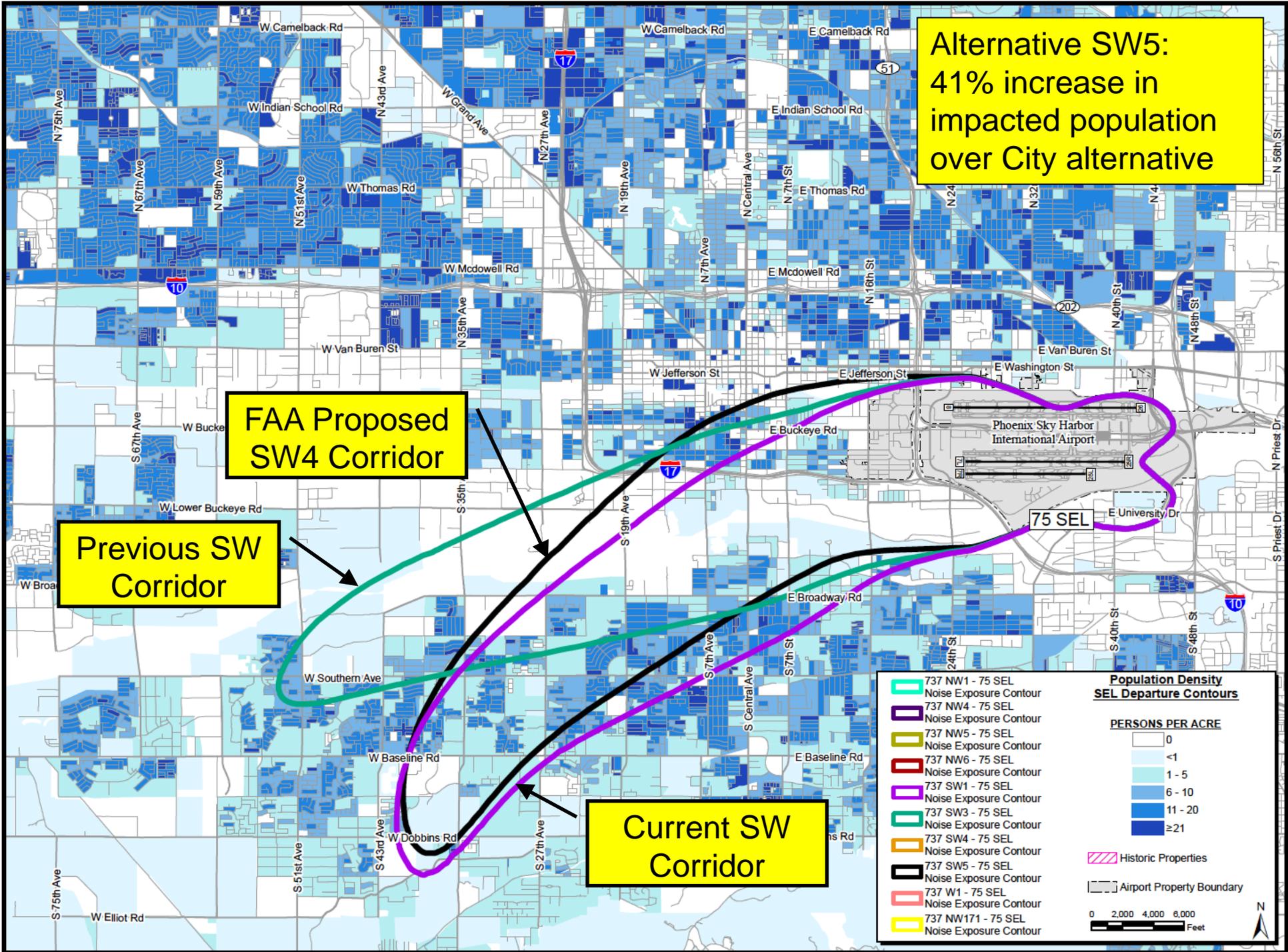


Alternative SW5:
41% increase in impacted population over City alternative

FAA Proposed SW4 Corridor

Previous SW Corridor

Current SW Corridor



Population Density	
SEL Departure Contours	
PERSONS PER ACRE	
[Lightest Blue]	0
[Light Blue]	<1
[Medium-Light Blue]	1 - 5
[Medium Blue]	6 - 10
[Dark Blue]	11 - 20
[Darkest Blue]	≥21
[Pink Hatched]	Historic Properties
[Grey Hatched]	Airport Property Boundary

[Green Line]	737 NW1 - 75 SEL Noise Exposure Contour
[Purple Line]	737 NW4 - 75 SEL Noise Exposure Contour
[Yellow-Green Line]	737 NW5 - 75 SEL Noise Exposure Contour
[Red Line]	737 NW6 - 75 SEL Noise Exposure Contour
[Magenta Line]	737 SW1 - 75 SEL Noise Exposure Contour
[Teal Line]	737 SW3 - 75 SEL Noise Exposure Contour
[Orange Line]	737 SW4 - 75 SEL Noise Exposure Contour
[Black Line]	737 SW5 - 75 SEL Noise Exposure Contour
[Pink Line]	737 W1 - 75 SEL Noise Exposure Contour
[Yellow Line]	737 NW171 - 75 SEL Noise Exposure Contour

0 2,000 4,000 6,000 Feet

N



April 13 PBN Working Group

- FAA rejected 11 of 14 possible alternatives
- FAA ruled out anything that would cause new environmental process
- FAA did not entertain adjustments to mitigate noise alone
- FAA preferred alternatives not expected to mitigate noise concerns



April 14 FAA Letter

- FAA Suggested:
 - City is responsible for reducing effect of FAA imposed noise on residents
 - City should pursue voluntary agreements with airlines
 - FAA offered to support the airport noise information office
 - FAA indicated it is open to receiving additional recommendations from City



FAA Identified RNAV Benefits

- Saves airlines approximately \$3.6 million / year in fuel burn
- Reverting to previous west configuration flight paths would reintroduce more than 4,300 metric tons of CO₂ emissions

(Equivalent of 700 cars/year)



Immediate & Continued Action

1. Community Engagement & Empowerment
2. Outreach to Airlines
3. Continue Coalition of Other Cities & Industry
4. Lobby Airlines, Agencies, and Congress to require FAA to do the right thing
5. Submit Metroplex Response
6. Enhance Noise Program at Sky Harbor



Summary

- FAA did not consider alternatives that would provide meaningful relief to community
- Stated environmental benefits do not outweigh enormous cost to community
- City was not treated in a way expected by letter from, and meetings with Administrator Huerta.



Recommendation

- Discontinue engagement in PBN Working Group
- Renew request to FAA to revert to previous flight paths using new RNAV technology
- Authorize staff to aggressively pursue 6-point strategic framework