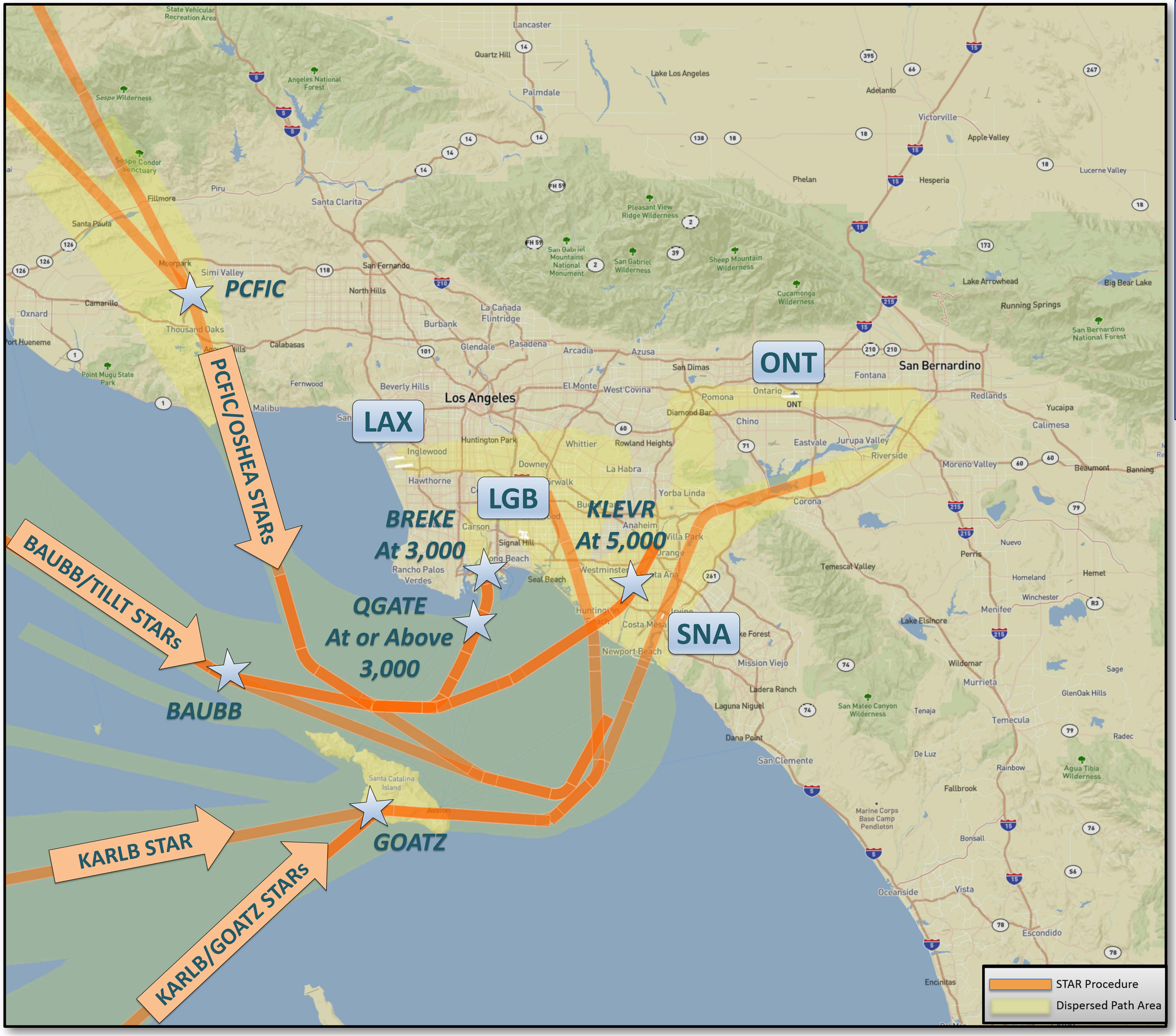


LAX Los Angeles International Airport

LGB Long Beach Airport (Daugherty Field)

