



Metro Nashville Municipal Separate Storm Sewer System Permit Public Information & Education Plan

Created: August 2012

Updated: October 2016 – (New Personnel and Outreach Strategies)

1.0 INTRODUCTION:

With issuance of the third cycle of Metro Nashville’s Municipal Separate Storm Sewer System (MS4) permit, there is an increased emphasis on the amount of public education and outreach Metro Water Services (MWS) will be responsible for overseeing. The first major undertaking will involve developing a detailed public information and education (PIE) plan. The PIE plan will outline the stormwater educational strategies, identify targeted educational approaches, and list specific yearly goals and accomplishments. A majority of MS4 permit items are coordinated and overseen by the MWS Stormwater NPDES Section, however, development and implementation of the PIE plan will be a joint effort between NPDES and MWS Public Information Section.

In the new permit, Stormwater is required to target specific “hot areas”, which are defined in the permit as: *“an area where land use or activities generate highly contaminated runoff, with concentrations of pollutants in excess of those typically found in stormwater. Examples might include operations producing concrete or asphalt, auto repair shops, auto supply shops, large commercial parking areas and restaurants.”* The main goals of stormwater education activities will be to increase public awareness for purposes of eliminating illicit discharges and improper disposals, reducing nonpoint source pollutants through better land management practices (i.e. fertilizer, sediment, oil, etc), reducing overall runoff quantities through innovative development strategies, and ultimately improving water quality of receiving streams. In some of Nashville’s sub-watersheds, public education will be the primary Best Management Practice (BMP) implemented for improving stormwater runoff quality, therefore, improving receiving water quality. For example, watersheds that are specifically listed as being impaired for nutrients (i.e. phosphorus and nitrogen) will be targeted for public education campaigns aimed at reducing non-point source runoff from fertilizer, pet waste, etc.

1.1 RESPONSIBLE PERSONNEL:

While the entire NPDES Section and MWS Public Relations Section will be contributing to implementing PIE plan objectives, specific personnel within each department have been identified to oversee certain aspects of the plan. Table 1 depicts general PIE plan objectives and responsible personnel.

Table 1 – PIE Plan Responsible Party

Personnel	PIE Plan Responsibility	Contact Information
Michael Hunt	<ul style="list-style-type: none"> ☔ Reviews/Oversees PIE Plan objectives to be consistent MS4 permit requirements. 	615-880-2420 michael.hunt@nasville.gov
Sonia Allman	<ul style="list-style-type: none"> ☔ Reviews/Approves all distribution of public information/education materials. 	615-862-4494 sonia.allman@nasville.gov
Julie Berbiglia	<ul style="list-style-type: none"> ☔ Oversees school-specific education programs. ☔ Oversees/coordinates all major public education events. ☔ Oversees development of public educational materials 	615-862-4506 julie.berbiglia@nashville.gov
Josh Hayes	<ul style="list-style-type: none"> ☔ Reviews/Oversees PIE Plan objectives to be consistent MS4 permit requirements. ☔ Assists with development of public education materials. 	615-880-2420 josh.hayes@nashville.gov
Beth Wilson	<ul style="list-style-type: none"> ☔ Coordinates MS4 permit specific educational activities (industrial, commercial, construction education) ☔ Assists with coordinating and participating in major public education events. ☔ Documents public education events and activities for Annual Report submittals. ☔ Coordinates targeted mail-outs and outbound calling public education activities. ☔ Develops public education materials. ☔ Assists in the updating of NPDES web pages 	615-880-2420 Beth.Wilson@nashville.gov
Jennifer Harrman	<ul style="list-style-type: none"> ☔ Promotion of education and outreach events on social media outlets ☔ Assists in the updating of NPDES web pages 	615-862-4521 jennifer.harrman@nashville.gov

1.2 PIE PLAN GOALS AND TIMEFRAMES:

Goals for the PIE plan will be broken up into the following three main categories:

- ☔ **Goal 1:** Meet and/or exceed MS4 permit requirements
- ☔ **Goal 2:** Increase the fundamental understanding of water pollution for Nashville students, residents, businesses and municipal employees.
- ☔ **Goal 3:** Encourage use of better management practices that result in improved water quality of runoff from MS4 and private facilities within Metro’s MS4 jurisdiction.

