Why and What ?

WHY ARE WE DOING THIS PROJECT?

The existing Las Vegas RNAV procedures do not take full advantage of modern technology.

WHAT DOES THIS PROJECT HOPE TO ACHIEVE?

Take advantage of Performance-Based Navigation by implementing RNAV procedures that will help improve the efficiency of the airspace in the Las Vegas Metroplex

Current procedures do not have course guidance to and from each runway. This requires controllers to use techniques such as vectoring and speed control to ensure safe vertical and lateral separation between arrival and departure aircraft. These techniques result in a lack of predictability and high workloads for controllers and pilots.

Improve the predictability of air traffic flows by increasing the number of RNAV SIDs and STARs and adding transitions to/from airport runways

Constraints associated with military airspace, mountainous terrain, and close proximity of the Study Airports result in complex interactions between arrival and departure flows. This requires controllers to carefully observe aircraft activity along the nearby or crossing flight routes and be prepared to intervene, ensuring standard separation is maintained.

Improve the segregation of arrivals and departures in the airspace by designing RNAV SIDs /STARs that can be used independently to/from the Study Airports and where practical, include optimized climb and descent profiles

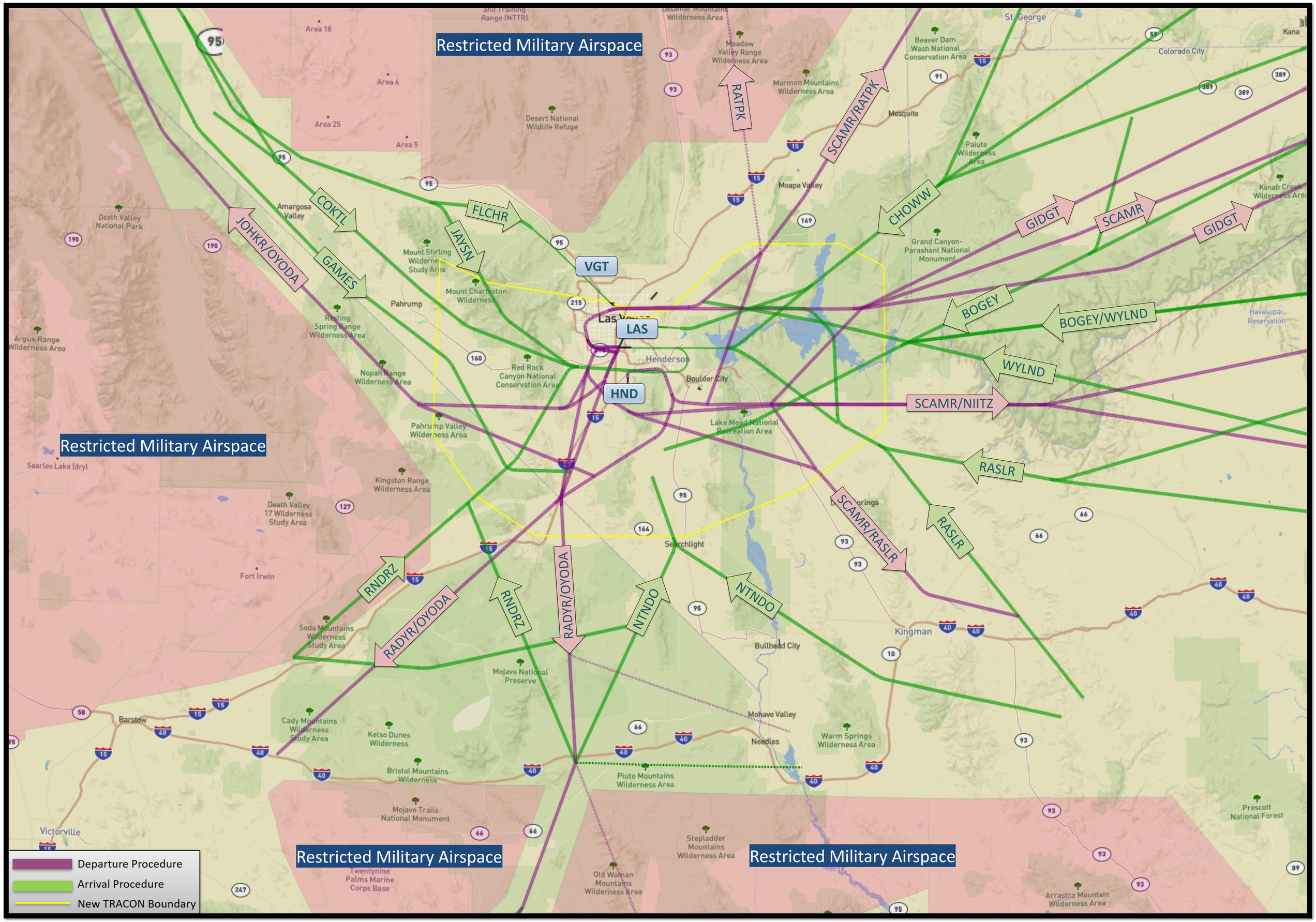
Flexibility in the management of the Las Vegas Metroplex airspace is affected by a limited number of entry and exit points, as well as a limited number of departure procedures. This constrains efficiency in the airspace and requires multiple traffic flows to merge before aircraft arrive at and depart the Las Vegas area.

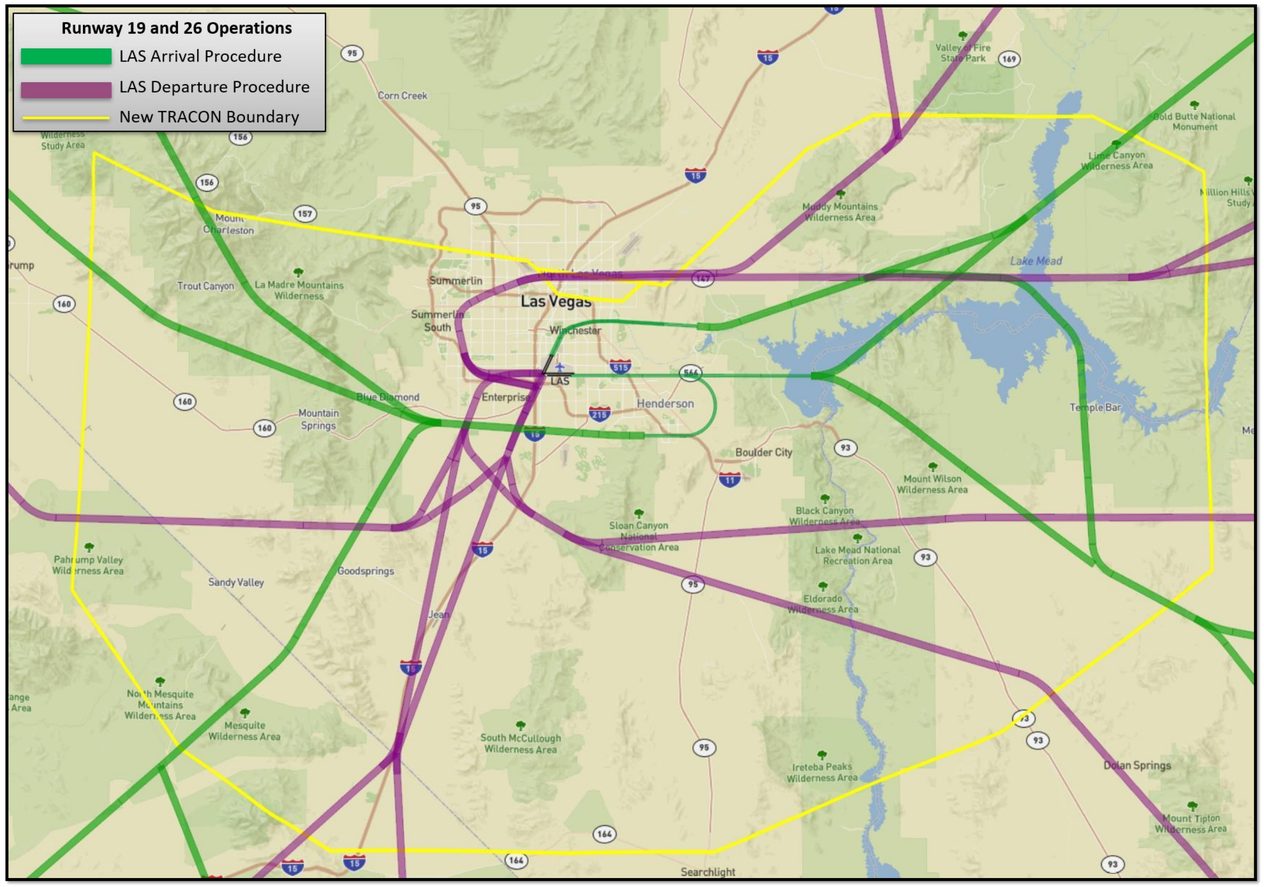
Improve flexibility in transitioning traffic between enroute and terminal area airspace and between terminal area airspace and the runways by increasing the number of entry and exit points, available transitions and overall number of RNAV SIDs and STARs

