



## CHAPTER 14: SITE ANALYSIS FOR POTENTIAL STRUCTURAL ALTERNATIVES

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### 14.1 Overview

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This chapter describes a series of structural alternatives that could potentially be used to improve water quality and natural systems for the Rocky/Brushy Creek watershed. A series of analyses were performed using GIS to strategically locate water quality and natural systems alternatives. The methods used to identify these projects are also described.

Water quality conditions were evaluated using the County's Water Quality Treatment Level of Service criteria and pollutant loading model. The alternatives have been developed to improve water quality and natural systems and address the goals of the county in these areas.

To facilitate locating undeveloped/open lands for construction of water quality treatment ponds, GIS land use data and most recent aerial photography were used to identify the most suitable and cost-effective sites within the watershed.

A similar methodology was used to identify potential wetland restoration areas within the Rocky/Brushy Creek watershed.

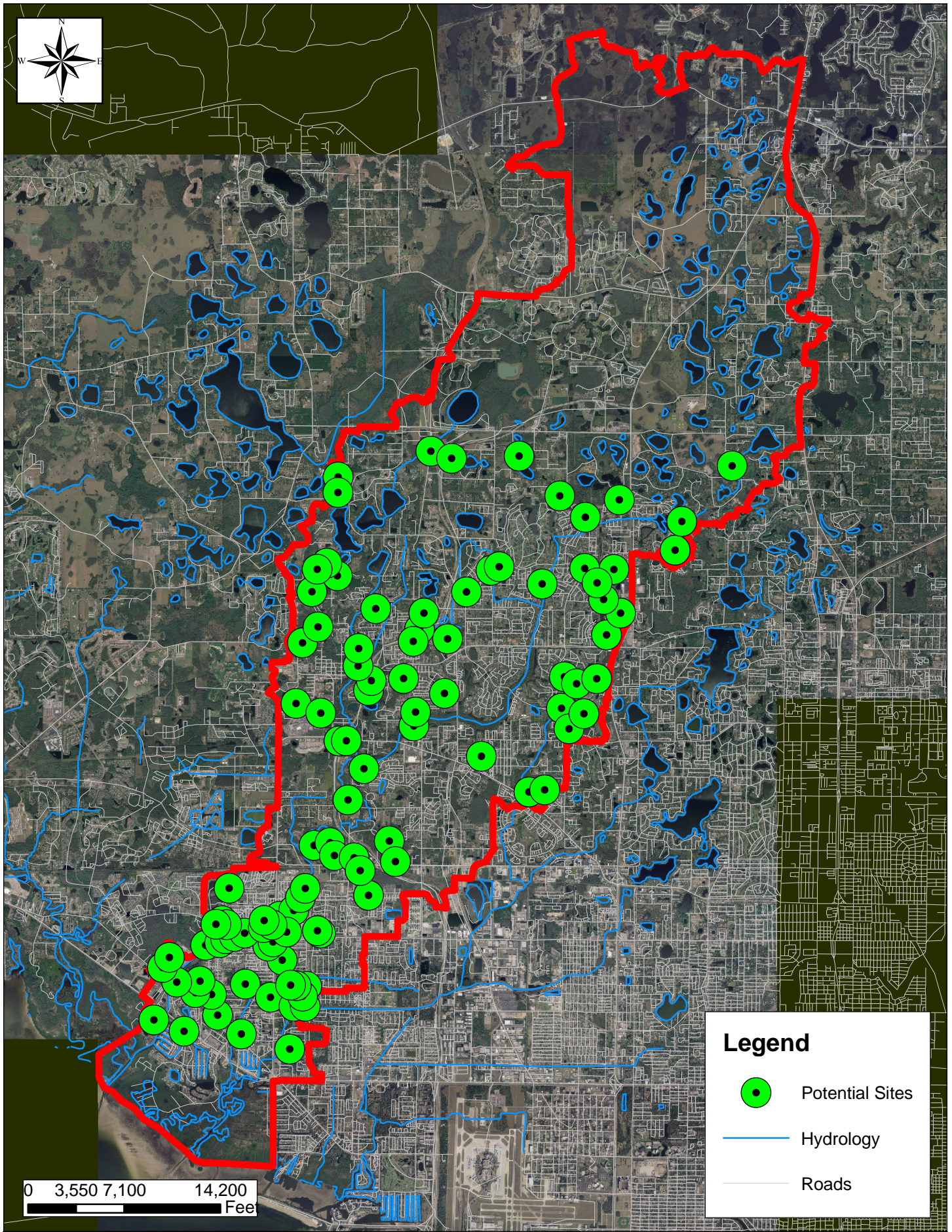
### 14.2 Identification and Prioritization of Sites

