

Appendix E1-9
LAX SPECIFIC PLAN AMENDMENT STUDY REPORT

**Specific Plan Amendment Study (SPAS) EIR
Airfield Alternatives
Westside Navigational Aids/Lighting Overview**

October 2011

Prepared for:

Los Angeles World Airports
One World Way
Los Angeles, California 90045

Prepared by:

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1917 Palomar Oaks Way Suite 350
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MEMORANDUM

Date: October 10, 2011

To: Mr. Tony Skidmore
Ms. Robin Ijams
CDM

From: Stephen Smith

Subject: SPECIFIC PLAN AMENDMENT STUDY (SPAS) EIR: AIRFIELD ALTERNATIVES
WESTSIDE NAVAID/LIGHTING OVERVIEW

Ricondo & Associates, Inc. (R&A) was tasked by CDM with depicting the probable location of navigational aids (NAVAIDS) and approach lighting west of Los Angeles International Airport (the Airport) associated with the six alternatives which are subject to co-equal detailed analysis for the SPAS Environmental Impact Report (EIR). CDM's intent for this information is to conduct a general assessment of potential impacts to sensitive habitat in the Los Angeles/El Segundo Dunes as a result of the reconfiguration of NAVAIDS and approach lighting. Specifically, CDM requested exhibits depicting the existing NAVAIDS and lighting and the expected general location of the same facilities linked to each alternative. This is not intended to be a specific footprint and service road analysis, nor a detailed design related to each NAVAID. The sections below describe the assumptions for each alternative and the exhibits depicting the potential NAVAID and lighting locations.

SPAS Alternative 1 (Runway 6L-24R Relocated 260 ft. North)

SPAS Alternative 1 involves relocating Runway 6L-24R 260 feet north of its existing location to provide enough distance between it and Runway 6R-24L to accommodate a Centerfield Taxiway which is 500 feet from Runway 6L-24R and 460 feet from Runway 6L-24R. The north airfield change elements for this alternative include:

1. Relocate Runway 6L-24R 260 feet north of existing location;
2. Extend Runway 6L-24R 604 feet to the west;
3. Relocate Runway 24R landing threshold 604 feet to the west;
4. Construct Centerfield Taxiway 500 feet south of Runway 6L-24R and 460 feet from 6R-24L;
5. Extend Runway 6R-24L 1,250 feet east;
6. Relocate Runway 6R landing threshold 104 feet to the east;
7. Extend Taxiway E 1,250 feet east to connect to end of relocated Runway 24L;
8. Straighten Taxiway E between E17 and AA;
9. Extend Taxilane D approximately 1,200 feet east and connect to Taxiway E;
10. Extend Taxilane D west of Taxiway E13 all the way to E17; and



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11. Modify Runway 6R-24L crossing taxiways to be located at later third of the runway for both west and east flow conditions.

Of the elements listed above, items #1 and #6 will require NAVAID and lighting changes west of the airport. Based on LAWA and team direction, R&A assumed both Runway 6L and 6R will remain Category I approach runways; therefore the lighting and NAVAID requirements are identical to existing facilities. **Exhibit 1** depicts the existing and proposed NAVAID and lighting locations. The relocation of Runway 6L-24R will require moving the Runway 6L NAVAIDS and lights 260 feet north as depicted in blue. Because the landing threshold for Runway 6L is located vertically in the same location for the existing location, the relocated NAVAID and light facilities will not move east or west. Because Runway 6R landing threshold would be moved 104 feet to the east, the NAVAID and lights will also have to be moved 104 feet east, except for the Runway 24L localizer antennae. In conclusion, the overall number of light facilities located within the restoration area will not change.

SPAS Alternative 2 (No Increase in Separation)

SPAS Alternative 2 maintains the existing runway locations, but modifies the high speed exit locations and extends Runway 6R-24L to the east. The north airfield change elements for this alternative include:

1. Extend Runway 6R-24L east 1,250 feet;
2. Relocate Runway 6R landing threshold 104 feet to the east;
3. Relocate Runway 6R-24L high-speed Taxiway Z to the west;
4. Relocate Runway 6R-24L high-speed Taxiway Y to the east past Taxiway W;
5. Construct new Runway 6R-24L high-speed Taxiway between Taxiway AA and BB;
6. Extend Taxiway E 1,250 feet east to connect to end of relocated Runway 24L;
7. Straighten Taxiway E between E17 and AA;
8. Extend Taxilane D approximately 1,200 feet east and connect to Taxiway E; and
9. Extend Taxilane D west of Taxiway E13 all the way to E17.

Exhibit 2 depicts the NAVAID and lighting locations for this alternative compared to existing locations. Because Runway 6L-24R remains at its current location, the related NAVAID and lights remain at the existing location. For the same reasons described for SPAS Alternative 1 and SPAS Alternative 4, the NAVAID and approach lighting for Runway 6R will need to be moved 104 feet to the east due to item # 2 above.

SPAS Alternative 3 (No Project-Implement Existing Master Plan)

Exhibit 3 depicts the NAVAID and lighting locations for the SPAS Alternative 3 compared to the existing locations. The LAX Master Plan called for upgrading the instrument approach to Runways 6L and 6R from Category I to Category II. This upgrade requires additional lighting. The lighting and NAVAID locations were taken from the detailed analysis documented in the LAX Master Plan



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Environmental Impact Statement (EIS) Coastal Zone Management Act Consistency Determination by FAA, Appendix A-3a. Please refer to the Appendix for more information related to methodology and findings.