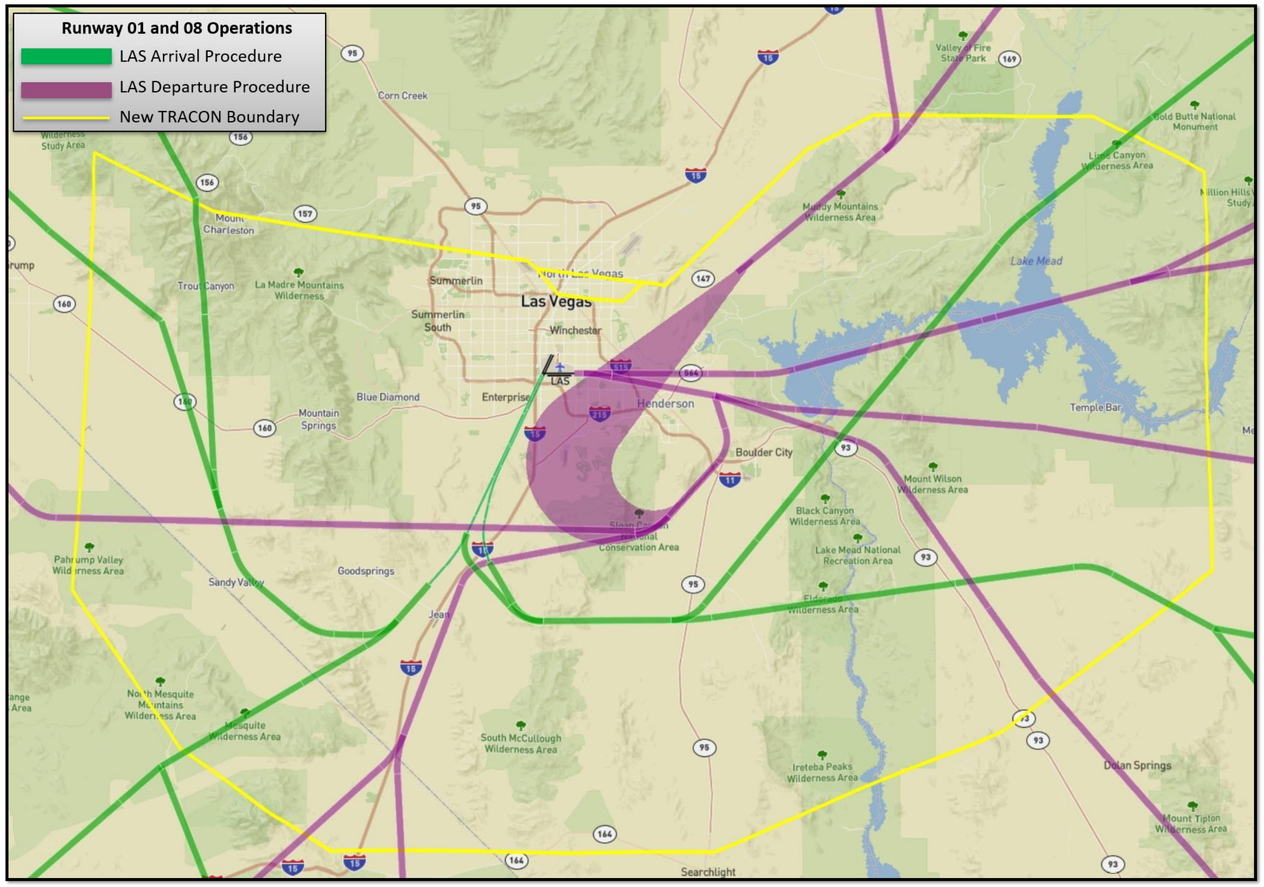
TERMINOLOGY

RNAV Area Navigation	**SID** Standard Instrument Departure	**STAR** Standard Terminal Arrival Route