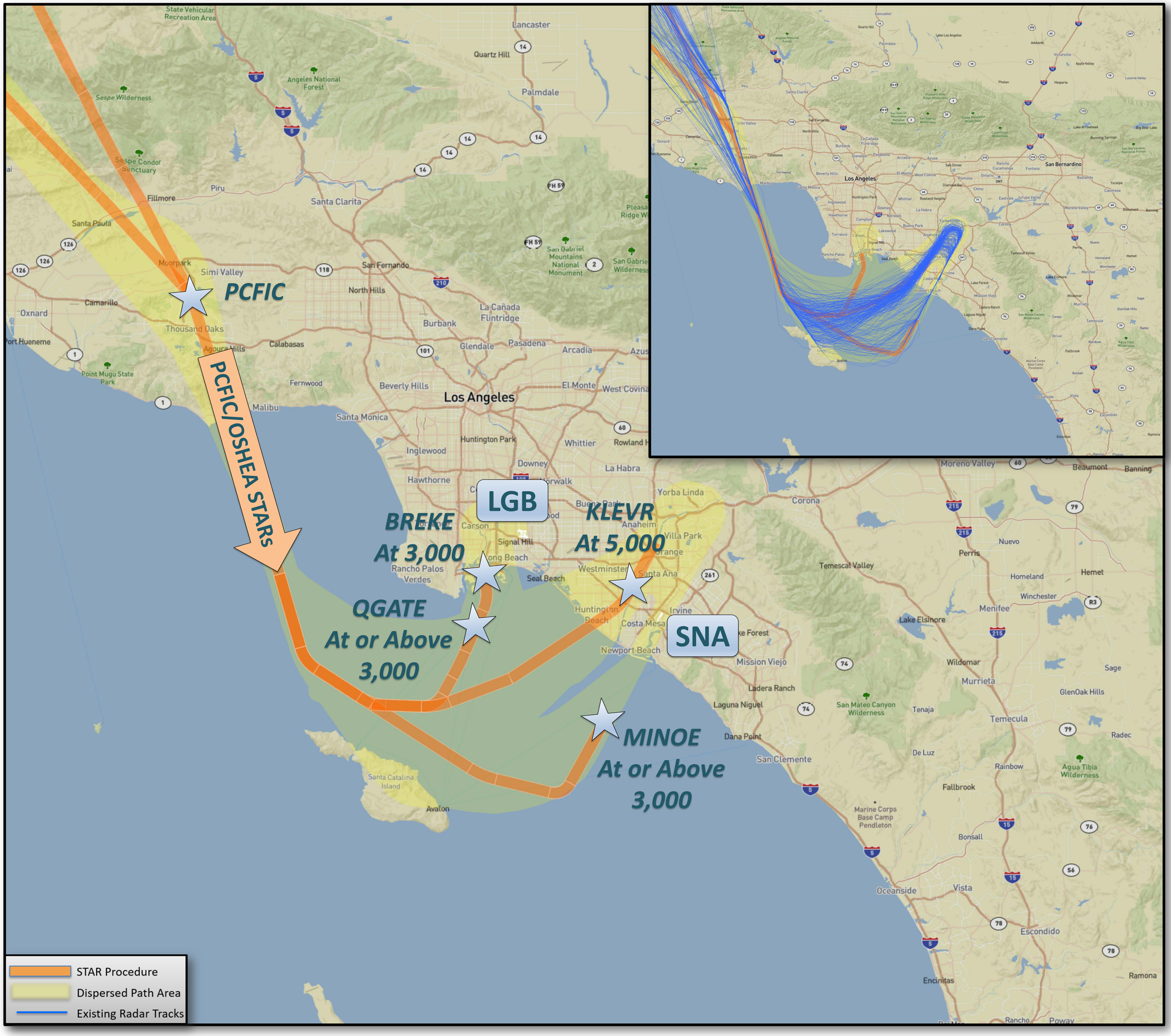
ONT Ontario International Airport

SNA John Wayne-Orange County Airport

STAR (Arrival)