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In order to determine the best possible locations for potential structural alternatives, analysis of the recent aerial photography (2006) of the area was conducted. The first step of the process involved visual identification of areas that could potentially serve as stormwater treatment locations or wetland restoration areas. In order to complete this task, aerial photographs were analyzed for location of areas/lands that appeared to be undeveloped and with sufficient areas suitable for installing a storm water basin. This analysis produced 104 locations for potential structural alternatives (Figure 14-1). This study did not include a comparative analysis for different types of treatment for water quality improvement (e.g., alum treatment, detention ponds).

In order to treat surface water effectively, it is beneficial to position alternatives in close proximity to a major stream network, in order to treat larger quantities of water. For completion of this task, the alternatives were prioritized based on their proximity to the major stream network. Using a variety of ArcView 8.3 spatial analysis functions, a 500-meter buffer was created around the major stream network. Next, locations of potential structural alternatives sites identified in the previous step of the process, were divided into two categories based on whether they fall within the 500-meter buffer or outside of the major stream network buffer.





### Legend



Potential Sites



Hydrology



Roads



Potential Project Locations in the Rocky/Brushy Creek Watershed

Figure  
14-1





This step yielded 77 locations of potential structural alternatives that fall within 500 meters of the major stream network (Figure 14-2).

In order to verify that the sites we selected have no existing construction, land use information was used to identify locations classified as “open areas.” In order to complete this task, the land use shapefile was analyzed and areas with FLUCFCS codes designating such land use categories as agricultural lands, open land, or upland forest were extracted as a separate layer. Next, 104 potential alternatives identified in the first step of the process were overlaid with the newly created “open areas” layer. Out of these locations, 37 fell within the “open areas” (Figure 14-3).

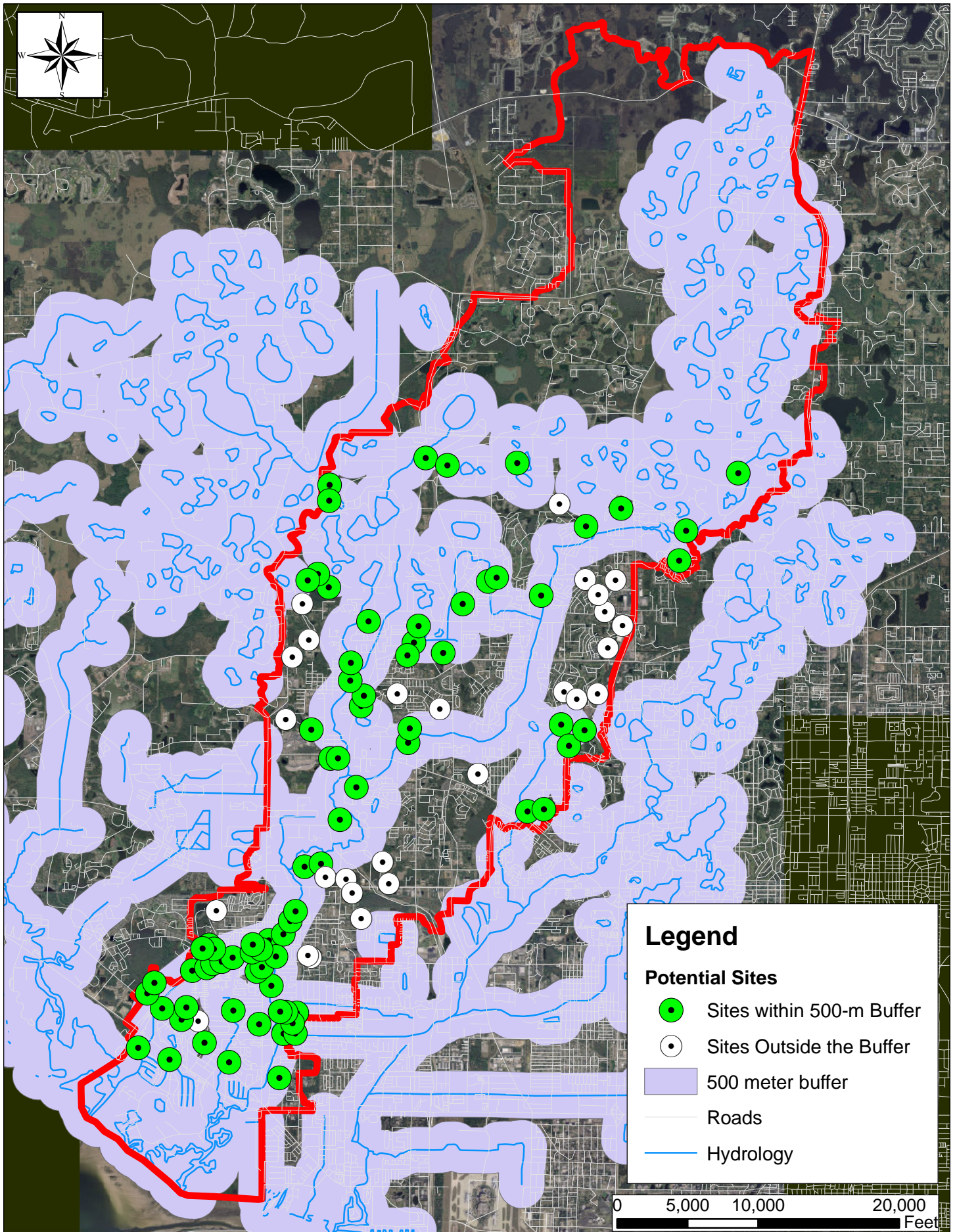
Whenever identifying a location for a new structural alternative, it is more appropriate to select parcels that are owned by the government and not private entities. Land acquisition process for the purpose of water quality and water quantity improvement is a process that is not only lengthy, but also very costly. Based on this fact, the alternatives were further prioritized based on their ownership. Hillsborough county parcels layer was used to identify lands that belong to governmental entities. In order to complete this task, we identified the Department of Revenue (DOR) Land Use codes that represent lands owned by the government (Governmental DOR Codes range between 80 and 89).

