

**To: Gwen Pipkin, FDOT District One**

**From: Mark Easley, KCA**

**Date: March 9, 2016**

**RE: FINAL REPORT  
ROADSIDE ANIMAL DETECTION SYSTEM (RADS)  
US 41 AT TURNER RIVER ROAD  
COLLIER COUNTY**

As requested, we have reviewed the referenced report and its findings, and while the overall success of the Roadside Animal Detection System (RADS) was disappointing, we feel that there is a potential for use of this system to aid in reducing animal/vehicle interactions along US 41 (Tamiami Trail) in the area of Turner River Road (see Figure 1 for project location). The most significant failing was the extremely high number of false positive results associate with the detection system. These false positive results, in turn, resulted in excessive triggering of the driver warning signs located throughout the study area. The report presented multiple potential causes for these false positives, and we tend to believe that it is probably the result of a combination of these causes. While the system has experienced good results in some areas of the country, the south Florida environment is much different than the majority of the areas in which the system has been employed. The RADS system utilizes a light beam to detect wildlife movement. When the light beam is disrupted, the system is triggered. The extensive and fast growing vegetative cover in the study area could be an important factor in the lack of success of the system. In addition, the study area experiences a high number of visitors and pedestrians, cars pulling off the road, etc. and these could also be factors in the high numbers of false positives. We feel that reducing the overall area in which the system is deployed should result in a reduction in number of false positives and better overall success of the system.

From review of the information collected and presented in the report, there appears to be three primary locations along the project corridor where panthers and other wildlife typically cross US 41. These locations include: the Trail Lakes land bridge (located near the western end of the study area), the Turner River canoe launch (located near the middle of the study area), and Turner River Road (located near the eastern end of the study area). The northern boundary of the study area is bordered by the Tamiami Canal and these three locations provide upland (dry) access across this canal. There locations are shown in Figure 2.

Because these three locations represent the majority of the US 41 crossings, we would recommend that the overall area covered by the RADS system be reduced to these locations. While this reduction in coverage may result in some missed crossings, it should also greatly reduce the number of false positives. Figures 3 through 5 show potential sensor arrays for the Trail Lakes land bridge, Turner River canoe launch, and Turner River Road locations, respectively. The sensor array shown for the Trail Lakes land bridge (Figure 3) would require approval for use of federal

lands, as the two most northern sensors (located on the land bridge) would be located outside of FDOT right-of-way.