LAX GOATZ ONE RNAV STAR
ONT KARLB ONE RNAV STAR
LGB BAUBB ONE RNAV STAR
LGB PCIFC ONE RNAV STAR
SNA OHSEA ONE RNAV STAR
SNA TILLT ONE RNAV STAR

- New STAR designs for LAX, LGB, ONT, and SNA arrivals from over the ocean
- Designed to limit interactions with other departure and arrival procedures in the Southern California area
- GOATZ and KARLB allow aircraft to be as much as 7,000 feet higher over Catalina Island
- GOATZ, PCIFC, OHSEA, and TILLT STARs tie into new RNP approaches



LGB Long Beach Airport (Daugherty Field)

SNA John Wayne-Orange County Airport

STAR (Arrival)

LGB PCIFC ONE RNAV STAR

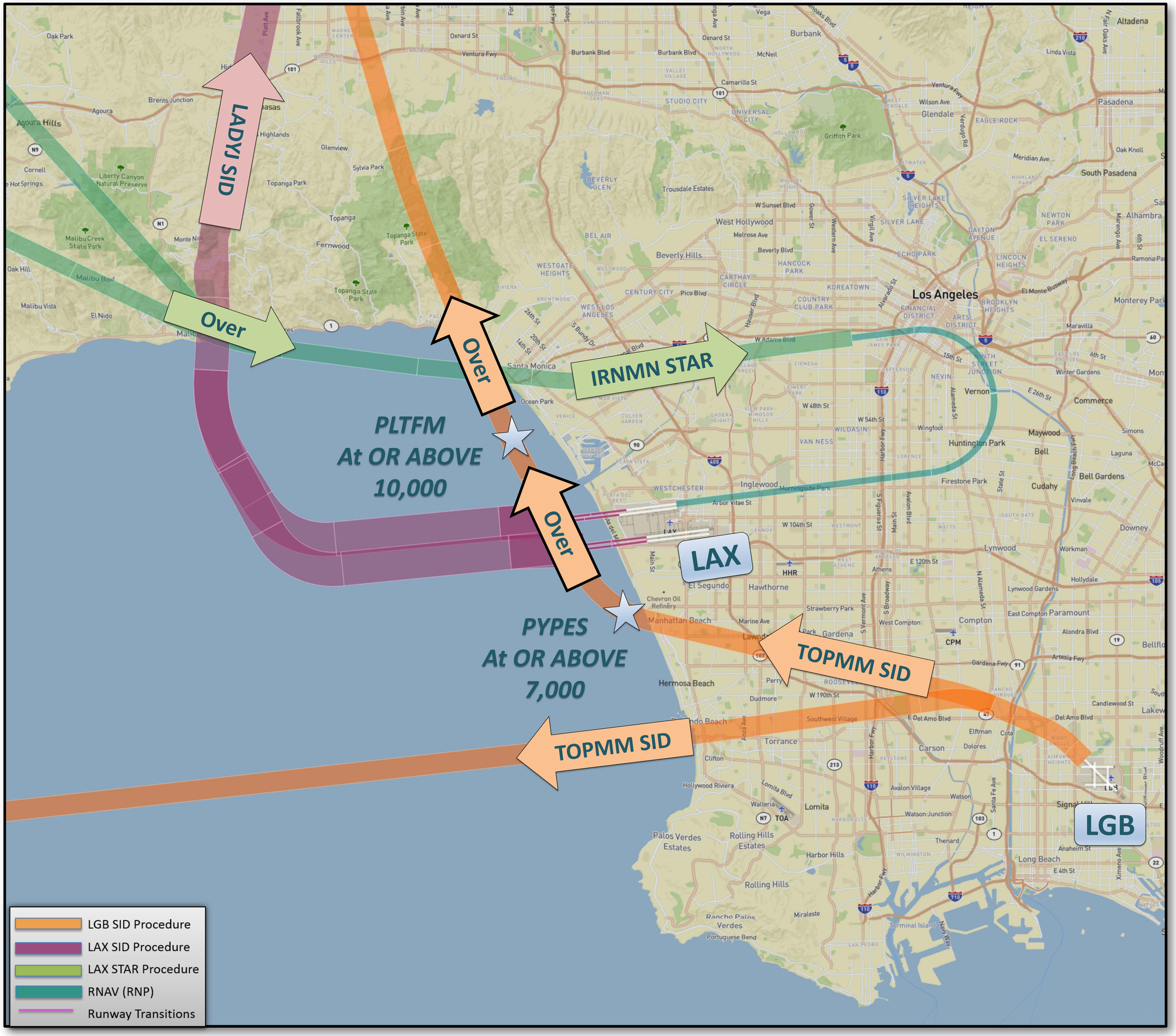
SNA OHSEA ONE RNAV STAR

PCIFC ONE

- Serves LGB arrivals from the northwest to Runways 12, 25R, and 30
- An RNAV procedure with OPD benefits
- More closely follows historical tracks at lower altitudes
- Ties into new RNP approaches to LGB

OHSEA ONE

- Serves SNA arrivals to Runways 02 and 20 from the northwest
- Deconflicted from LAX departures to SAN and traffic overflying the LAX VOR
- Ties in to new SNA RNP approaches at KLEVR and MINOE



LAX Los Angeles International Airport

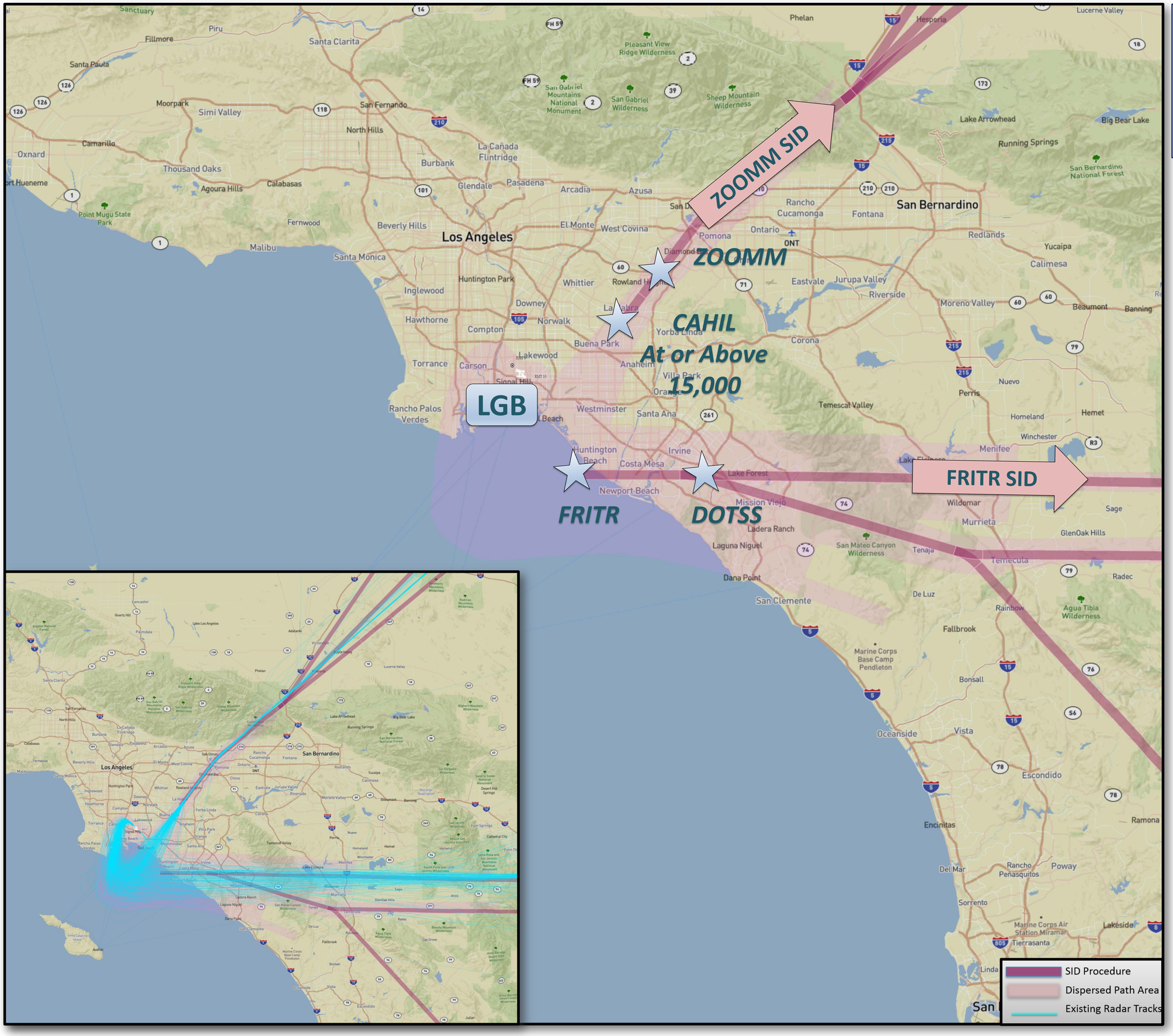
LGB Long Beach Airport (Daugherty Field)