Measuring the success of each goal will involve different evaluation procedures. Goal 1 will be, perhaps, the easiest objective to measure. While some of the MS4 permit language is vague, there are some identified milestones and deadlines that can be assessed in each MS4 annual report for completeness. Table 2 depicts some of the major permit requirements and their desired timeframes. Assessing the effectiveness of the PIE plan in accomplishing Goals 2 and 3 will be more difficult and are discussed in greater detail in Section 5 of this document.

Table 2 – Goal 1 (MS4 Permit Required Education) Objectives and Timeframes.

MS4 Permit Objectives	Completion Deadlines
Develop PIE Plan as part of overall Stormwater Management Plan	December, 2012
Perform adequate stormwater training for all pertinent Metro maintenance staff.	July, 2013
Implement educational programs at a minimum of 6 large public events per calendar year	Annually 2012 - 2017
Track and maintain records of public education and outreach activities	Annually 2012 - 2017
Assess the change in public awareness	January, 2017
Implement public notice programs for volunteer programs (i.e. tree plantings, stream clean-ups, illicit discharge detection identification & elimination, etc.)	Annually 2012 - 2017
Implement public notices for large Metro projects	July, 2013
Provide specific maintenance education to stormwater BMP owners	February, 2017
Hold a public meeting to go over each Annual Report	Annually 2012 - 2017

Note: Some of the deadlines are internal to NPDES, as actual MS4 permit deadlines are vague.

2.0 Targeted Audience Groups:

In order to accomplish the PIE plan objectives, the first step is to identify targeted audiences for which education delivery methods will be tailored towards. The targeted audience will be determined based on a variety of factors, some of which will include general land use, business/community types, geographical areas, previous complaints, and perceived educational needs.

2.1 School Groups/Youth Camps

School children and youth are perhaps one of the most important demographics to target for stormwater education, as they will shape the future of water quality within Metro. In order to convey one consistent water quality message, the MWS Public Relations Section

will lead all academic based education efforts. MWS will target 4th grade for primary distribution of stormwater educational activities.

2.2 Geographical “Hot Areas” within Metro

As discussed in Section 1, the new MS4 permit requires Metro to target “hot areas” as we designate. MWS NPDES will utilize its vast monitoring data, general knowledge from field investigations, and TDEC-designated watershed impairment status to aid in determining geographic “hot areas”. Geographic “hot areas” will be delineated into three main categories based on overall land use associated pollutants of concern. Table 3 refers to the typical pollutants expected in runoff from each major urban land use category. For purposes of public education, the three major urban land use categories have been identified to target specific messages: Residential, Commercial, and Industrial.

Table 3 – Typical Pollutant Runoff form Major Land Use Categories

Major Land Use	Typical Pollutants	Typical Source	Resulting Water Quality Degradation to Target in Educational Messages
Residential	<ol style="list-style-type: none"> 1. Nutrients 2. Sediment 3. Pathogens 4. Organics 	<ol style="list-style-type: none"> 1. Over-fertilization, Pet Waste, Human Waste and Detergents from failing septic systems. 2. Grading areas without maintained controls. Removing stream bank vegetation. 3. Failing septic systems, illegal cross-connections of sanitary and stormwater, and pet waste. 4. Dumping of leaves/grass clippings in conveyances 	<ol style="list-style-type: none"> 1. Increased algal blooms, depleted dissolved oxygen levels from decaying algae. 2. Reduced water clarity for aquatic plants, smothers aquatic life, transports other pollutants. 3. Potentially harmful to human health. 4. Decomposition depletes dissolved oxygen levels within streams.
Light Commercial	<ol style="list-style-type: none"> 1. Hydrocarbons (Oil & Grease) 2. Trash 3. Nutrients 4. Sediment 	<ol style="list-style-type: none"> 1. High-traffic parking lot areas, leaking storage tanks, etc. 2. Poor grounds upkeep, especially in parking areas and around dumpsters. 3. Landscaping/golf courses. 4. Grading/developing without maintained controls. Removing stream bank vegetation. 	<ol style="list-style-type: none"> 1. Toxic to aquatic life and impact drinking water supplies. 2. Aesthetically displeasing, can block drainage pipes causing erosion, can be harmful to wildlife. 3. Increased algal blooms, depleted dissolved oxygen levels from decaying algae. 4. Reduced water clarity for aquatic plants, smothers aquatic life, transports other pollutants.
Industrial/ Heavy Commercial	<ol style="list-style-type: none"> 1. Metals 2. Sediment 3. Hydrocarbons (Oil & Grease) 	<ol style="list-style-type: none"> 1. Exposed industrial processes/improper disposal. 2. Exposed industrial processes/improper disposal. Gravel parking lots with heavy truck traffic. 3. Equipment leakage, leaking storage containers, high-traffic pervious areas. 	<ol style="list-style-type: none"> 1. Acute or chronic toxic impacts to aquatic wildlife. 2. Reduced water clarity for aquatic plants, smothers aquatic life, transports other pollutants. 3. Toxic to aquatic life and impact drinking water supplies.