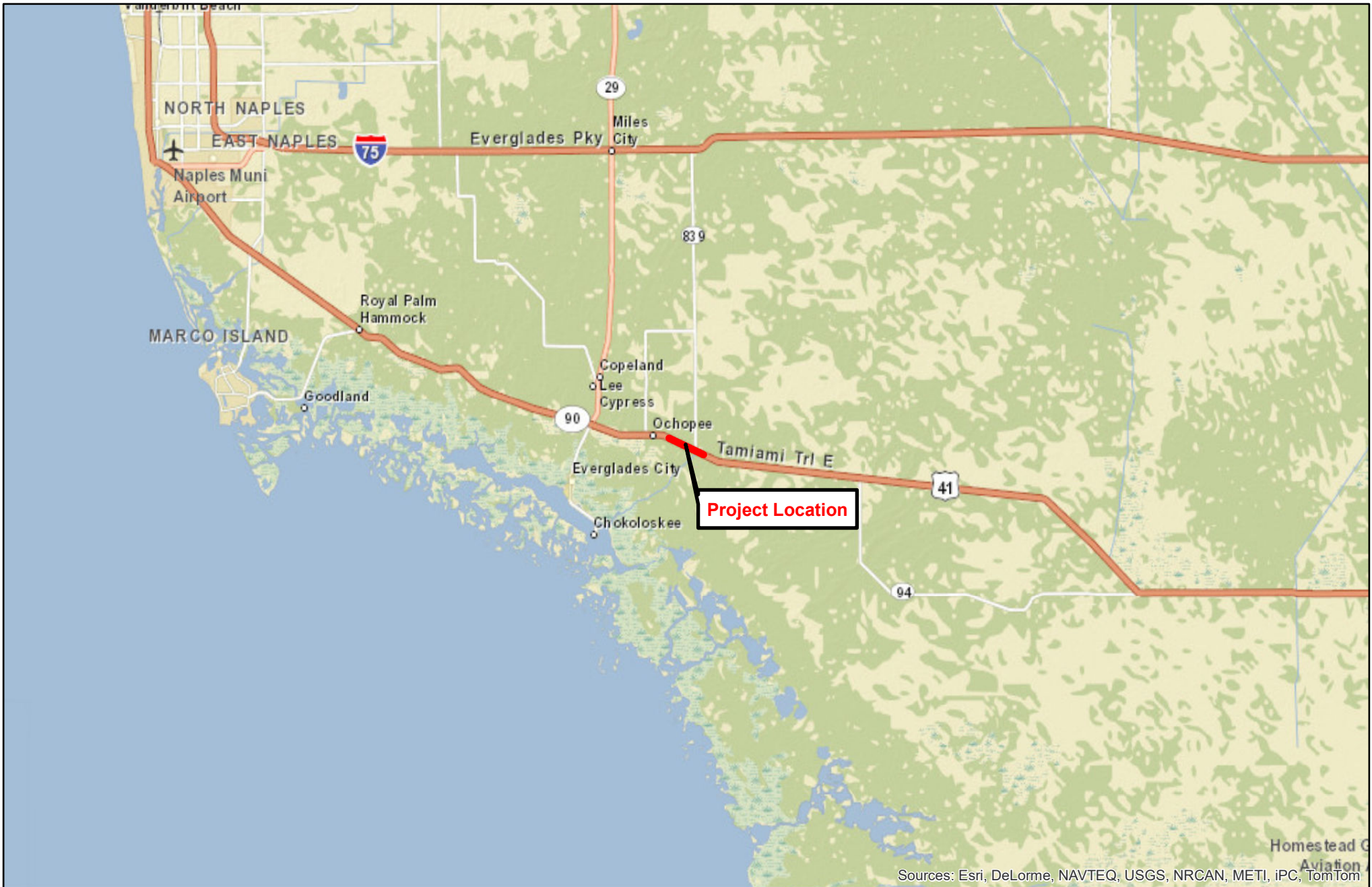
In addition to the recommended reduction in the coverage of the RADS system, we would also recommend the following revisions. It should be noted that many of these recommendations are also made in the final RADS report.

- Additional warning signs should be added approximately 0.25 miles west of the western most detection device at the Trail Lakes land bridge (see Figure 3 for location of detection device), and 0.25 miles east of the eastern most detection device at the Turner River Road (see Figure 5 for location of detection device). For traffic moving at 45 miles per hour, this would provide a 20 second advanced warning to motorists. From review of the locations of existing warning signs, it appears that the first warning signs for both east and west bound traffic is approximately 400 feet from the first detection devices. This provides only a 6 second advanced warning to motorists. We would also recommend maintaining all of the existing warning signs at their present locations.
- Based on the proposed location of the sensor arrays at the Turner River canoe launch and Turner River Road locations, the magnetic loop found at these two locations will need to be relocated. This will allow the system to not be activated by cars at these locations.
- Because of the extremely high number of false positives occurring during daylight hours, we would recommend that the system be activated from approximately one hour before sundown to approximately one hour after sunrise. The majority of wildlife movement across US 41 appears to occur during the night and this should greatly reduce the number of false positives.
- Warning signs associated with the RADS system presently flash for five minutes after being activated. For a vehicle moving at 45 miles per hour, it requires approximately two minutes to travel from the first warning sign to the last sensor (i.e., 1.55 miles). This means that the signs flash for 2.5 times as long as it takes a vehicle to traverse the project area. As a result, we would recommend that the flashing times associated with activated warning signs be reduced to between 2.0 and 2.5 minutes.
- Multiple studies have found that picture based signs are more effective than text based signs. As a result, conversion of the warning signs from text based to picture based (e.g., picture of a panther) is recommended.