Preliminary design of air routes serving the Las Vegas Valley




Runway 19 and 26 Operations
LAS Arrival Procedure
LAS Departure Procedure
New TRACON Boundary
Las Vegas
LAS
Henderson
Boulder City
Searchlight
Dolan Springs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Boulder City
Searchlight
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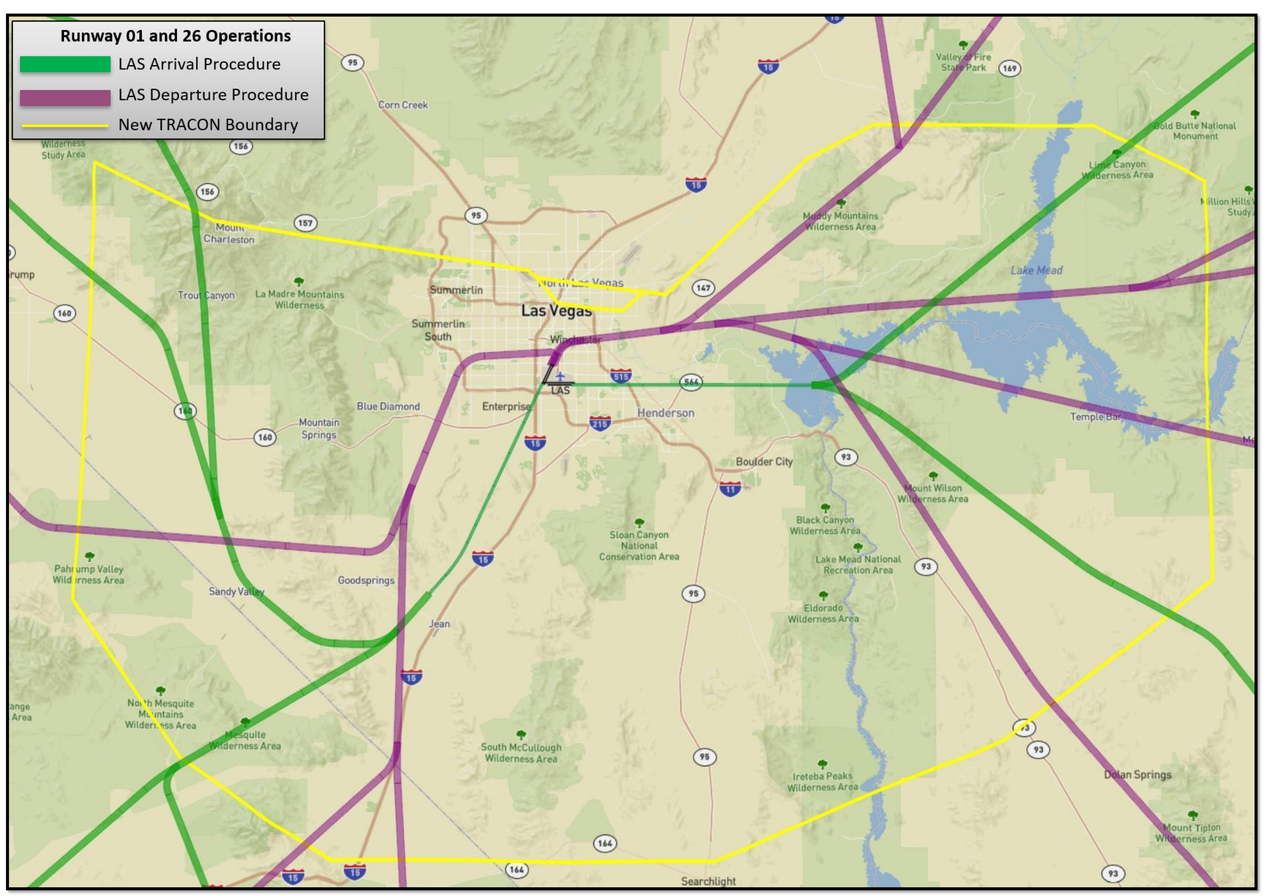
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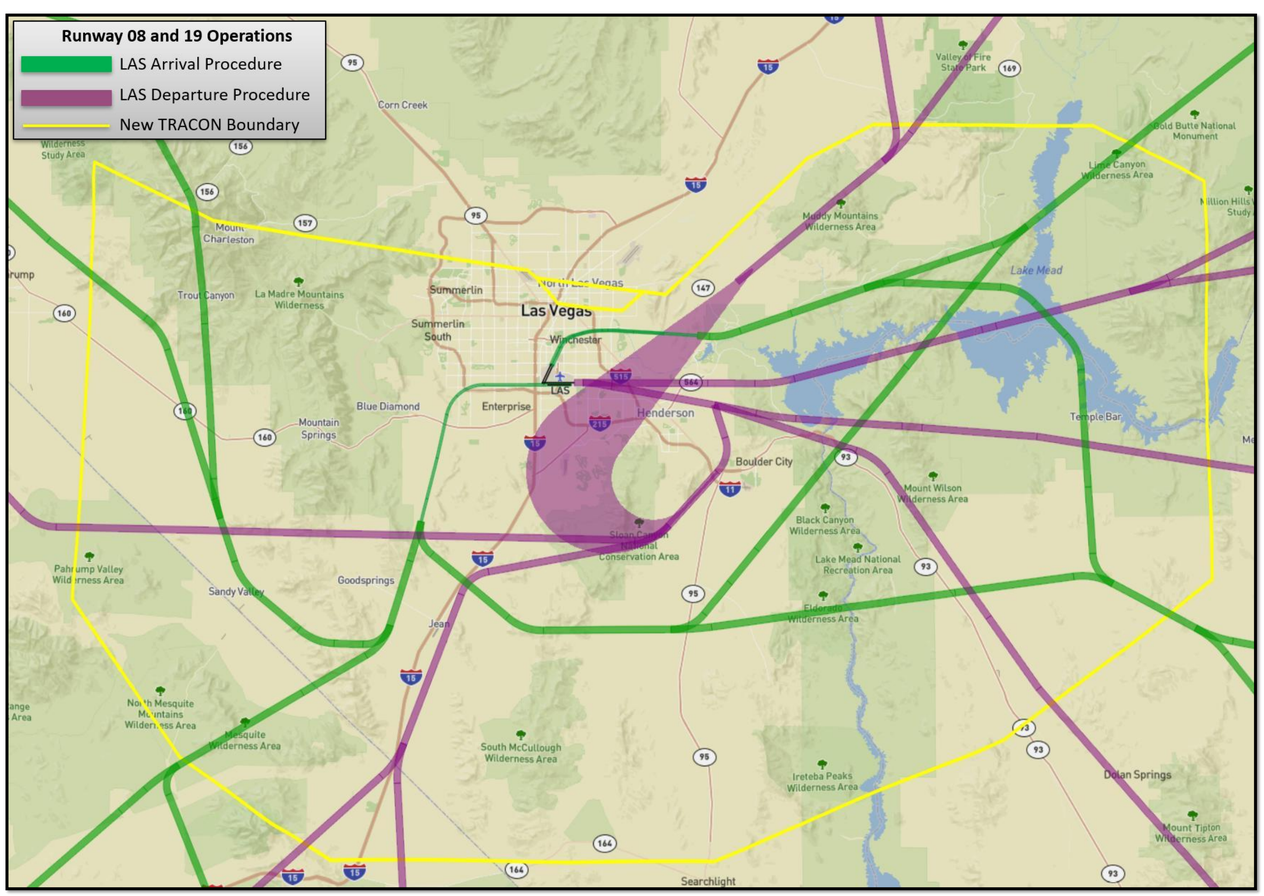
Runway 08 and 19 Operations
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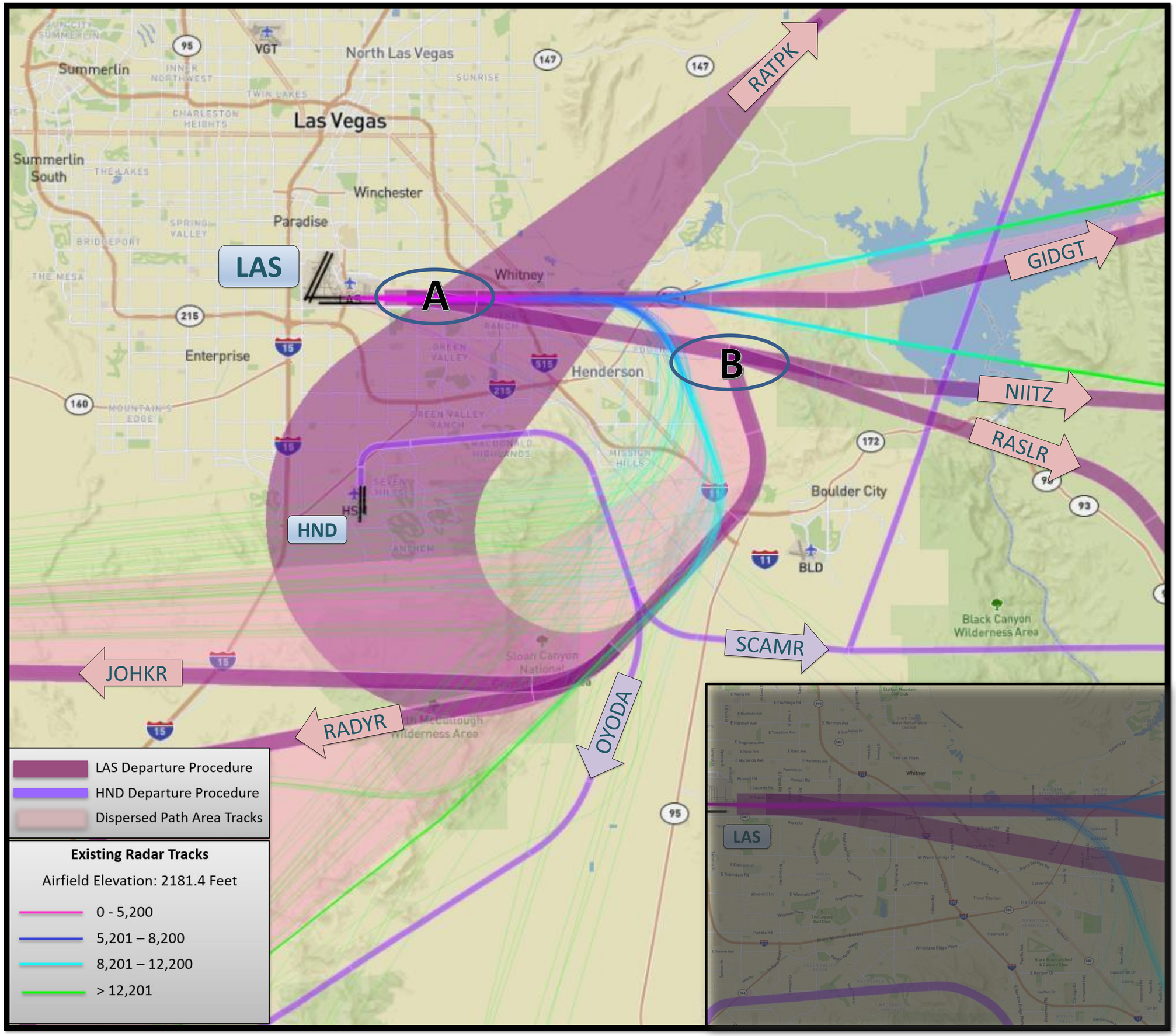


LAS McCarran International Airport

HND Henderson Executive Airport

RNAV Departure Procedures

LAS East Flow : Runway 08L

- RATPK (north destinations)
- GIDGT (northeast destinations)
- NIITZ (east destinations)
- RASLR (southeast destinations)
- RADYR (south destinations)
- JOHKR (northwest destinations)

HND North Flow : Runway 35

- OYODA (west destinations)
- SCAMR (east destinations)

Challenge: Current procedures require significant radio communication between air traffic controllers and pilots to keep departing aircraft properly separated from each other until the flight paths diverge.

Solution:

- Split the departure paths earlier (see “A” and the inset). The GIDGT splits from the NITZ/RASLR shortly after take off, and significantly earlier than current procedures split.
- Splitting the departure paths earlier would reduce controller-pilot communications.

Challenge: LAS departure routes overlap with HND departure routes.

Solution:

- Route LAS departure further east, away from HND traffic, before turning them south. The RADYR/JOHKR route is east of the current HND departure route (see “B”).