Table 4, below, provides a description of the designated geographic “hot areas” that have been identified thus far. The geographic “hot areas” will receive an increased amount of location/pollutant of concern-specific education. Figure 1 depicts the overall locations of the geographical-designated “Hot Areas”. Individual maps of each geographic “hot area” can be found in Appendix A.

Table 4 – Geographical-Designated Hot Areas for Targeted Education

Area Name	Watershed	Land Use	Size (Acres)
Area 1	Browns Creek	Industrial/Heavy Commercial	2290
Area 2	Browns Creek	Residential	2294
Area 3	McCrorry Creek	Residential	2068
Area 4	Harpeth River	Residential	497
Area 5	Harpeth River	Residential	4059
Area 6	Sugartree Creek	Residential	1486
Area 7	Bosley Springs Branch	Residential	1170
Area 8	Richland Creek	Industrial/Heavy Commercial	926
Area 9	Richland Creek	Light Commercial	731
Area 10	Mill Creek	Industrial/Heavy Commercial	1986
Area 11	Mill Creek	Industrial/Heavy Commercial	1460
Area 12	Sevenmile	Industrial/Heavy Commercial	207
Area 14	Hurricane Creek	Industrial/Heavy Commercial	1859
Area 15	W. Branch Hurricane Creek	Residential	717
Area 13	Mill Creek Upper	Light Commercial	810
Area 16	Whites Creek	Residential	1843
Area 17	Manskers Creek	Residential	2289
Area 18	Gibson and Dry Creek	Light Commercial	1211

2.3 Business Type/Community “Hot Areas”

There are certain types of businesses scattered throughout the county (not bound by geographic boundaries) in which MWS NPDES have found to have a high potential for polluted runoff. While some of the business-designated “hot areas” may overlap with the geographically-designated “hot areas”, MWS will conduct additional targeted educational campaigns towards these respective businesses. Business types that will be recipients of targeted education will include:

- 🔧 Ready Mix Concrete Plants – focus on sediment runoff;
- 🔧 Asphalt Mixing Plants – focus on sediment and oil & grease runoff;
- 🔧 Recycling Centers – focus on sediment, metals, and trash runoff;
- 🔧 Automotive Salvage Yards – focus on sediment and automotive fluid runoff;
- 🔧 Large Automotive Repair Shops – focus on automotive fluid runoff; and
- 🔧 Landscaping companies – focus on sediment runoff and application of pesticides, herbicides, fertilizers, and fungicides.