Once a new layer of “Governmentally owned lands” was extracted, we were able to separate the original 104 potential structural alternatives sites based on their ownership (governmentally owned lands vs. all others). This process identified a total of 23 potential parcels under government ownership that could potentially be utilized for stormwater treatment and wetland improvement purposes (Figure 14-4).

In order to identify the final selections, the results of all the steps of the aforementioned analysis were combined. In other words, while prioritizing the original 104 potential structural alternatives locations, more importance and consideration was given to locations that fell within the 500-meter buffer of the major stream network, that belonged to the “open areas” land use types, and that are owned by the governmental entities.

Unfortunately, no original sites corresponded to all four criteria, therefore field inspection was conducted for those locations that fell within 500-m hydrologic buffer and either identified as “open land” category OR were governmentally owned (Figure 14-5). A total of six sites were inspected for a possibility of potential treatment alternatives.



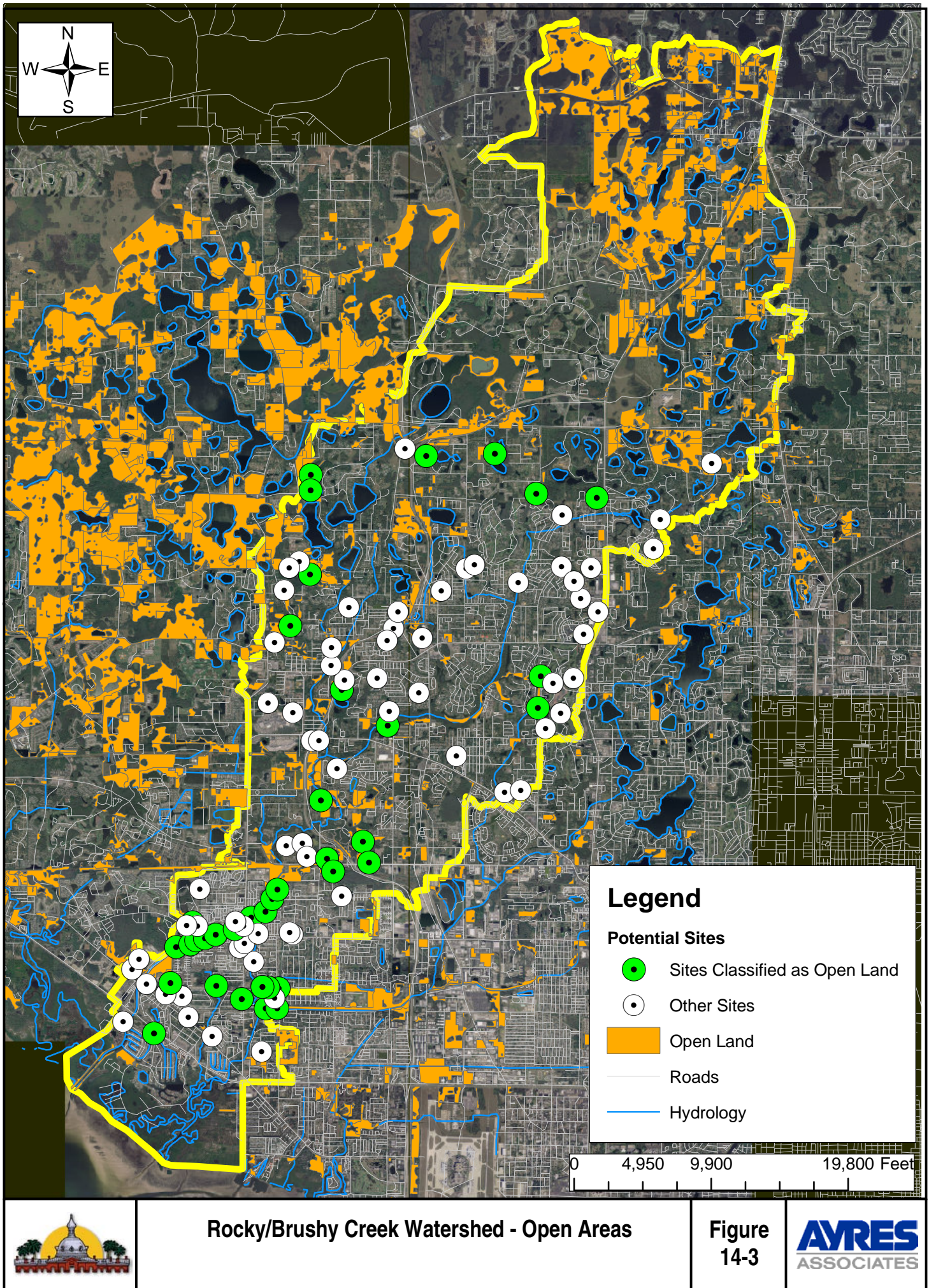


Rocky/Brushy Creek Watershed - 500 meter Buffer from Streams

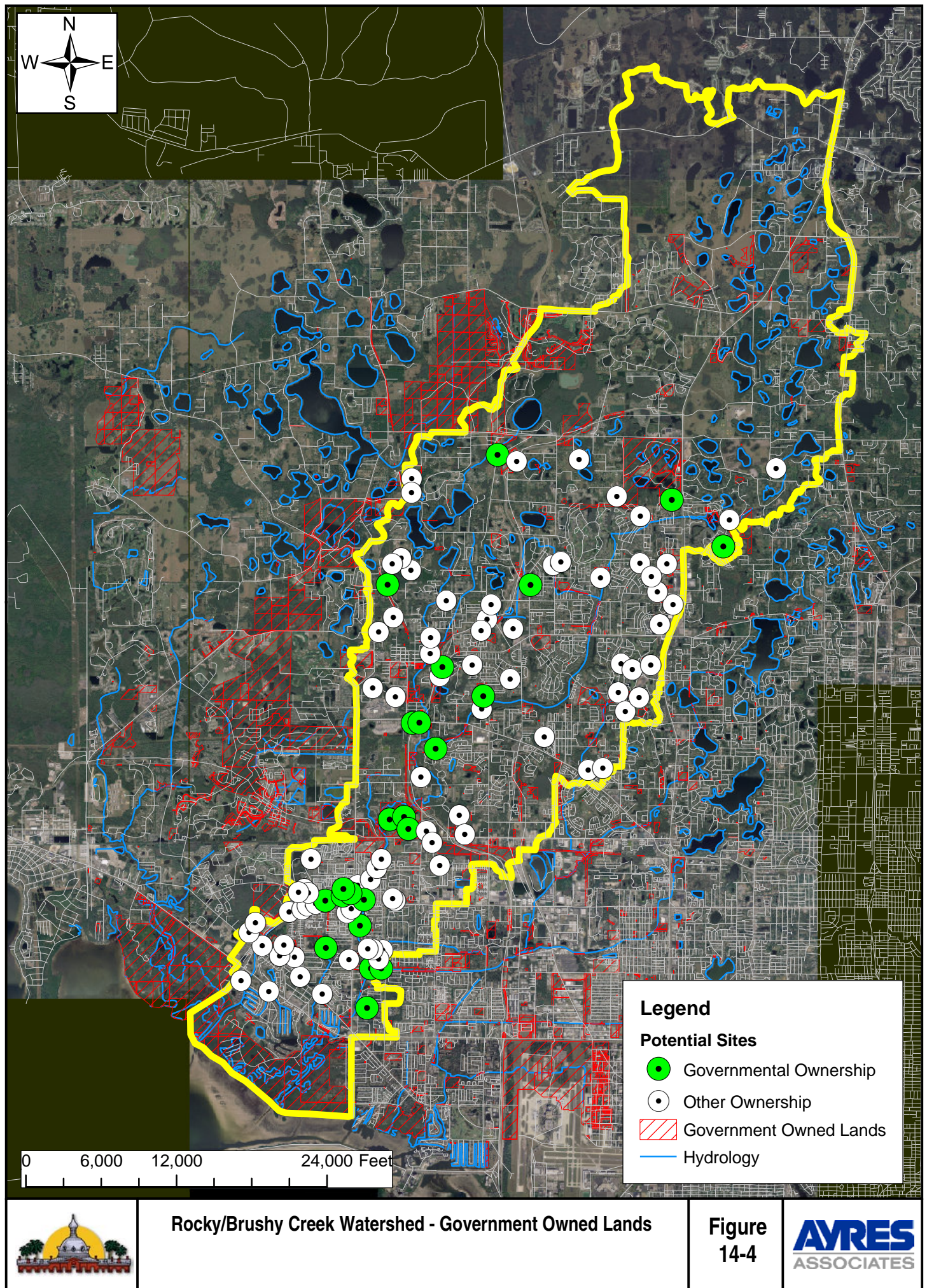
Figure  
14-2

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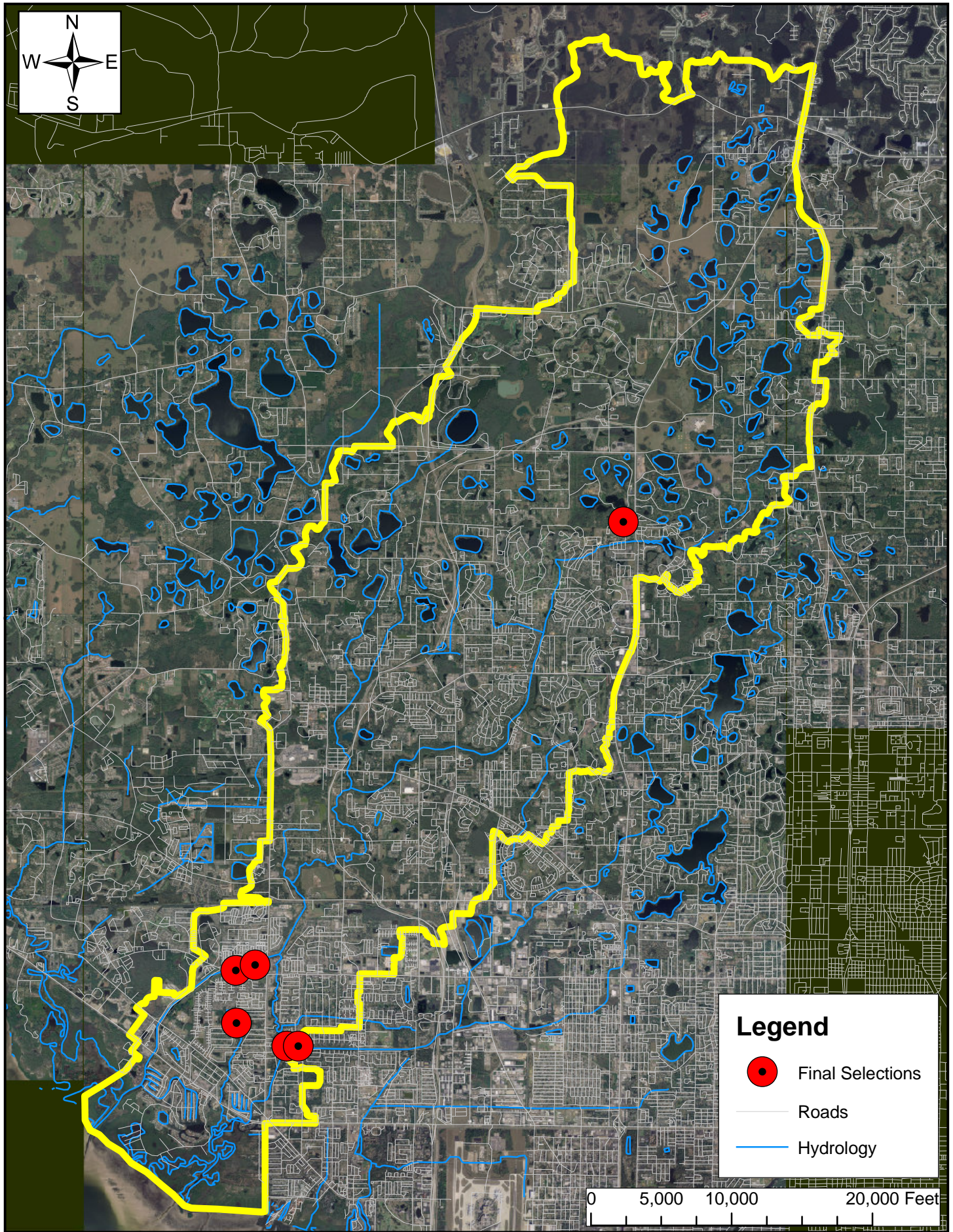