SID (Departure)
LAX LADYJ ONE RNAV SID
LGB TOPMM ONE RNAV SID

STAR (Arrival)
LAX IRNMN ONE RNAV STAR

LADYJ / TOPMM / IRNMN Interactions

- Design of procedures involved controlling interactions between arrivals and departures to and from multiple airports
- Map shows the solutions for two airports
- LAX IRNMN was designed to keep aircraft above the LAX LADYJ departures and below the LGB TOPMM departures
- LAX LADYJ departures will be below the LGB TOPMM departures and LAX IRNMN arrivals
- LGB TOPMM departures will be above LAX LADYJ departures and LAX IRNMN arrivals



LGB Long Beach Airport (Daugherty Field)

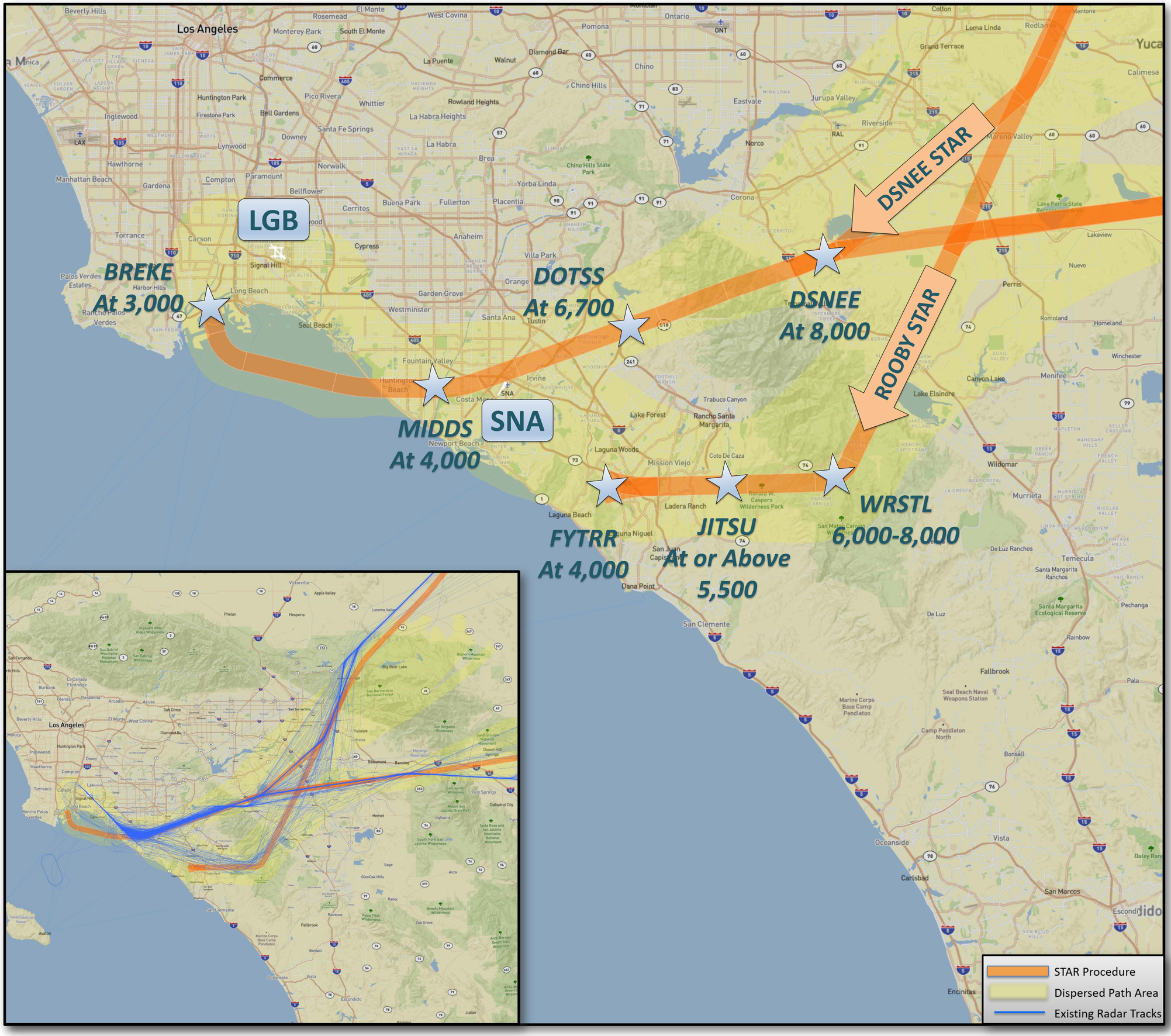
SID (Departure)
LGB FRITR ONE RNAV SID
LGB ZOOMM ONE RNAV SID