The overall layout of the proposed revised RADS system along US 41 in the area of Turner River Road is shown in Figure 6. This figure shows the proposed relocation of sensors, the location of existing warning signs (to remain), and the location of proposed new warning signs.

If you have questions or would like to discuss these recommended revisions to the US 41 RADS system, please do not hesitate to contact me at 813.871.5331 or [mark.easley@kisingercampo.com](mailto:mark.easley@kisingercampo.com).

## **FIGURES**



Sources: Esri, DeLorme, NAVTEQ, USGS, NRCAN, METI, iPC, TomTom



**Project Location Map**

Roadside Animal Detection System (RADS)  
 US 41 at Turner River Road  
 Collier County, Florida

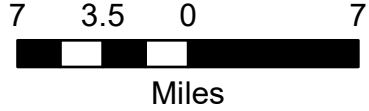
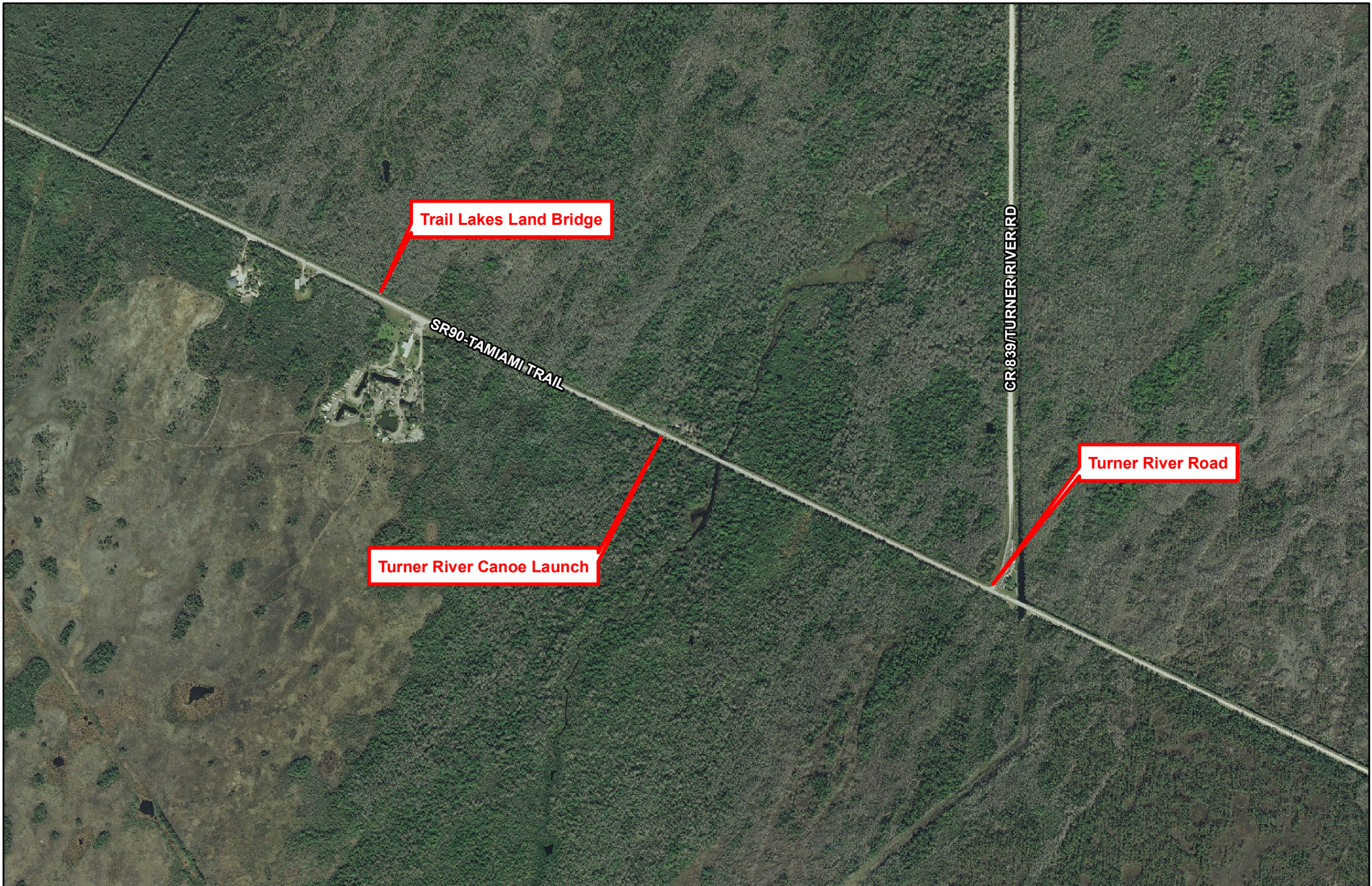