SPAS Alternative 4 (Modified No Project-No Yellow Lights)

The SPAS Alternative 4 maintains the existing North Airfield layout, but includes the Runway Safety Area (RSA) enhancements agreed upon between Los Angeles World Airports (LAWA) and the Federal Aviation Administration (FAA) based on an independent RSA study. The description of the preferred RSA enhancement alternative (Refinement #2) is described in *Runway 6L-24R & 6R-24L Safety Area (RSA) Practicability Study for Los Angeles International Airport*.¹ Currently, the North Airfield does not meet FAA RSA requirements, and shall meet requirements no later than December 31, 2015 pursuant to Public Law 109-115, Section “Grant-in-Aid for Airports” (known as the 2006 Department of Transportation Appropriations Act). If the North Airfield remains the same, compliance to Public Law 109-115 is still required. Therefore, this alternative involves the following airfield changes:

1. Relocate Runway 6R landing threshold 104 feet to the east;
2. Extend Runway 24L 835 feet to the east;
3. Maintain Runway 24L landing threshold at existing location;
4. Extend Taxiway E 835 feet to end of relocated end of Runway 24L; and
5. Cover portion of Argo Ditch north/northeast of Runway 24R.

Because this assessment focuses on NAVAID and light locations west of the Airport, the elements listed above that change NAVAID and light locations on the west side is the Runway 6R landing threshold change (item #1 above). **Exhibit 4** depicts the NAVAID and lighting locations for both the existing and proposed SPAS Alternative 4 locations. The existing NAVAID and lighting facilities which will remain are depicted in green. Because Runway 6L-24R does not involve any changes, the current NAVAID and lighting facilities will remain. The existing facility locations for Runway 6R are red, because they will have to be relocated 104 feet east as depicted in blue due to the relocation of Runway 6R landing threshold. The only NAVAID facility which remains is the localizer antennae for the Runway 24L approach. In conclusion, four landing light sets for Runway 6R located within the El Segundo Blue Butterfly Habitat Restoration Area will need to be removed, and five landing light sets for Runway 6R would be installed in the restoration area.

SPAS Alternative 5 (Runway 6L-24R Relocated 350 ft. North)

SPAS Alternative 5 involves relocating Runway 6L-24R 350 feet north of its existing location to provide enough distance between it and Runway 6R-24L to accommodate a Centerfield Taxiway

¹ Ricondo & Associates, Inc. *Runway 6L-24R & 6R-24L Safety Area (RSA) Practicability Study for Los Angeles International Airport*. April 9, 2010.



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which is 550 feet from Runway 6L-24R and 500 feet from Runway 6L-24R. The north airfield change elements for this alternative include:

1. Relocate Runway 6L-24R 350 feet north of existing location;
2. Extend Runway 6L-24R 604 feet to the west;
3. Relocate Runway 24R landing threshold 604 feet to the west;
4. Construct Centerfield Taxiway 550 feet south of Runway 6L-24R and 500 feet from 6R-24L;
5. Extend Runway 6R-24L 1,250 feet east;
6. Relocate Runway 6R landing threshold 104 feet to the east;
7. Relocate Taxiway E to 500 feet south of Runway 6R-24L and extend 1,250 feet east to connect to end of relocated Runway 24L;
8. Relocated Taxilane D to 824 feet south of Runway 6R-24L and extend approximately 1,200 feet east and connect to Taxiway E;
9. Extend Taxilane D west to E17; and
10. Modify Runway 6R-24L crossing taxiways to be located at later third of the runway for both west and east flow conditions.

Of the elements listed above, items #1 and #6 will require NAVAID and lighting changes west of the Airport. **Exhibit 5** depicts the existing and proposed NAVAID and lighting locations. The relocation of Runway 6L-24R will require moving the Runway 6L NAVAIDS and lights 350 feet north as depicted in blue. Because the landing threshold for Runway 6L is located vertically in the same location for the existing location, the relocated NAVAID and light facilities will not move east or west. Because Runway 6R landing threshold would be moved 104 feet to the east, the NAVAID and lights will also have to be moved 104 feet east, except for the Runway 24L localizer antennae. In conclusion, the overall number of light facilities located within the restoration area will not change.

SPAS Alternative 6 (Runway 6L-24R Relocated 100 ft. North)

SPAS Alternative 6 involves relocating Runway 6L-24R 100 feet north of its existing location to provide enough distance between it and Runway 6R-24L to accommodate a Centerfield Taxiway which is 400 feet from Runway 6L-24R and 400 feet from Runway 6L-24R. The north airfield change elements for this alternative include:

1. Relocate Runway 6L-24R 100 feet north of existing location;
2. Extend Runway 6L-24R 604 feet to the west;
3. Relocate Runway 24R landing threshold 604 feet to the west;
4. Construct Centerfield Taxiway 400 feet south of Runway 6L-24R and 400 feet from 6R-24L;
5. Extend Runway 6R-24L 1,250 feet east;
6. Relocate Runway 6R landing threshold 104 feet to the east;
7. Extend Taxiway E 1,250 feet east to connect to end of relocated Runway 24L;
8. Straighten Taxiway E between E17 and AA;
9. Extend Taxilane D approximately 1,200 feet east and connect to Taxiway E;
10. Extend Taxilane D west of Taxiway E13 all the way to E17; and



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Of the elements listed above, items #1 and #6 will require NAVAID and lighting changes west of the Airport. **Exhibit 6** depicts the existing and proposed NAVAID and lighting locations. The relocation of Runway 6L-24R will require moving the Runway 6L NAVAIDS and lights 100 feet north as depicted in blue. Because the landing threshold for Runway 6L is located vertically in the same location for the existing location, the relocated NAVAID and light facilities will not move east or west. Because Runway 6R landing threshold would be moved 104 feet to the east, the NAVAID and lights will also have to be moved 104 feet east, except for the Runway 24L localizer antennae. In conclusion, the overall number of light facilities located within the restoration area will not change.