Legend

Hot Areas

- Industrial/Heavy Commercial
- Light Commercial
- Residential

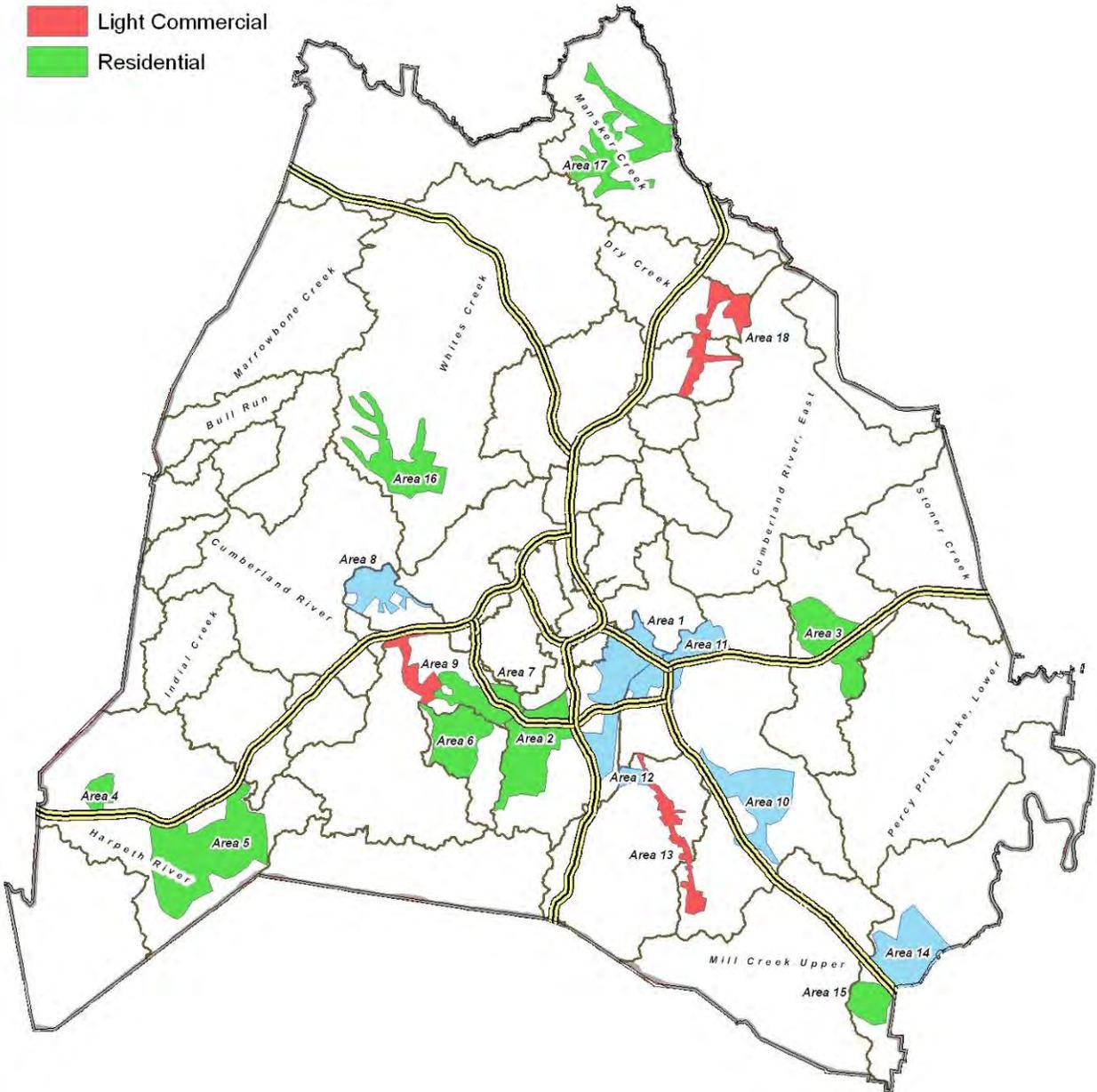


Figure 1 – Geographic-designated Hot Areas to Receive Extra Targeted Education

2.4 High Citizen Complaint Zones

MWS receives numerous complaints about a variety of issues throughout the county. Complaints range from people dumping materials in storm ditches (leaves, limbs, trash, etc.) to people discharging illegal substances to the storm system. Upon analysis of complaints, MWS may choose to target certain areas that may not be part of the above-defined geographic “hot areas” for problem-specific, localized education. This type of education will be performed on a case by case basis.

2.5 Large Civic Educational Events

As prescribed in the MS4 permit, Metro is required to perform stormwater education at a minimum of six large public events per calendar year. MWS Stormwater will satisfy this requirement by participating in large community events that relate to environmental awareness. The following large civic events have been preliminarily identified for Metro to participate with a stormwater education component:

1. Nashville Lawn and Garden Show
2. Earth Day –Public Works
3. CMA Festival
4. Cumberland River Compact’s WaterFest
5. Urban Runoff 5K
6. Tomato Festival

2.6 Post Construction Treatment Devices (SCM) Owners

Developing sites that meet certain thresholds within the county are required to install permanent stormwater treatment devices, otherwise referred to as Stormwater Control Measures (SCMs), that are usually designed to treat stormwater runoff for water quality and quantity purposes. Once the site is completely developed, the property owner becomes responsible for permanent maintenance of SCMs. Metro will specifically target owners of BMPs to achieve proper maintenance.