LAS McCarran International Airport

HND Henderson Executive Airport

RNAV Departure Procedures

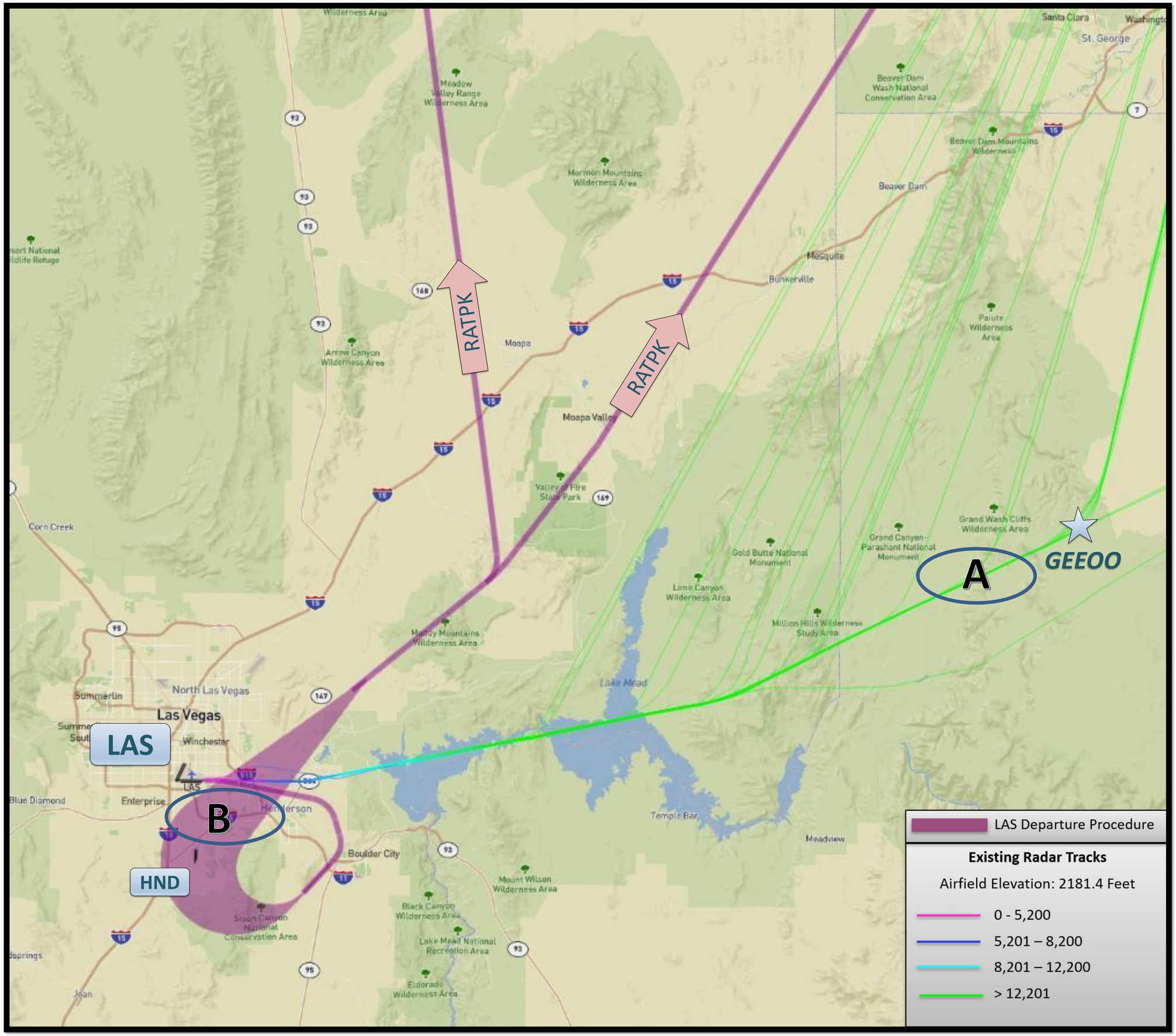
East Flow : Runway 08L

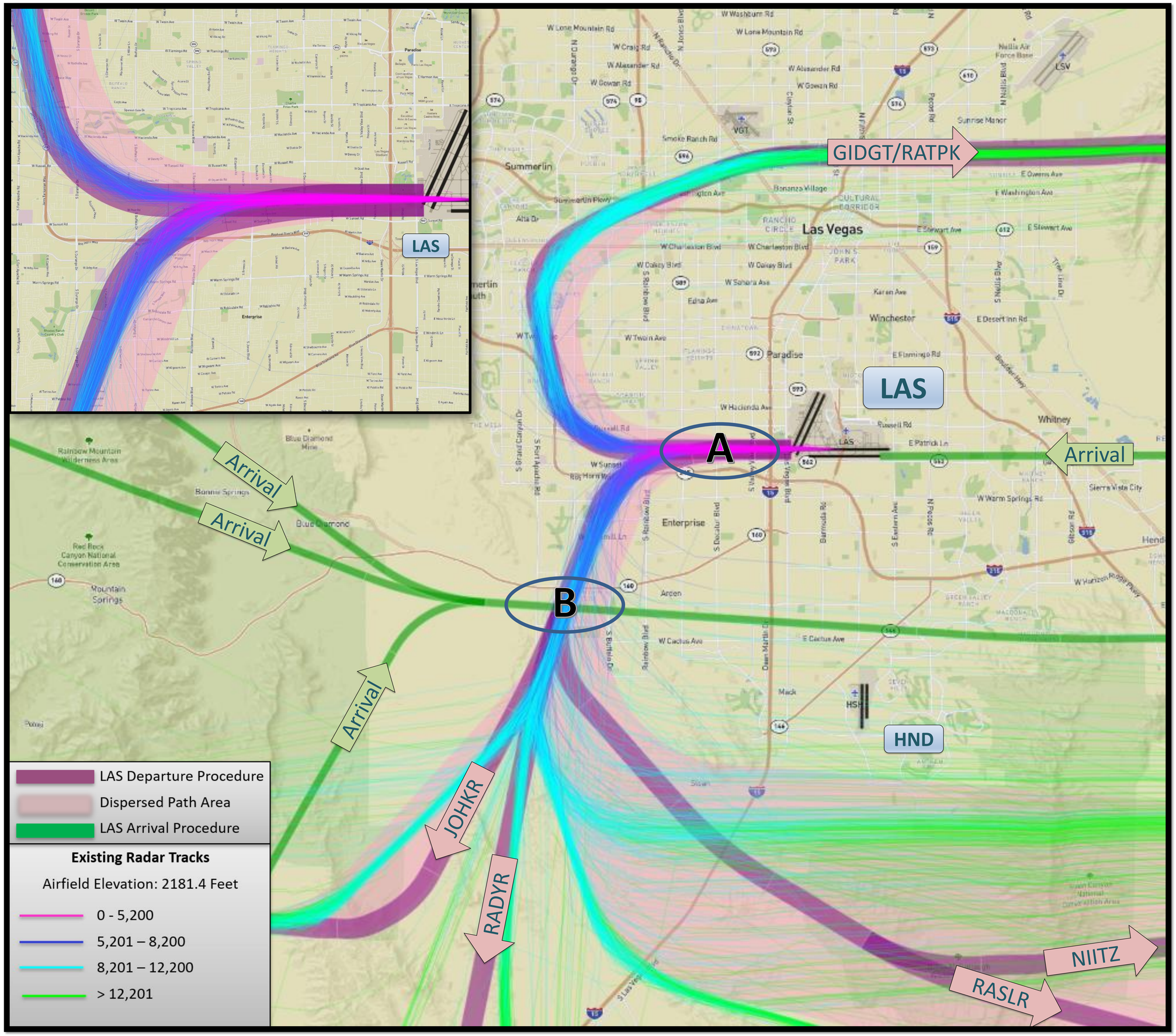
RATPK (north destinations)

Challenge: During hot weather, aircraft flying to northern destinations often are required to fly 70 to 100 miles east to avoid aircraft arriving into Las Vegas Valley airports from the northeast (see “A”).

Solution:

- The RATPK would allow departures to climb over the arrivals near the airport and proceed on course (see “B”).





LAS McCarran International Airport

HND Henderson Executive Airport

RNAV Departure Procedures

LAS East Flow : Runway 08L

- RATPK (north destinations)
- GIDGT (northeast destinations)
- NIITZ (east destinations)
- RASLR (southeast destinations)
- RADYR (south destinations)
- JOHKR (northwest destinations)

Challenge: Current procedures require significant radio communication between air traffic controllers and pilots to keep departing aircraft properly separated from each other until the flight paths diverge.