SPAS Alternative 7 (Runway 6R-24L Relocated 100 ft. South)

SPAS Alternative 7 involves relocating Runway 6R-24L 100 feet south of its existing location to provide enough distance between it and Runway 6R-24L to accommodate a Centerfield Taxiway which is 400 feet from Runway 6L-24R and 400 feet from Runway 6L-24R. The north airfield change elements for this alternative include:

1. Relocate Runway 6R-24L 100 feet south of existing location;
2. Construct Centerfield Taxiway 400 feet south of Runway 6L-24R and 400 feet from 6R-24L;
3. Extend Runway 6R-24L east 1,250 feet;
4. Relocate Runway 6R landing threshold 126 feet to the east;
5. Relocate Taxiway E 500 feet south of Runway 6R-24L;
6. Extend Taxiway E 1,250 feet east to connect to end of relocated Runway 24L;
7. Relocate Taxiway D 784 feet south of Runway 6R-24L;
8. Extend Taxiway D approximately 1,200 feet east and connect to Taxiway E; and
9. Extend Taxiway D west of Taxiway E13 all the way to E17.
10. Modify Runway 6R-24L crossing taxiways to be located at later third of the runway for both west and east flow conditions.

Of the elements listed above, items #1 and #4 will require NAVAID and lighting changes west of the Airport. **Exhibit 7** depicts the existing and proposed NAVAID and lighting locations. The relocation of Runway 6R-24L will require moving the Runway 6L NAVAIDS and lights 100 feet south and 126 feet east as depicted in blue. Relocation of the Instrument Landing Light System could require an additional light to be located within the restoration area. Because FAA guidance on ILS Siting Criteria recommends the localizer antenna to be located within 2,000 feet of the runway end, the antenna is able to remain outside of the restoration area. As such, the only anticipated addition to the restoration area related to this alternative is the addition of one Instrument Landing Light System stanchion.

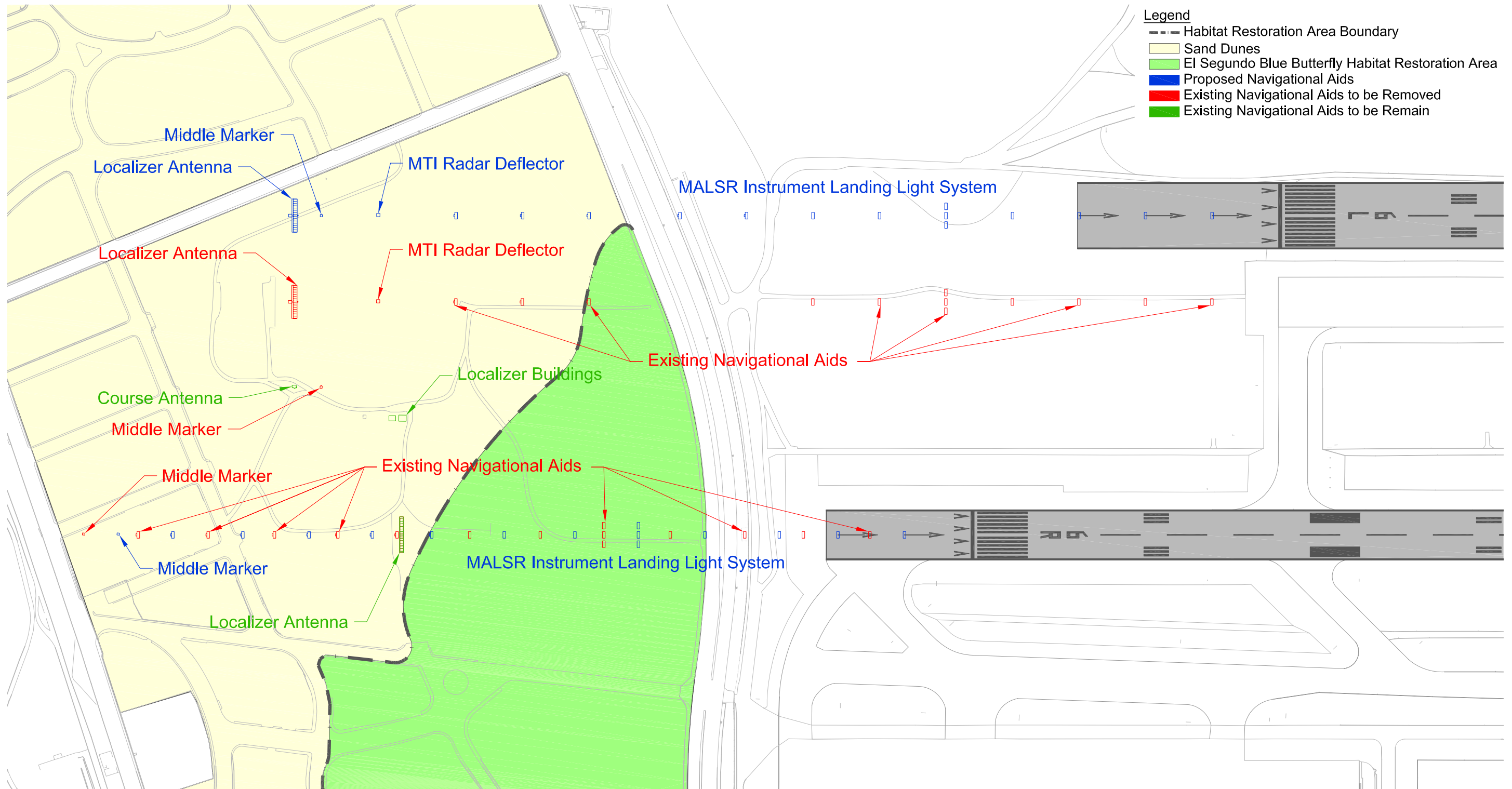
Enclosures: Exhibits 1 through 7
cc: Joe Huy, R&A



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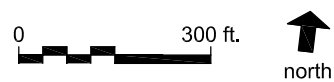
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Source: HNTB Corporation, Los Angeles International Airport Layout Plan, August 30, 2010; Ricondo & Associates, Inc., January 2012.
 Prepared by: Ricondo & Associates, Inc., January 2012.