**Legend**

-  Final Selections
-  Roads
-  Hydrology



**Rocky/Brushy Creek Watershed - Final Selection**

**Figure  
14-5**





#### **14.2.1 Potential Project Site 1: Landings**

Potential project site 1 is located in the northwestern portion of the Rocky/Brushy Creek watershed (Figure 14-6). It is represented by a small open land parcel located along Landings Point Lane. It is located within about 1,000 feet of the major stream network and is governmentally owned. The closest major intersection to the area is Dale Mabry Highway and Veterans Expressway. The parcel is located in the middle of what appears to be an upland hardwood area.

Based on analysis of the aerial photography and other GIS information, this location exists in the area that contributes large amounts of surface water pollution. Based on its size, proximity to the stream network, ownership and land use classification, this location may be utilized for construction of a water treatment system.

#### **14.2.2 Potential Project Site 2: Webb**

Potential project site 2 is located in the southeastern portion of the Rocky/Brushy Creek watershed (Figure 14-7). According to the aerial photography of the area, this parcel is represented by a narrow strip of open land located at the junction of two streams: Rocky Creek and Channel "G". The parcel can be accessed via Webb Road, with nearest major intersection of Sheldon Road and Memorial Highway. It is under governmental ownership, eliminating the need for land acquisition.

This area of Rocky/Brushy Creek watershed is highly built-up, and contributes large amounts of pollutants into the surface waters. Excavation of the parcel may provide an opportunity for water retention to provide additional water quality treatment to the area.