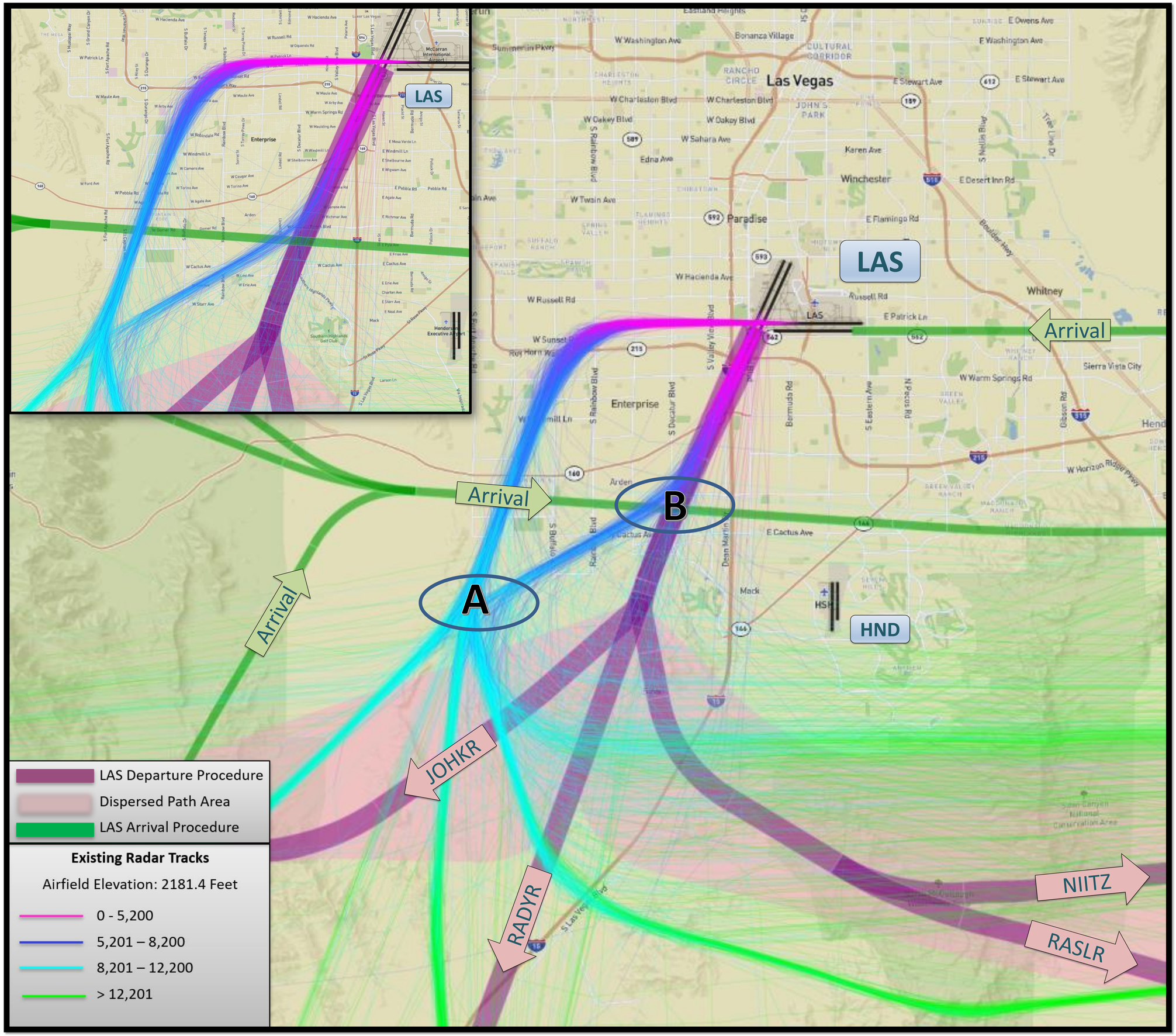
Solution:

- Split the departure paths earlier. Compared to current procedures, the RADYR/JOHKR/RASLR/NIITZ flows would split earlier from the GIDGT/RATPK flow (see “A” and the inset).
- Splitting the departure paths earlier would reduce controller-pilot communications.

Challenge: Current departure procedures interact with arrival procedures (see “B”). This requires aircraft to climb slowly or fly level for long periods until they pass under the arrival stream.

Solution:

- Raise the altitude on the arrival route to allow departing aircraft to climb with fewer level-offs which could reduce fuel burn and CO2 emissions.



LAS McCarran International Airport

HND Henderson Executive Airport

RNAV Departure Procedures

South Flow : Runway 19

NIITZ (east destinations)
RASLR (southeast destinations)
RADYR (south destinations)
OHKR (northwest destinations)

Challenge: Current south flow departure procedures make a turn to the west into the flight path of other departing aircraft (see “A”). Nine procedures converge at this point. This requires aircraft to be delayed on the ground until the flight path is clear.

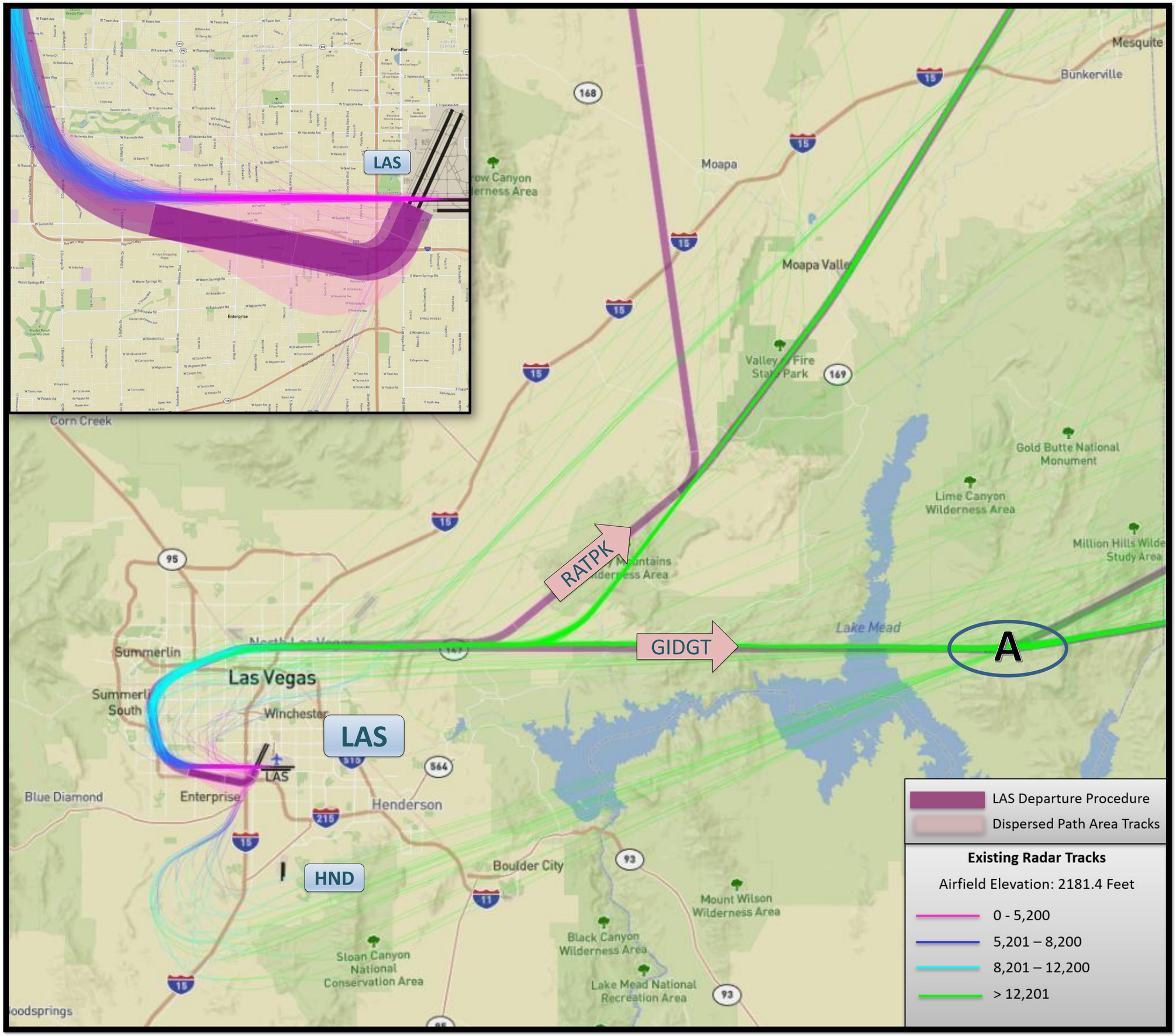
Solution:

- Proposed procedures would continue straight ahead, reducing delays.
- Proposed procedures would reduce complexity by keeping several of them from converging or crossing.

Challenge: Current departure procedures interact with arrival procedures. (See “B”). This requires aircraft to climb slowly or fly level for long periods until they pass under the arrival stream.

Solution:

- Raise the altitude on the arrival route to allow departing aircraft to climb with fewer level-offs which could reduce fuel burn and CO2 emissions



LAS McCarran International Airport

HND Henderson Executive Airport

RNAV Departure Procedures

South Flow : Runway 19

RATPK (north destinations)

GIDGT (northeast destinations)

Challenge: Under current procedures, departing aircraft take different paths from either Runway 19 or Runway 26 to the same point northeast of the airport (see "A"). This results in high air traffic controller workloads for three reasons.