Exhibit 1

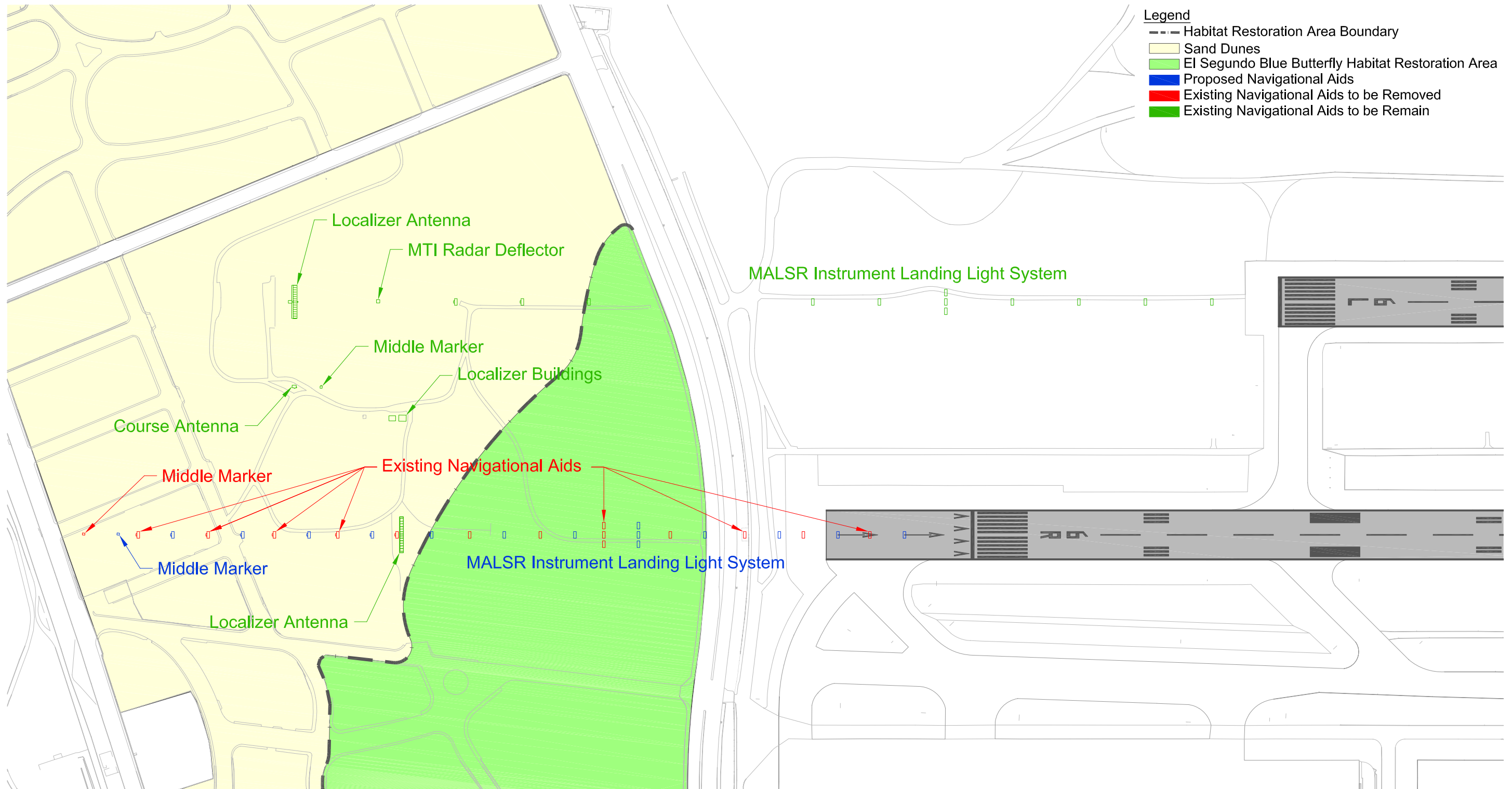


**Location of Proposed Navigational Aids
 SPAS Alternative 1 (Runway 6L-24R Relocated 260 ft. North)**

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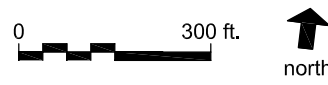
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January 3, 2012