2.7 Grading Contractors/Development Community

The development community, including land developers and grading contractors, will be the target of specific educational outreach. Education geared toward the development community will be focused on the impacts of sediment runoff during construction and general pollutant runoff from pervious surfaces after construction is completed.

2.8 Municipal Maintenance Employees

All Metro departments with field maintenance staff will be a key target audience for distributing stormwater education materials. As prescribed in the MS4 permit, municipal maintenance employees shall be trained on potential stormwater impacts that could result from maintenance activities. In addition, municipal field staff shall be trained on identifying and reporting occurrences of illicit discharges.

2.9 General Metro Residency

Perhaps the most important constituency within Metro to educate for stormwater quality purposes is the general residents within Metro. While there may exist overlap within the above-described target areas, Metro will also implement techniques to try to reach the masses on more general terms.

3.0 Education Techniques for Targeted Audiences:

MWS will utilize a variety of tools to perform stormwater education. Education delivery methods will be designed to achieve maximum distribution to the targeted audiences. For example, educational efforts for the above-described “hot areas” may include mail-outs, outbound calling, coordinating with local non-profit watershed groups, and possibly holding community meetings. Table 5 matches the potential educational technique to the specific targeted audiences. As the MS4 public information plan proceeds, new techniques may be utilized for specific targeted audiences and the PIE Plan will be updated accordingly.

Table 5 – Educational Delivery Methods For Each Targeted Audience Group

Targeted Audience Group	Public Education/Outreach Technique
School Groups /Youth Camps	<ul style="list-style-type: none"> ☼ In-person presentations/demonstrations ☼ Distribution of educational materials designed for youth. (i.e. games, puzzles, tests, etc.)
Geographic-Designated “Hot Areas”	<ul style="list-style-type: none"> ☼ Mail-outs (area-specific) ☼ Outbound calling (area-specific) ☼ Soliciting help from local non-profit watershed groups in distributing educational materials ☼ Co-host community meetings with local non-profit watershed groups
Community/Business Type “Hot Areas”	<ul style="list-style-type: none"> ☼ Mail-outs (business-specific) ☼ Handing out materials ☼ Hosting workshops
High Citizen Complaint Zones	<ul style="list-style-type: none"> ☼ Mail-outs (problem/complaint-specific) ☼ Outbound calling (problem/complaint specific)
Large Community Events	<ul style="list-style-type: none"> ☼ Staffing stormwater educational booths ☼ Performing stormwater demonstrations ☼ Handing out educational materials
Post Construction BMP Owners	<ul style="list-style-type: none"> ☼ Mail-outs ☼ Handing out materials/Drop in visits by NPDES
Grading Contractors/Development Community	<ul style="list-style-type: none"> ☼ Face to face during Grading Permit process ☼ Participate in TDEC’s Level 1 EPSC Workshop
Municipal Maintenance Employees	<ul style="list-style-type: none"> ☼ In-person presentations/video ☼ Handing out materials
General Metro Residency (General Stormwater Education)	<ul style="list-style-type: none"> ☼ Channel 3 Public Service Announcements (PSAs) ☼ Public signage (vehicle decals, billboards, etc.) ☼ Website and social media information available and updated

4.0 Education Implementation Timeframe:

PIE Plan implementation will be based, first and foremost, on MS4 Permit deadlines. In order to keep track of stormwater education deadlines and responsibilities, a Public Education Matrix Table has been developed that will be the blueprint for yearly public education activities. The Matrix Table incorporates at least one type of education activity geared toward each Targeted Audience Group.