FRITR ONE

- An RNAV departure designed to replace the SENIC SID
- Will provide a more repeatable and predictable path for east and southeast bound departures from LGB, reducing complexity and increasing safety
- Lateral tracks were designed in conjunction with the LAX DOTTS, ONT RAJEE, SNA PIGGN, and SMO PEVEE SIDs

ZOOMM ONE

- An RNAV departure replacing the SENIC SID - DAG Transition
- The current SENIC SID only serves LGB Runway 30 while the ZOOMM serves LGB Runways 12 and 30
- Altitude restrictions were added to the procedure to deconflict from LAX arrivals and reduce complexity
- Will provide a more repeatable and predictable path



LGB Long Beach Airport (Daugherty Field)

SNA John Wayne-Orange County Airport

STAR (Arrival)

LGB/SNA DSNEE ONE RNAV STAR

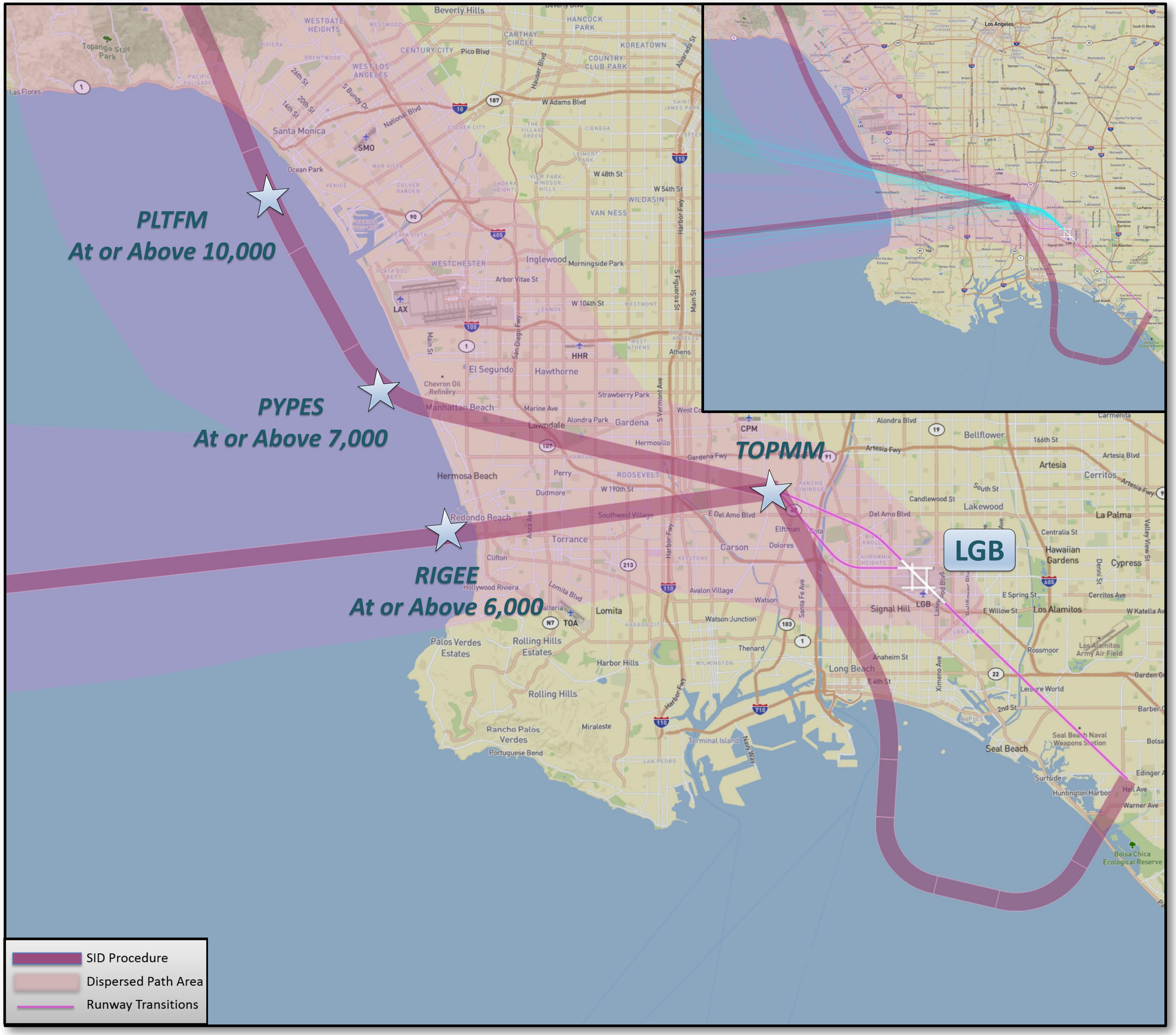
LGB/SNA ROOBY ONE RNAV STAR

DSNEE ONE

- Replaces the LGB/SNA KEFFR STAR with OPD benefits for SNA south flow arrivals landing Runway 20R and LGB arrivals
- Deconflicted from the BUR/VNY THRNE and the ONT EAGLZ and SCBBY STARs
- Vertical restrictions were added to deconflict from other STARs and SIDs including the LAX ANJLL STAR

ROOBY ONE

- Replaces the LGB/SNA KEFFR STAR with OPD benefits for SNA north flow arrivals landing Runway 02L and LGB arrivals
- Deconflicted from the BUR/VNY THRNE and the ONT EAGLZ and SCBBY STARs
- Altitude restrictions were added to deconflict from other STARs and SIDs including the LAX ANJLL STAR