- Controllers must delay Runway 19 departures until there are no departures off Runway 26 going to point "A",
- Controllers must taxi general aviation aircraft, which park on the west side of the airport, across two busy runways (Runways 1/19 left and right) to get to Runway 26 for departure, or
- Controllers must issue instructions to pilots that depart off Runway 19 to provide separation prior to the aircraft reaching point "A".

Solution:

- Some general aviation aircraft would depart off Runway 19.
  - All aircraft heading to eastern destinations would be routed on the same path regardless of runway.
  - This eliminates the need to taxi across two runways to depart.
  - This would greatly simplify controller workload.

LAS McCarran International Airport

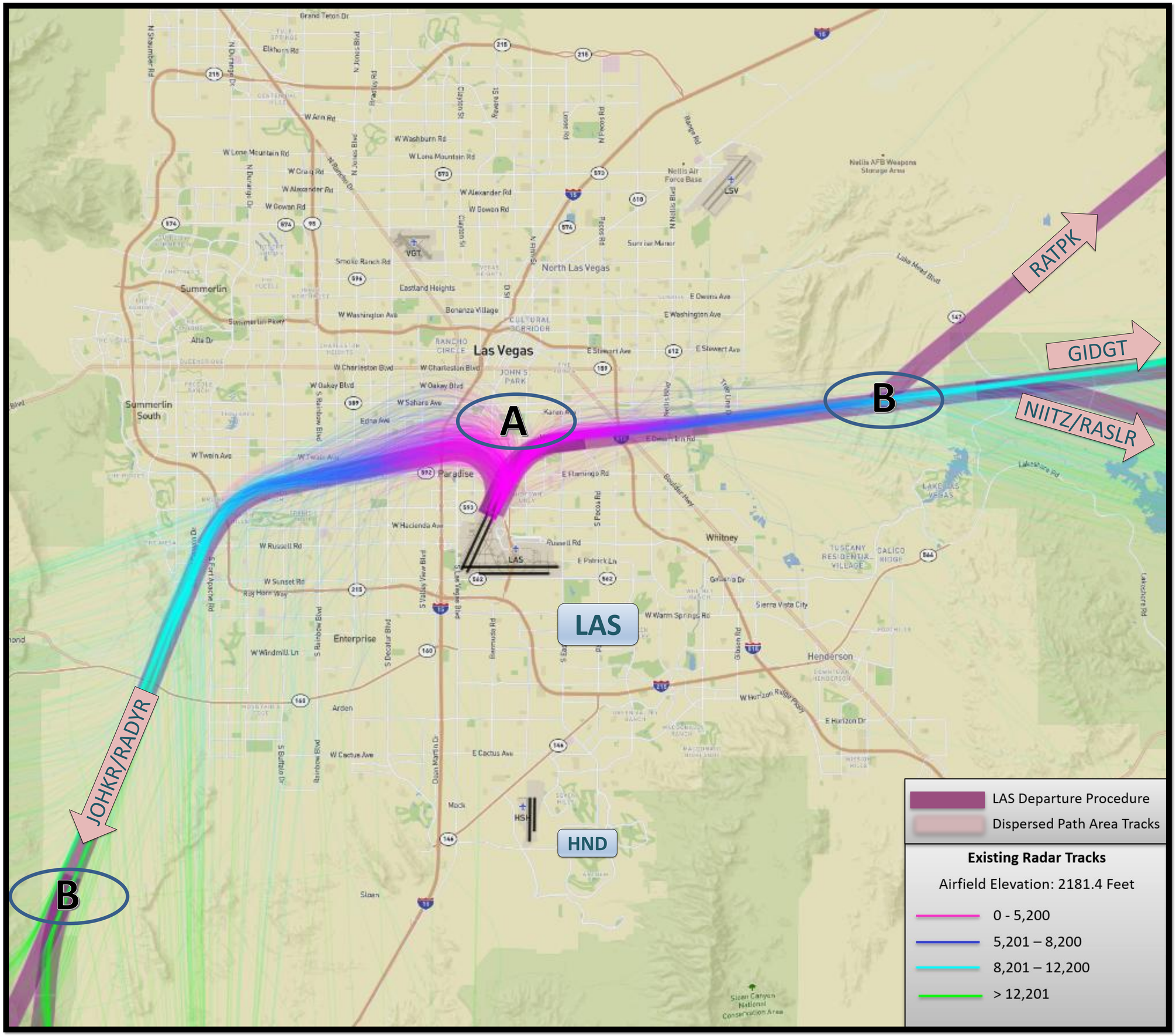
HND Henderson Executive Airport

RNAV Departure Procedures

North Flow : Runway 01

RATPK (north destinations)
GIDGT (northeast destinations)
NIITZ (east destinations)
RASLR (southeast destinations)
RADYR (south destinations)
OHKR (northwest destinations)

The FAA is not proposing any changes to flight paths over the densely populated Las Vegas metropolitan area for aircraft departing off Runway 01. The new routes will be overlays of the existing routes (see “A”). The changes would occur further from the airport, where the procedures diverge (see “B”).



LAS McCarran International Airport

HND Henderson Executive Airport

RNAV Arrival Procedures

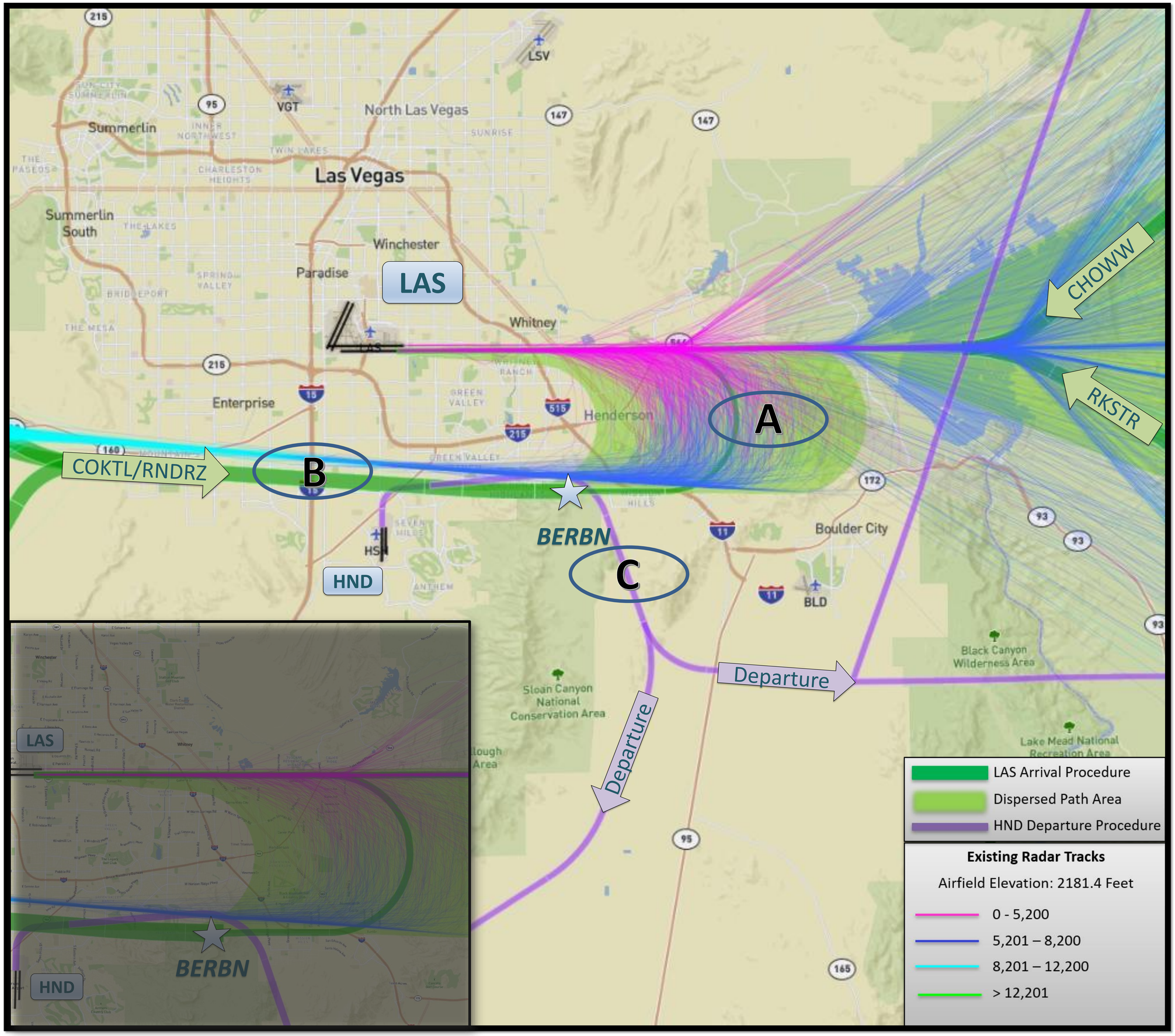
South Flow : Runway 19

RNDRZ (arrivals from the southwest)
CHOWW (arrivals from the northeast)
COKTL (arrivals from the northwest)
RKSTR (arrivals from the southeast)

Challenge: Current flights are at low altitudes and close to the airport. Aircraft are on inefficient descent profiles, and controllers have to issue instructions to pilots to keep arrivals separated from HND departures.