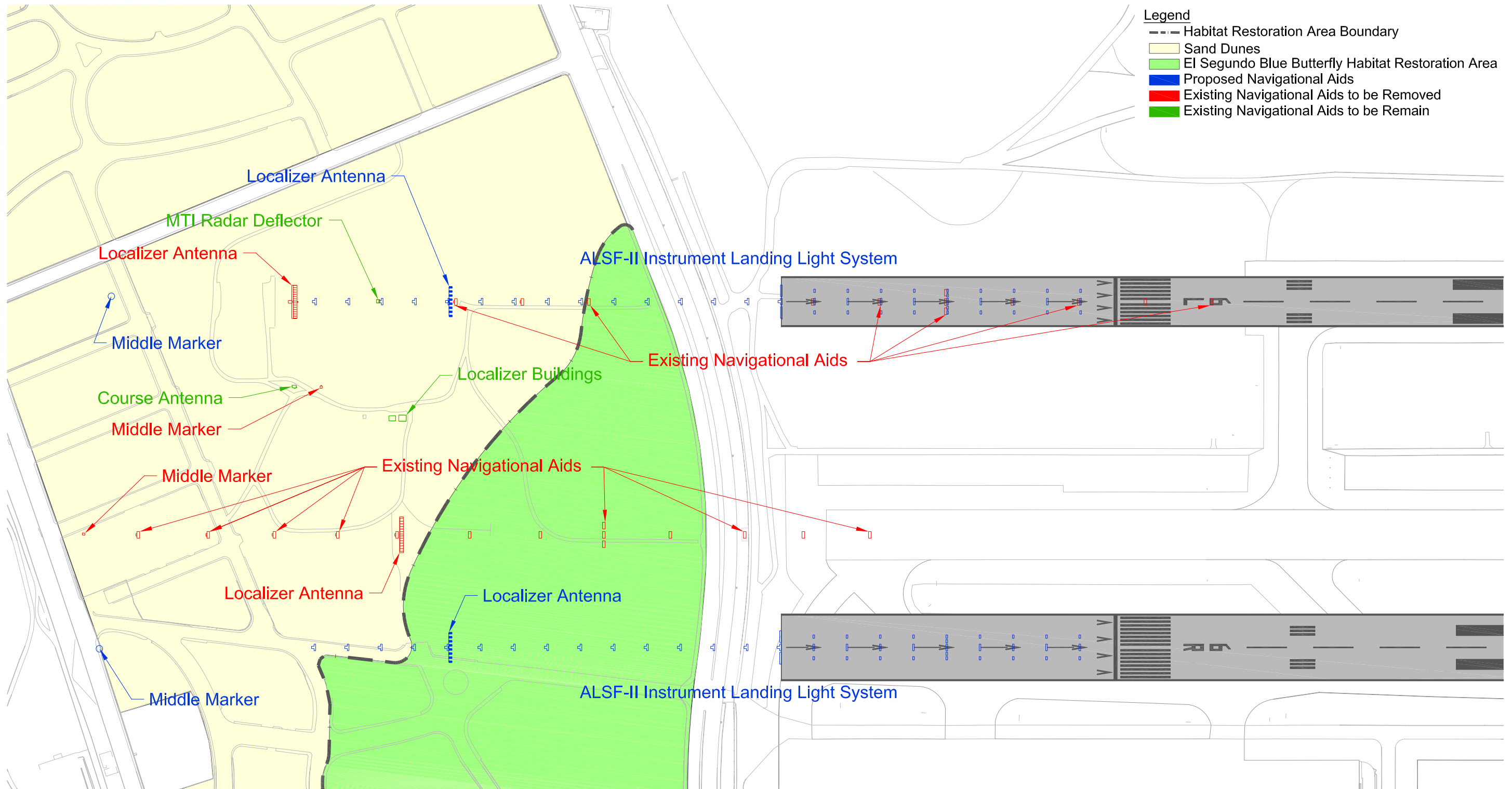


Source: HNTB Corporation, Los Angeles International Airport Layout Plan, August 30, 2010; Ricondo & Associates, Inc., June 2011.
 Prepared by: Ricondo & Associates, Inc., June 2011.

Exhibit 2



**Location of Proposed Navigational Aids
 SPAS Alternative 2 (No Increase in Separation)**



Source: HNTB Corporation, Los Angeles International Airport Layout Plan, August 30, 2010; Ricondo & Associates, Inc., June 2011.
 Prepared by: Ricondo & Associates, Inc., June 2011.