#### **14.2.3 Potential Project Site 3: Applewood**

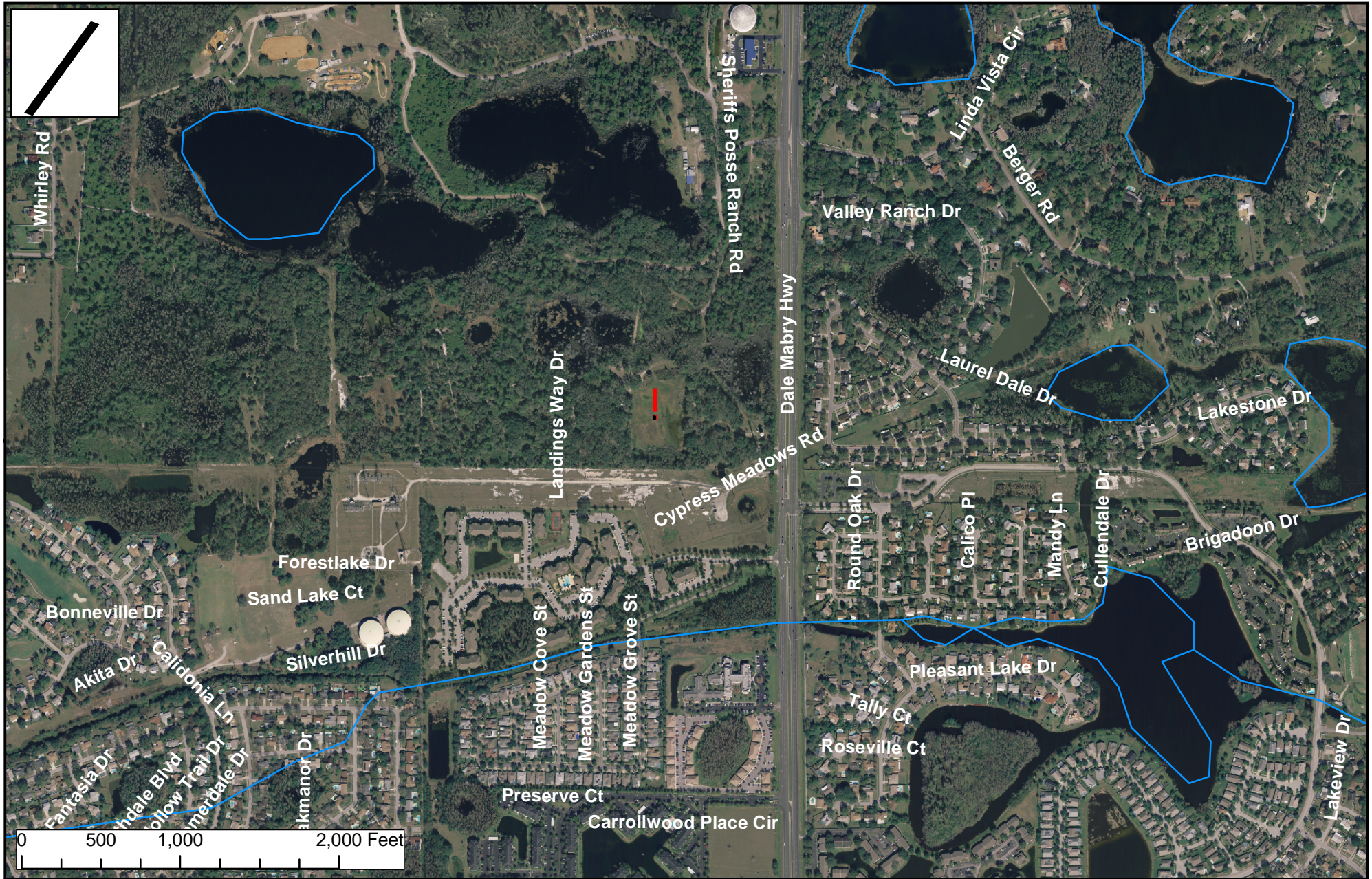
Potential project site 3 is located in the southeastern portion of the Rocky/Brushy Creek watershed (in close proximity to project site 2) (Figure 14-8). According to the aerial photography of the area, this parcel is represented by a narrow strip of open land located at the junction of two streams: Rocky Creek and Channel "G". The parcel can be accessed via Webb Road and is adjacent to Applewood Court. The nearest major intersection is Sheldon Road and Memorial Highway. It is under governmental ownership, eliminating the need for land acquisition.

This area of Rocky/Brushy Creek watershed is highly built-up, and contributes large amounts of pollutants into surface waters. Excavation of the parcel may provide an opportunity for water retention to provide additional water quality treatment to the area.

#### **14.2.4 Potential Project Site 4: Hamilton**

Potential project site 4 is located in the south central portion of the Rocky/Brushy Creek watershed (Figure 14-9). According to the aerial photography of the area, this parcel is a relatively large open land area located along Hamilton Avenue.