Table 6 – Public Education Individual Task Matrix

Task	Public Education Activity	Education Deadline	Lead Staff
1	Complete PIE Plan	December 2012	Josh Hayes Julie Berbiglia
2	Give presentations at least 150 schools	Annually by June 31 st (Starting in Permit Year 2)	Julie Berbiglia
3	Send mail-outs, perform outbound calling, work with local non-profit watershed groups to distribute educational materials, or host community meetings for at least 4 geographic “hot areas” focused on the issues important to those areas. (i.e. pet waste, fertilizer application education to residential areas)	February 2017	Josh Hayes Julie Berbiglia
4	Send Mail-outs to or personally visit to drop off educational materials to at least 25 designated Business Type/Community designated “hot areas”. (i.e. applicators/distributors of pesticides, fertilizers, etc.)	February 2017	NPDES Staff
5	Co-host an industrial stormwater workshop with TDEC for all current TMSP sites.	By June 31, 2013	Josh Hayes
6	Send Mail-outs or perform outbound calling to high complaint zones as determined necessary	As Deemed Necessary	Sonia Allman Beth Wilson
7	Participate in or host at least 6 large community/civic events	Annually by June 31 st (Starting in Permit Year 2)	Julie Berbiglia Beth Wilson
8	Send Mail-outs to critical post-construction BMP owners that were installed as per Metro’s grading permit requirements to treat water quality and water quantity runoff.	February 2017	Josh Hayes Jane Wilson Rebecca Dohn
9	Give out stormwater educational materials at every pre-construction meeting for Grading Permits.	Annually by June 31 st (Starting in Permit Year 1)	Dale Binder
10	Distribute stormwater educational materials to building permit applicants for single family homes	Annually by June 31 st (Starting in Permit Year 1)	Kimberly Hayes
11	Present at all TDEC Level 1 EPSC workshops in Nashville.	As scheduled by TDEC	Dale Binder
12	Perform in-person training or provide maintenance personnel with stormwater educational materials	At least one Metro Department per year.	Josh Hayes Beth Wilson Michael Hunt
13	Air at least 6 PSAs on Metro’s Channel 3	Annually by June 31 st (Starting in Permit Year 2)	Veronica Logue Gillian Walshe- Langford
15	Provide opportunity for public participation/involvement for stormwater awareness projects (i.e. stream clean-ups, tree plantings, etc.)	Annually by June 31 st (Starting in Permit Year 2)	Sonia Allman
16	Provide public notice for all large Metro construction projects (possibly web-site postings)	Annually by June 31 st (Starting in Permit Year 2)	Michael Hunt Anna Kuoppamaki
17	Make updates to the stormwater website to reflect latest regulations, technology, etc.	As Deemed Necessary	Michael Hunt Anna Kuoppamaki Jennifer Harrman
18	Present each Annual Report to a public forum (i.e. Stormwater Management Committee or Stormwater Advisory Committee may suffice.	Annually by December 31 st (Starting in Permit Year 1)	Michael Hunt Josh Hayes

PIE Task	06/31/12	12/31/12	06/31/13	12/31/13	06/31/14	12/31/14	06/31/15	12/31/15	06/31/16	12/31/16
1. Complete PIE Plan										
2. Give presentations at least 150 schools classes PY 1&2										
PY3										
PY4										
PY5										
3. Distribute educational materials to at least 4 geographic "hot areas" PY1&2										
PY3										
PY4										
PY5										
4. Send Mail-outs or personally visit at least 25 business "hot areas" PY1&2										
PY3										
PY4										
PY5										
5. Co-host an industrial stormwater workshop with TDEC for all current TMSP sites.										
6. Send Mail-outs or perform outbound calling to high complaint zones as determined necessary										
7. Participate in or host at least 6 large community/civic events PY1&2										
PY3										
PY4										
PY5										
8. Send Mail-outs to all known post-construction BMP owners										
9. Give out stormwater educational materials at every pre-construction meeting for Grading Permits.										
10. Distribute stormwater educational materials to building permit applicants for single family homes										
11. Present at all TDEC Level 1 EPSC workshops in Nashville.										
12. Perform stormwater training or provide maintenance personnel										
13. Air at least 6 PSAs on Metro's Channel 3 PY1 &2										
PY3										
PY4										
PY5										
14. Air at least 2 pollutant specific slideshows PY1&2										
PY3										
PY4										
PY5										
15. Provide opportunity for public participation/involvement for stormwater awareness projects										
16. Provide public notice for all large Metro construction projects (possibly web-site postings)										
17. Make updates to the stormwater website to reflect latest regulations, technology, etc.										
18. Present each Annual Report to a public forum PY1&2										
PY3										
PY4										
PY5										