Exhibit 3

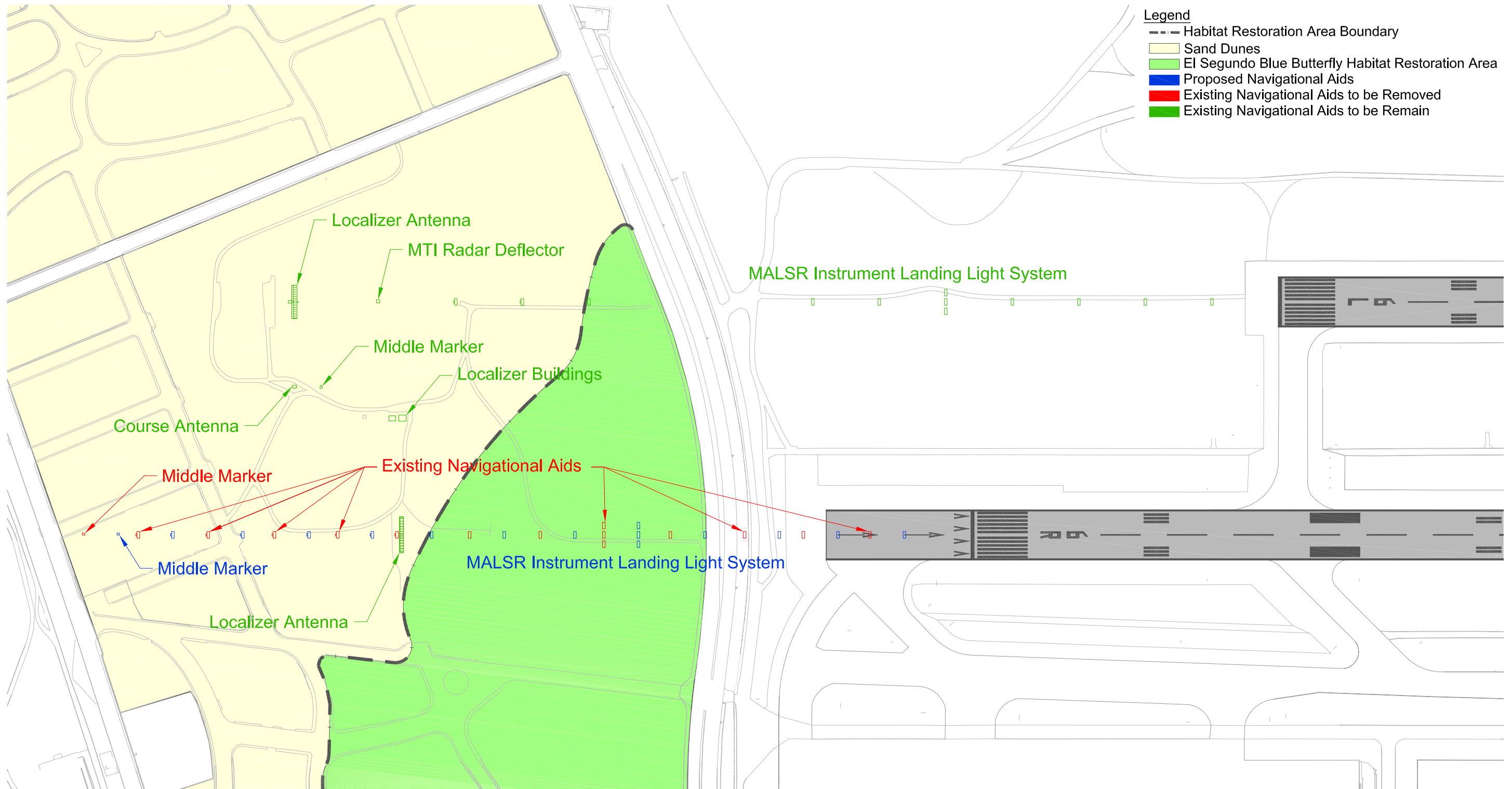


**Location of Proposed Navigational Aids
 SPAS Alternative 3 (No Project-Implement Existing Master Plan)**

Drawing: Z:\LAWAILAX North Runway Alternatives\NAVAIDS\CAD\Proposed Navaid Plan.dwg_Layout: 340 South_Oct 07, 2011, 4:07pm

Specific Plan Amendment Study

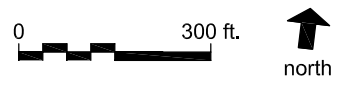
October 7, 2011



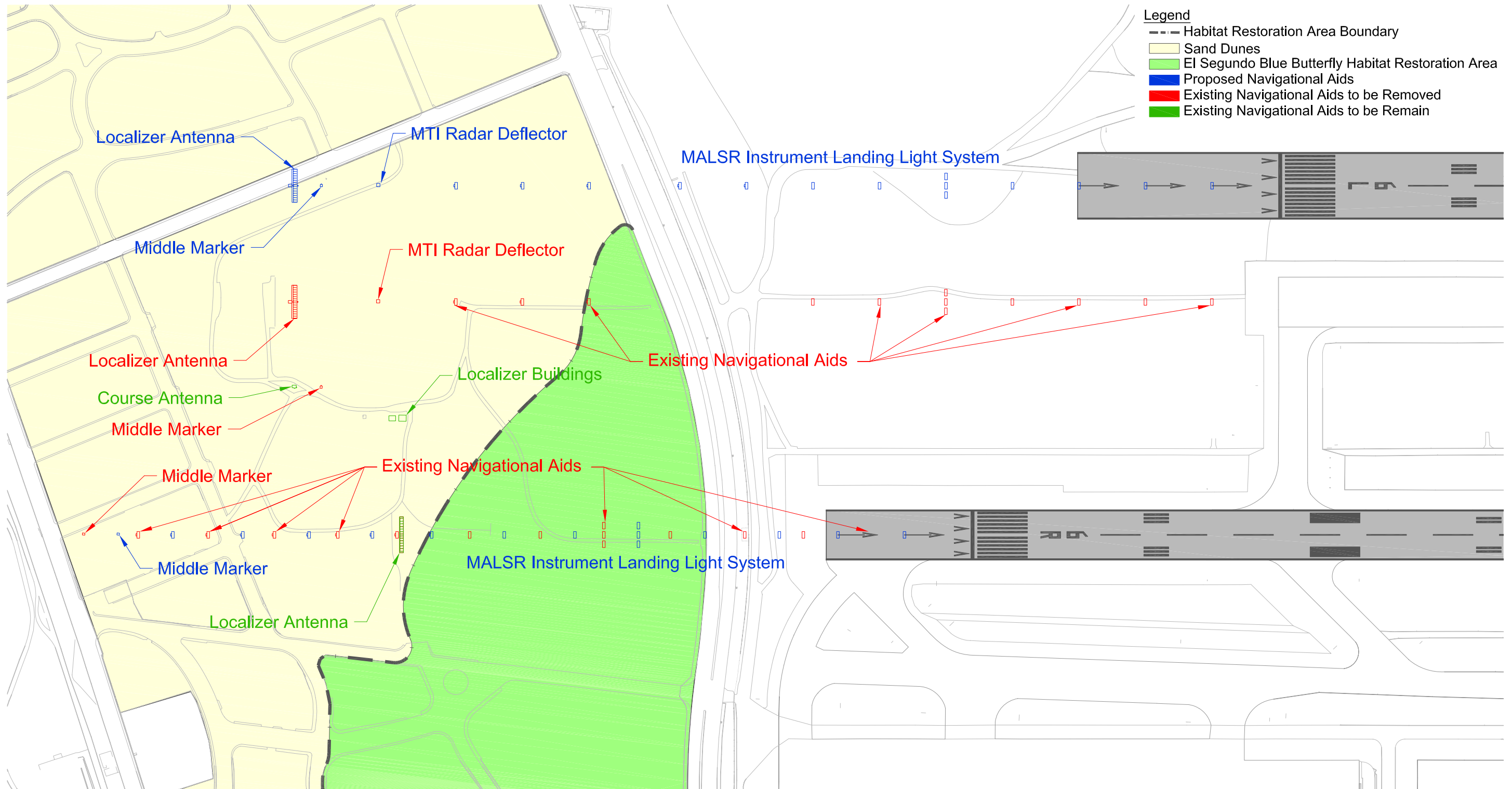
- Legend**
- Habitat Restoration Area Boundary
 - Yellow Sand Dunes
 - Green El Segundo Blue Butterfly Habitat Restoration Area
 - Blue Proposed Navigational Aids
 - Red Existing Navigational Aids to be Removed
 - Green Existing Navigational Aids to be Remain