Figure 1

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Trail Lakes Land Bridge

SR90-TAMIAMI TRAIL

CR 839/TURNER RIVER RD

Turner River Canoe Launch

Turner River Road

**Primary Wildlife Crossing Locations**

Roadside Animal Detection System (RADS)  
 US 41 at Turner River Road  
 Collier County, Florida

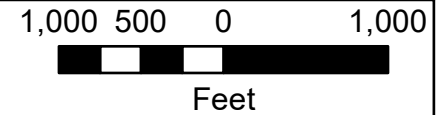
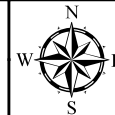


Figure 2

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**Legend**

- Existing Warning Light
- Proposed Detection Sensor
- Proposed Detection Zone

**Proposed Sensor Array  
Trail Lakes Land Bridge**

Roadside Animal Detection System (RADS)  
US 41 at Turner River Road  
Collier County, Florida

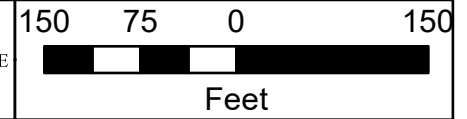
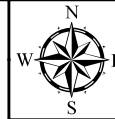


Figure 3

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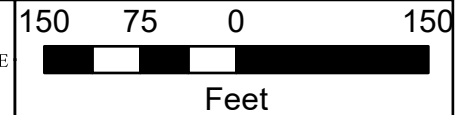
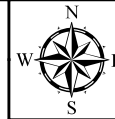


**Legend**

- Proposed Detection Sensor
- Proposed Detection Zone

**Proposed Sensor Array  
Turner River Canoe Launch**  
Roadside Animal Detection System (RADS)  
US 41 at Turner River Road  
Collier County, Florida

Figure 4



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**Legend**

- Existing Warning Light
- Proposed Detection Sensor
- Proposed Detection Zone

**Proposed Sensor Array  
Turney River Road**

Roadside Animal Detection System (RADS)  
US 41 at Turney River Road  
Collier County, Florida