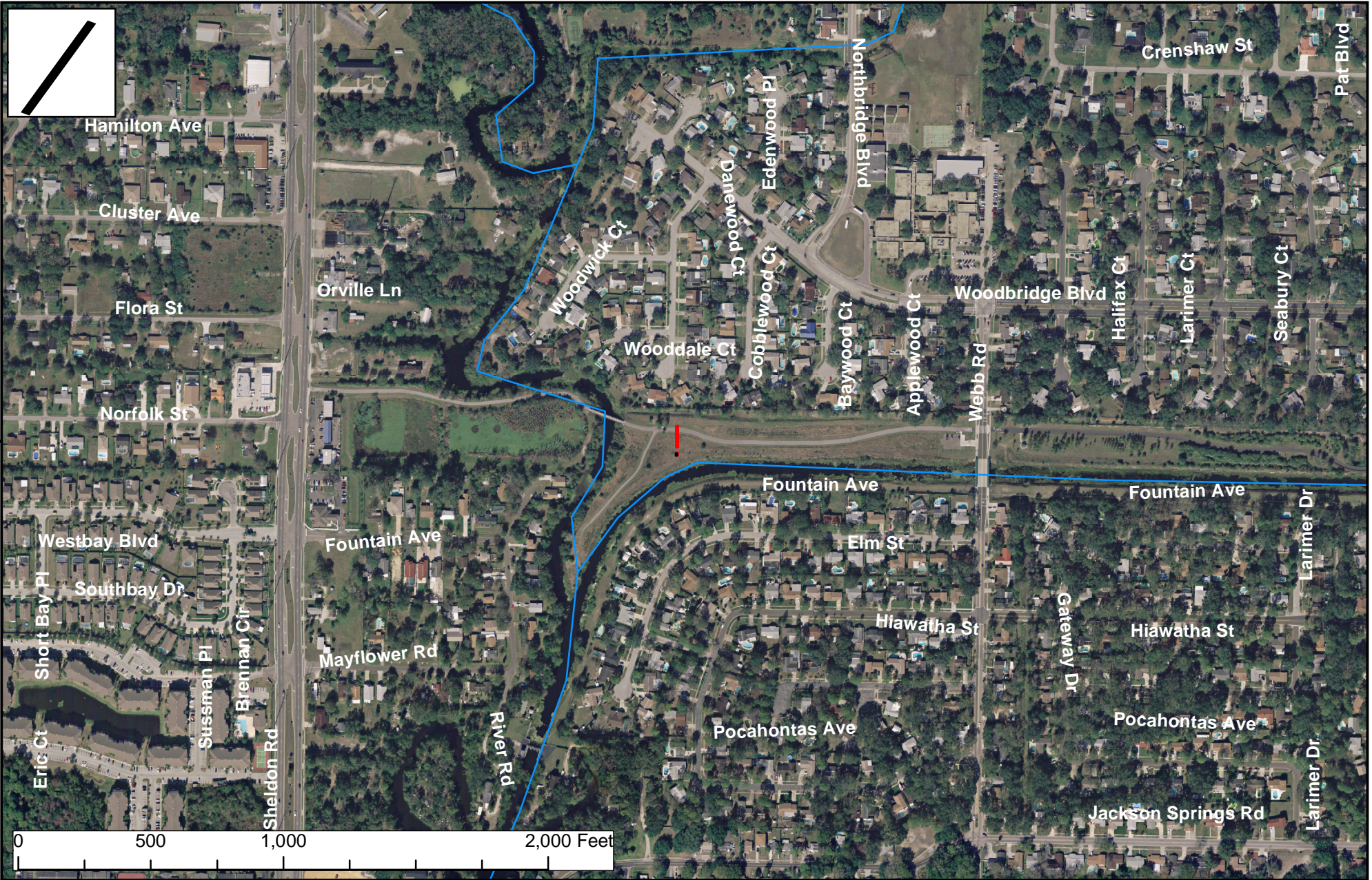


Potential Project Site 1: Landings

Figure  
14-6

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Potential Project Site 2: Webb

Figure  
14-7

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Potential Project Site 3: Applewood

Figure  
14-8

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The area may be a neighborhood park. The nearest major intersection is Sheldon Road and Hamilton Avenue. It is under governmental ownership, eliminating the need for land acquisition.

This area of Rocky/Brushy Creek watershed is highly built-up, and contributes large amounts of pollutants into surface waters. The parcel may be adjacent to a small wetland, providing an opportunity for a wetland improvement project.

#### **14.2.5 Potential Project Site 5: Waters 1**

Potential project site 5 is located in the southwestern portion of the Rocky/Brushy Creek watershed (Figure 14-10). According to the aerial photography of the area, this parcel is represented by a narrow strip of open land located along Channel "A". The nearest major intersection is Sheldon Road and Waters Avenue. It is under governmental ownership, eliminating the need for land acquisition.

This area of Rocky/Brushy Creek watershed is highly built-up, and contributes large amounts of pollutants into surface waters. Excavation of the parcel may provide an opportunity for water retention to provide additional water quality treatment to the area.

#### **14.2.6 Potential Project Site 6: Waters 2**

Potential project site 6 is located in the southwestern portion of the Rocky/Brushy Creek watershed (in close proximity to Alternative 5) (Figure 14-11). According to the aerial photography of the area, this parcel is represented by a narrow strip of open land located along Channel "A". The nearest major intersection is Sheldon Road and Waters Avenue. It is under governmental ownership, eliminating the need for land acquisition.

This area of Rocky/Brushy Creek watershed is highly built-up, and contributes large amounts of pollutants into surface waters. Excavation of the parcel may provide an opportunity for water retention to provide additional water quality treatment to the area.