Source: HNTB Corporation, Los Angeles International Airport Layout Plan, August 30, 2010; Ricondo & Associates, Inc., June 2011.
 Prepared by: Ricondo & Associates, Inc., June 2011.

Exhibit 4

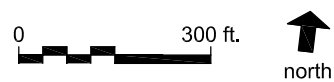


**Location of Proposed Navigational Aids
 SPAS Alternative 4 (Modifield No Project - No Yellow Lights)**



Source: HNTB Corporation, Los Angeles International Airport Layout Plan, August 30, 2010; Ricondo & Associates, Inc., June 2011.
 Prepared by: Ricondo & Associates, Inc., June 2011.

Exhibit 5

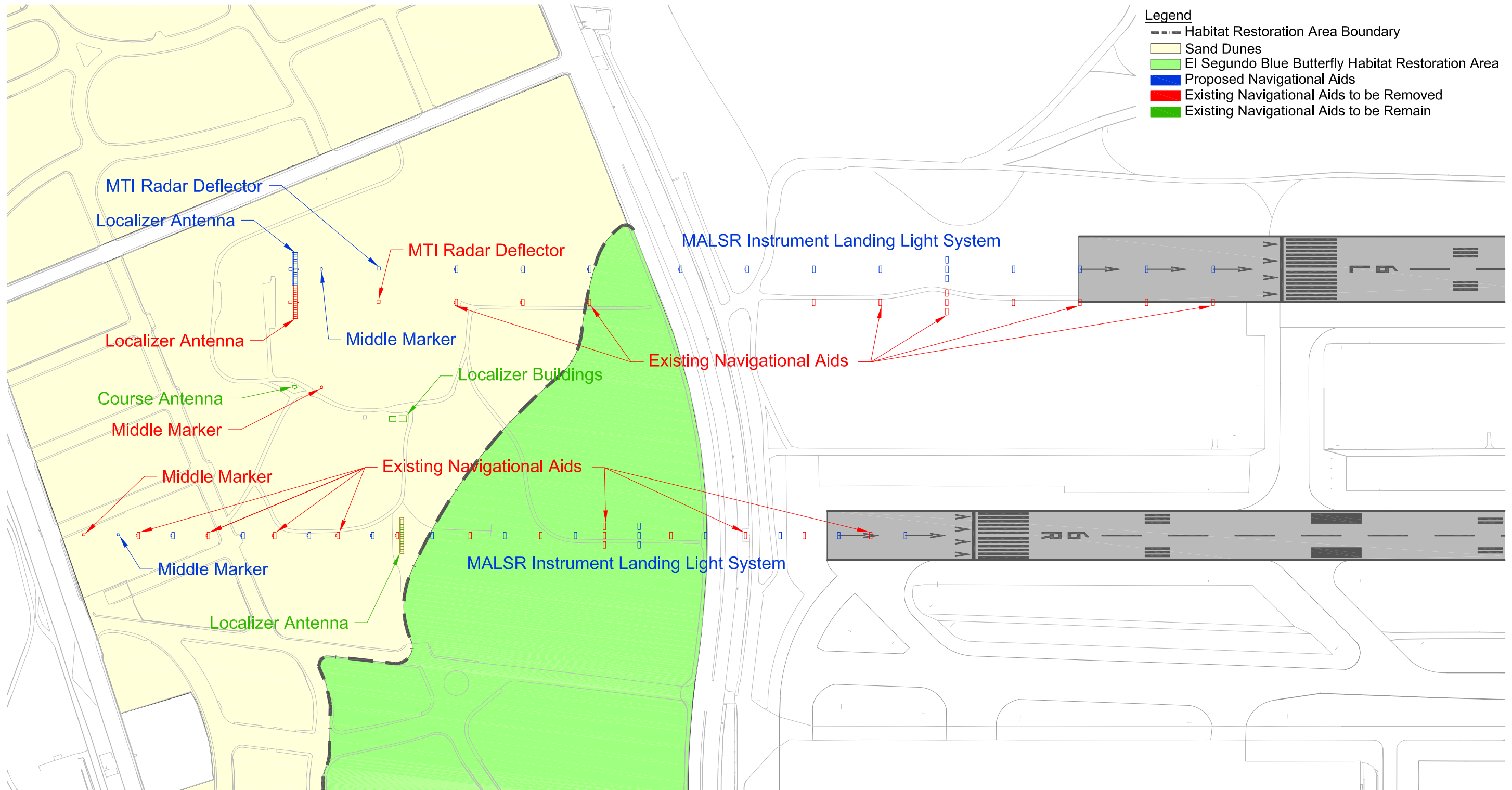


**Location of Proposed Navigational Aids
 SPAS Alternative 5 (Runway 6L-24R Relocated 350 ft. North)**

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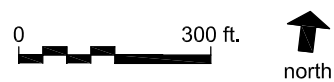
Specific Plan Amendment Study

October 7, 2011



Source: HNTB Corporation, Los Angeles International Airport Layout Plan, August 30, 2010; Ricondo & Associates, Inc., June 2011.
Prepared by: Ricondo & Associates, Inc., June 2011.