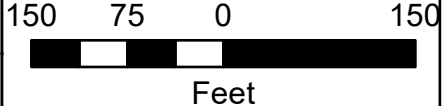
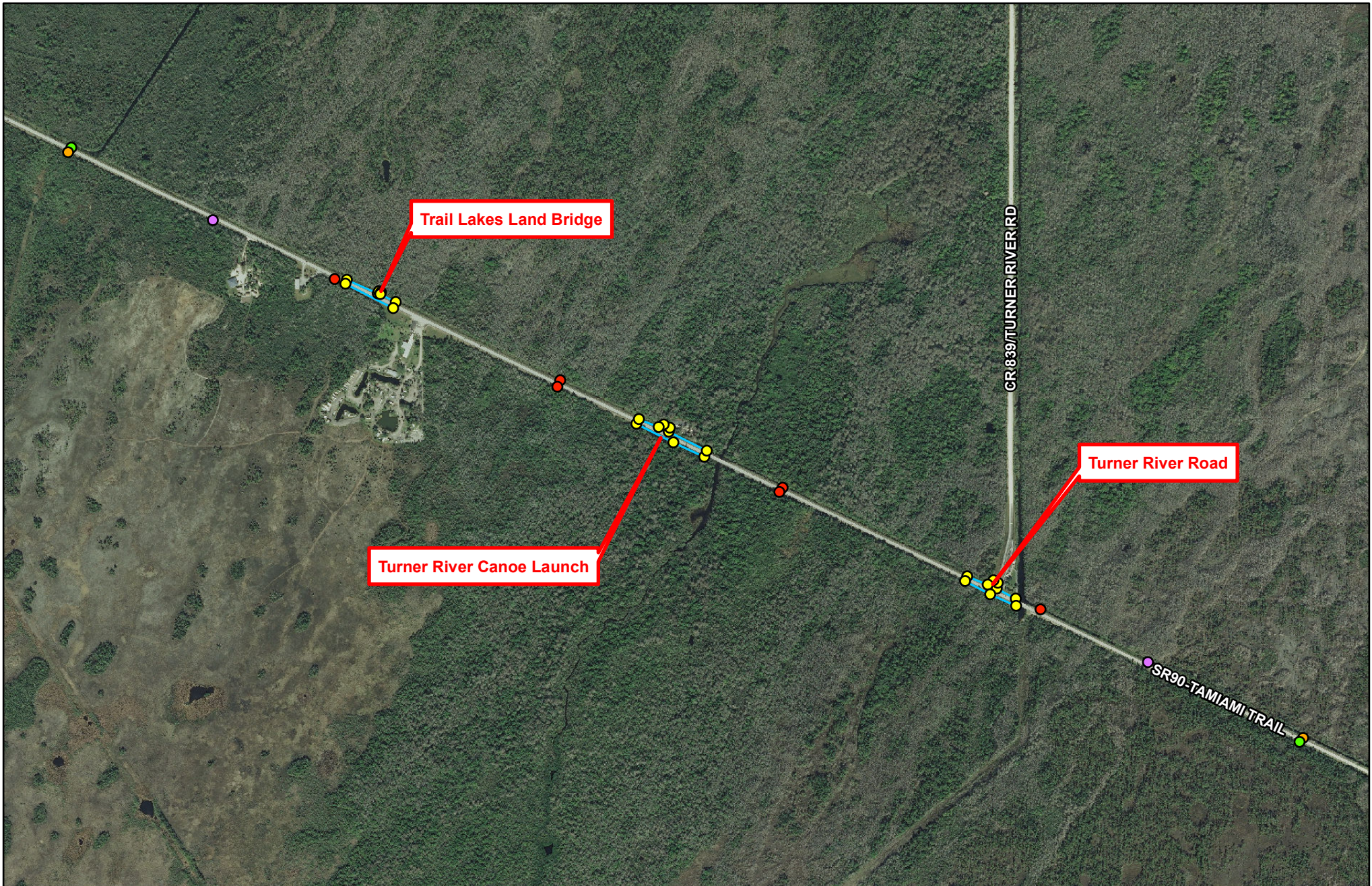


Figure 5

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**Legend**

- Existing Leaving Zone Sign
  - Existing Entering Zone Sign
  - Existing Warning Light
- Proposed Detection Sensor
  - Proposed Warning Light
  - Proposed Detection Zone

**Project Overview**

Roadside Animal Detection System (RADS)  
 US 41 at Turner River Road  
 Collier County, Florida

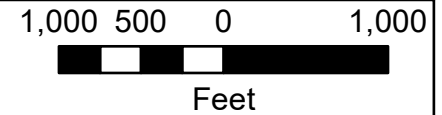
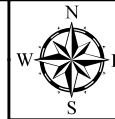


Figure 6

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