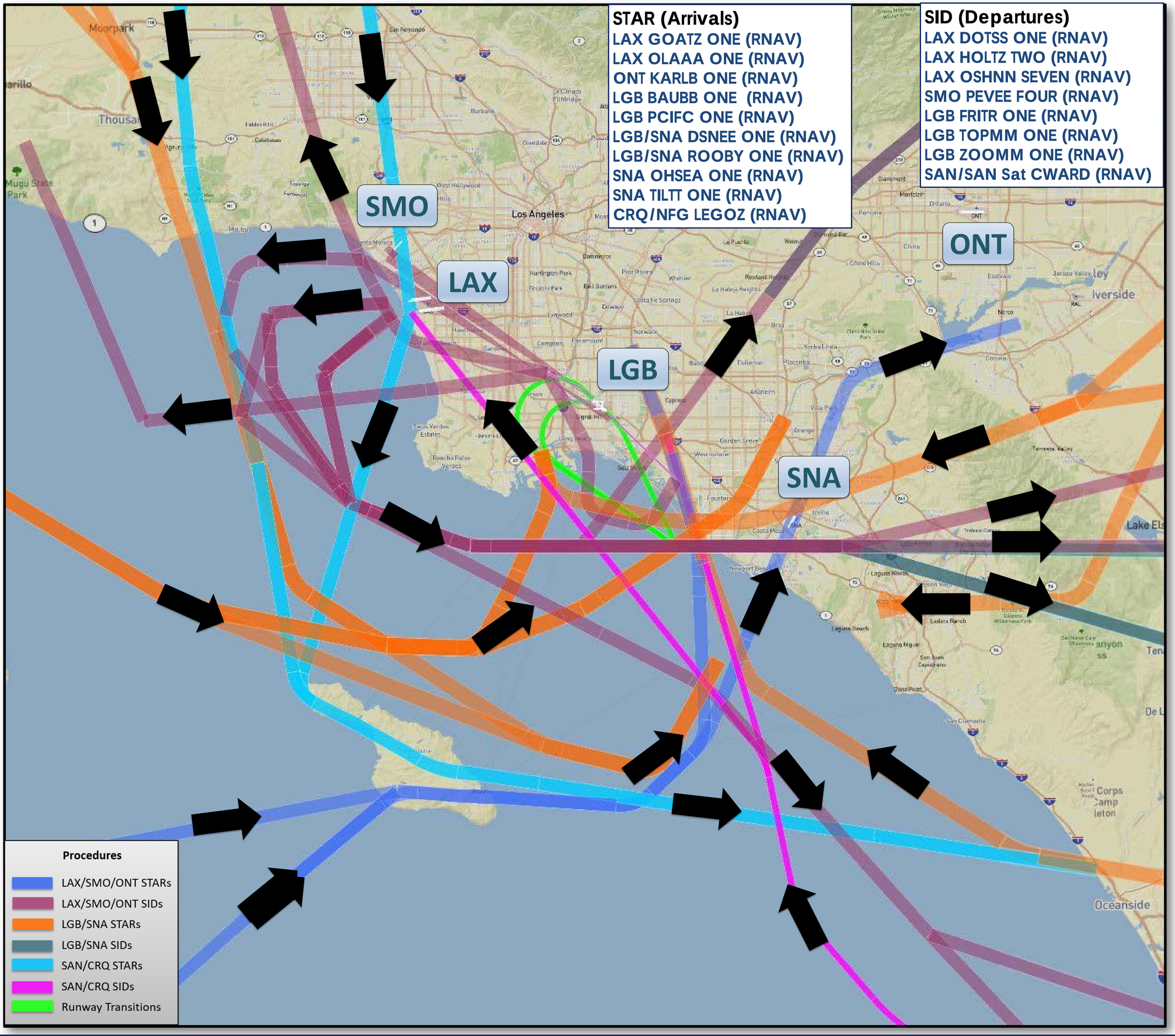


LGB Long Beach Airport

SIDS (Departures)
LGB TOPMM ONE (RNAV)

TOPMM ONE

- Currently no published procedure for LGB departures to the west and northwest
- Serves LGB departures to the west, north, and northwest from Runways 12, 25R, and 30
- Only used when LAX aircraft are departing to the west
- De-conflicted from LGB arrivals, LAX arrivals and departures, and BUR/VNY departures
- Laterally separated from military airspace, Restricted Area 2519 (R-2519) and Warning Area 289 (W-289)



LAX Los Angeles International Airport

ONT Ontario International Airport

SMO Santa Monica Municipal Airport

LGB Long Beach Airport (Daugherty Field)

SNA John Wayne – Orange County Airport

SAN San Diego International

CRQ Mc Clellan-Palomar Airport

The Design of all procedures into and out of Southern California airports was affected by many factors including:

- Traffic flows into and out of other airports
- Military and special use airspace restrictions
- Aircraft performance
- Terrain
- Class B airspace
- Existing noise procedures