Solution:

- Move arrivals from the west ½ mile to the south and raise the altitude of the aircraft on the route (see “A”). This would enable aircraft to come in at higher altitudes and on more efficient reduced-power settings.
- This arrival procedure (see “A”) would be an Optimized Profile Descent (OPD), which enables aircraft to glide down to their final approaches at reduced-power settings. Use of OPDs can reduce fuel burn, CO2 emissions and reduce pilot-controller communications, thus simplifying workloads and reducing the chances of miscommunications.
- The consolidation of the arrival path north of the airport would help keep arriving aircraft away from air tour helicopters that operate in that area. Properly equipped aircraft would fly a precise approach right down to the runways, which simplifies pilot and controller workload.



LAS McCarran International Airport

HND Henderson Executive Airport

RNAV Arrival Procedures

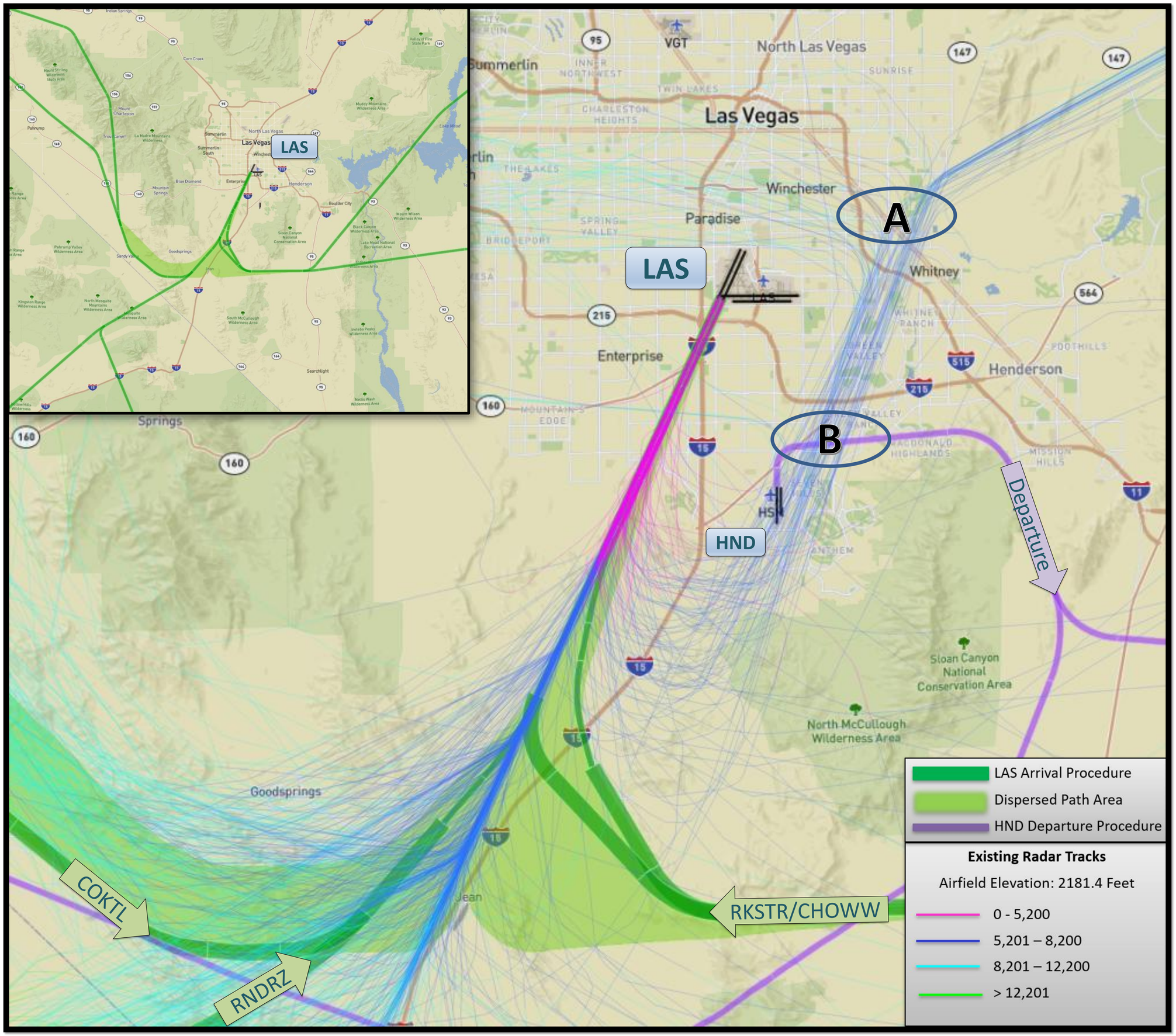
West Flow : Runway 26L

RNDRZ (arrivals from the southwest)
CHOWW (arrivals from the northeast)
COKTL (arrivals from the northwest)
RKSTR (arrivals from the southeast)

Challenge: The current arrival flow is widely dispersed because controllers have to issue instructions to pilots turn in for their approaches to airport (see "A").

Solution:

- Move arrivals from the west ½ mile to the south and raise the altitude of the aircraft on the route (see "B"). This would enable aircraft to come in on more efficient reduced-power settings and at higher altitudes and keeping them above HND departures (see "C").
- This arrival procedure would be an Optimized Profile Descent (OPD), which enables aircraft to glide down to their final approaches at reduced-power settings. Use of OPDs can reduce fuel burn, CO2 emissions and pilot-controller communications, thus simplifying workloads and reducing the chances of miscommunications.
- Properly equipped aircraft would fly a precise approach right down to the runway, further simplifying pilot and controller workload.
- Most of the aircraft not able to fly the precise approach would be issued instructions which would concentrate more arriving aircraft east of Henderson, over less populated areas.



LAS McCarran International Airport

HND Henderson Executive Airport

RNAV Arrival Procedures

North Flow : Runway 01

RNDRZ (arrivals from the southwest)
CHOWW (arrivals from the northeast)
COKTL (arrivals from the northwest)
RKSTR (arrivals from the southeast)

Challenge: Currently there are no defined flight paths for aircraft landing Runway 01. Air traffic controllers issue a series of instructions to pilots to guide them down to the runway.

Solution:

- Create satellite-based arrival routes that would provide a predictable path and guide aircraft all the way down to the runway, thereby reducing pilot-controller communications and simplifying workloads.
- Most arrivals to Runway 01 would no longer overfly the more urbanized areas east of McCarran (see “A” and inset).
- Arrivals would likely be at higher altitudes, allowing for reduced aircraft power settings.
- Consolidating arrivals further to the south and placing them on more predictable flight paths would keep them better separated from operations at Henderson Executive Airport (see “B”).