Exhibit 6

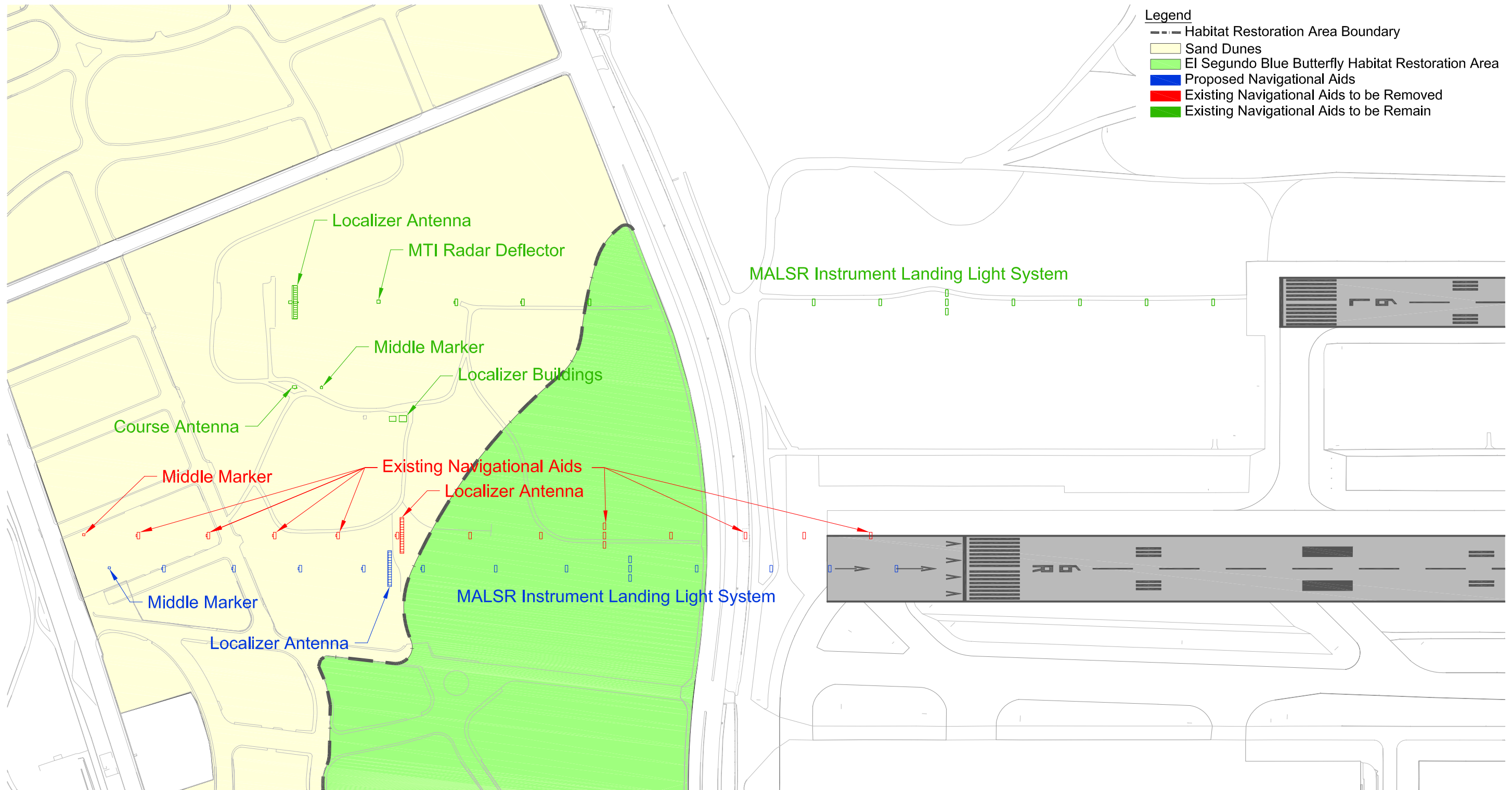


Location of Proposed Navigational Aids SPAS Alternative 6 (Runway 6L-24R Relocated 100 ft. North)

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Specific Plan Amendment Study

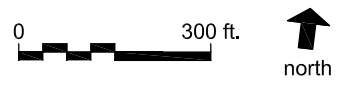
October 7, 2011



- Legend**
- Habitat Restoration Area Boundary
 - Yellow Sand Dunes
 - Green El Segundo Blue Butterfly Habitat Restoration Area
 - Blue Proposed Navigational Aids
 - Red Existing Navigational Aids to be Removed
 - Green Existing Navigational Aids to be Remain

Source: HNTB Corporation, Los Angeles International Airport Layout Plan, August 30, 2010; Ricondo & Associates, Inc., October 2011.
 Prepared by: Ricondo & Associates, Inc., June 2011.

Exhibit 7



**Location of Proposed Navigational Aids
 SPAS Alternative 7 (Runway 6R-24L Relocated 100 ft. South)**

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