LAS McCarran International Airport

RNAV Arrival Procedures

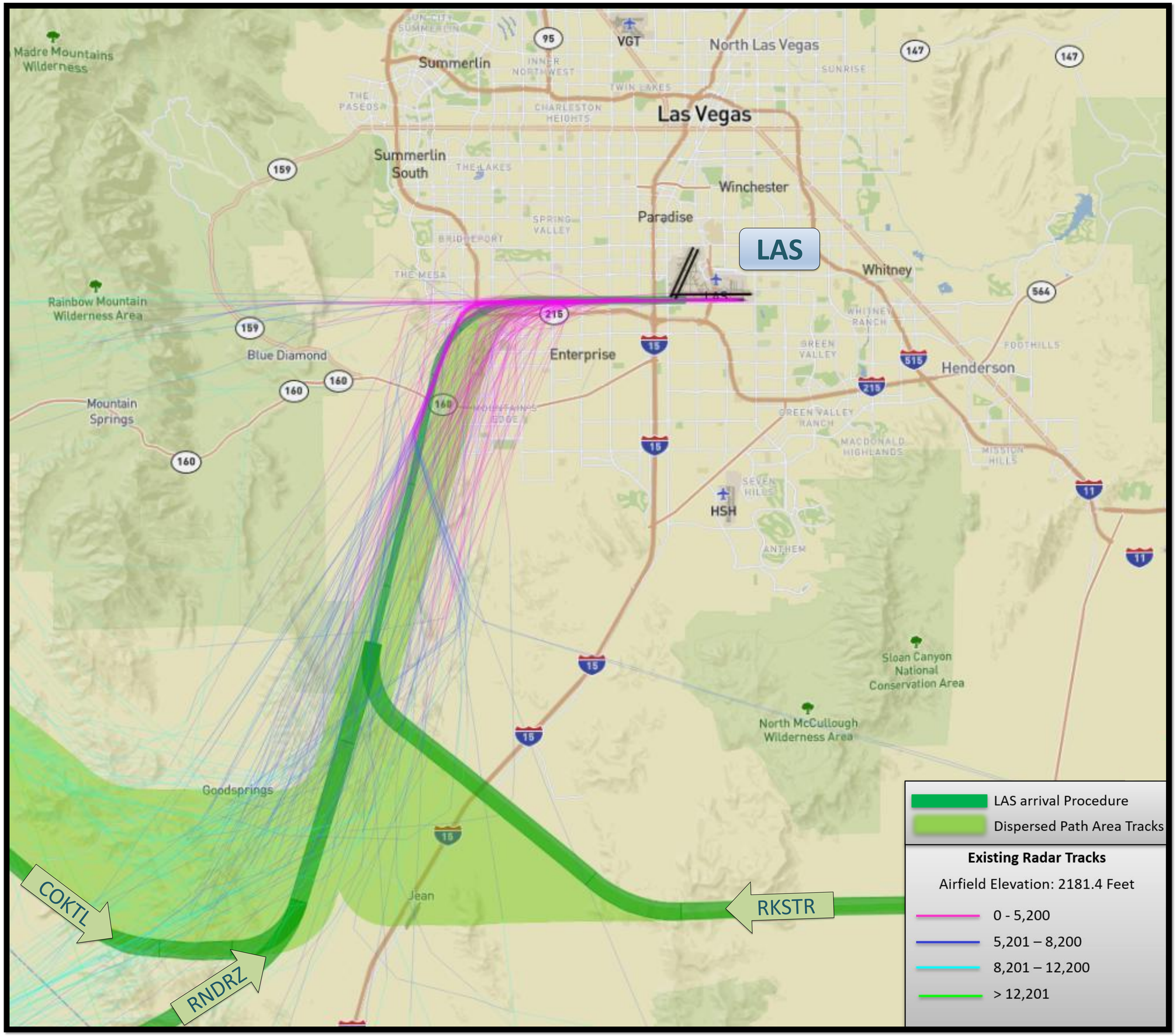
East Flow : Runway 08R

RNDRZ (arrivals from the southwest)
COKTL (arrivals from the northwest)
RKSTR (arrivals from the southeast)

Challenge: Currently there are no defined flight paths for aircraft that land to the east on Runway 08. Air traffic controllers issue a series of instructions to pilots to guide them down to the runway.

Solution:

- Create satellite-based arrival routes that would provide a predictable path and guide aircraft all the way down to the runway, thereby reducing pilot-controller communications and simplifying workloads.
- These arrival procedures would be Optimized Profile Descents (OPDs), which enable aircraft to glide down to their final approaches at reduced-power settings. The OPDs would connect a precise approach that would guide aircraft down to the runway.
- Use of OPDs can reduce fuel burn, CO2 emissions and pilot-controller communications, thus simplifying workloads and reducing the chances of miscommunications.



Las Vegas Metroplex & The Community

What you will see next:

1 Preliminary Procedures

Public Workshops

Receive Feedback from Communities

Refine Procedures

We Are Here

2 Draft Environmental Assessment (EA)

30-day Public Review of Draft EA

Public Workshops

Respond to Public Comments

3 Final Procedures

Public Informational Workshops

For more information: www.faa.gov/nextgen/communityengagement/las/

Environmental Study Process

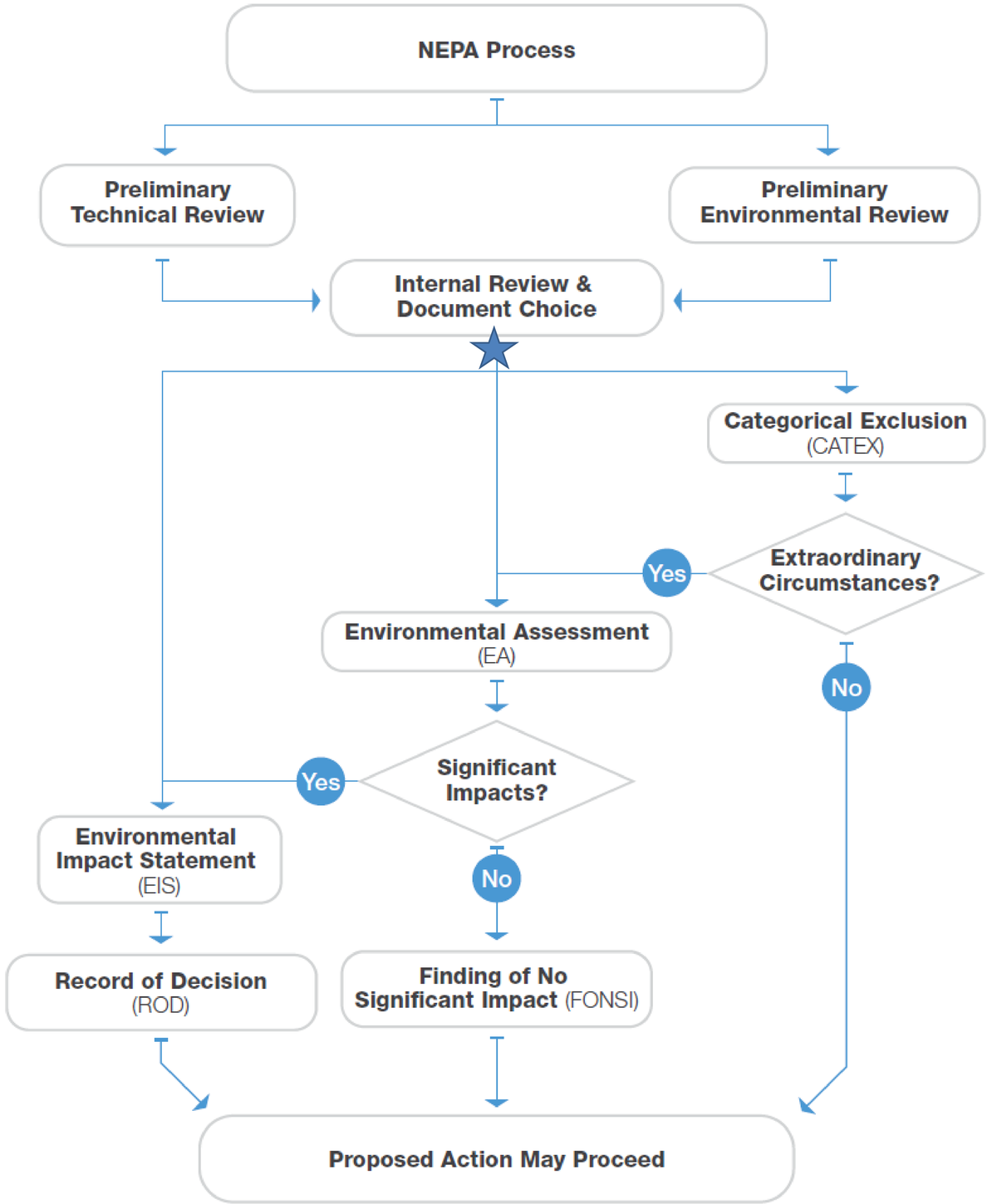
Consideration of a Proposed Action under the National Environmental Policy Act (NEPA)

NEPA requires that the FAA evaluate the environmental and related social and economic effects of a proposed action.

Preliminary Technical Review
FAA conducts an internal technical review before deciding to consider moving forward with an environmental review.

Preliminary Environmental Review
FAA conducts an internal environmental review to evaluate any potential environmental concerns.

Internal Review and choice of appropriate level of NEPA review
Internal analysis such as the noise screening reports as well as input from the public are used to assist the FAA in determining the appropriate level of NEPA review to conduct.

Extraordinary Circumstances
Paragraph 5-2 of FAA Order 1050.1F identifies the range of factors which define Extraordinary Circumstances.

Significant Impacts
The FAA uses thresholds that serve as specific indicators of significant impact for some environmental impact categories. FAA proposed actions that would result in impacts at or above these thresholds require the preparation of an EIS, unless impacts can be reduced below threshold levels.