Note: PY = Permit Year

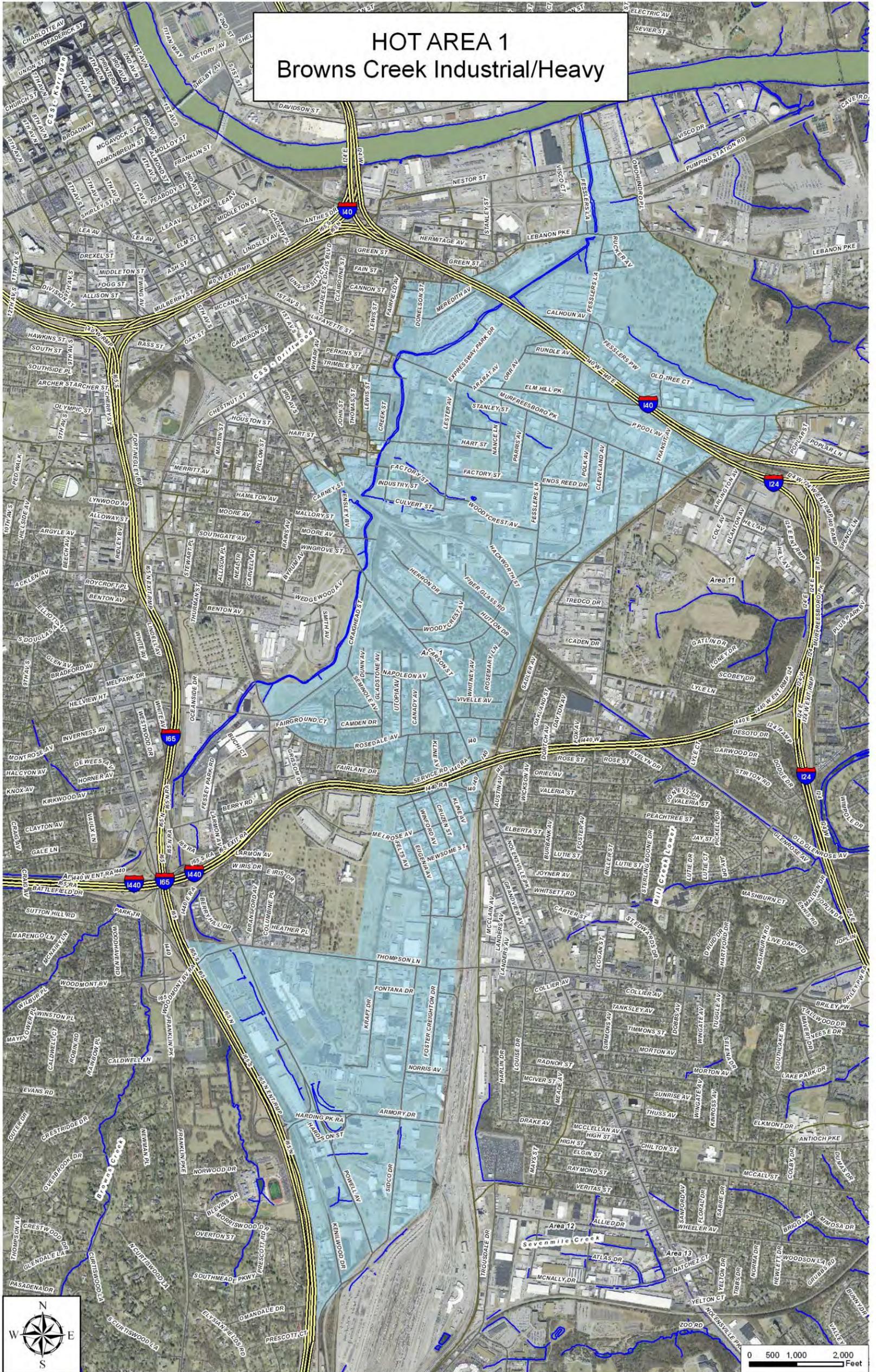
Sonia Allman	Julie Berbiglia	Michal Hunt	Josh Hayes	Dale Binder	NPDES Staff	Beth Wilson	Kimberly Hayes
							

5.0 PIE Plan Effectiveness Assessment:

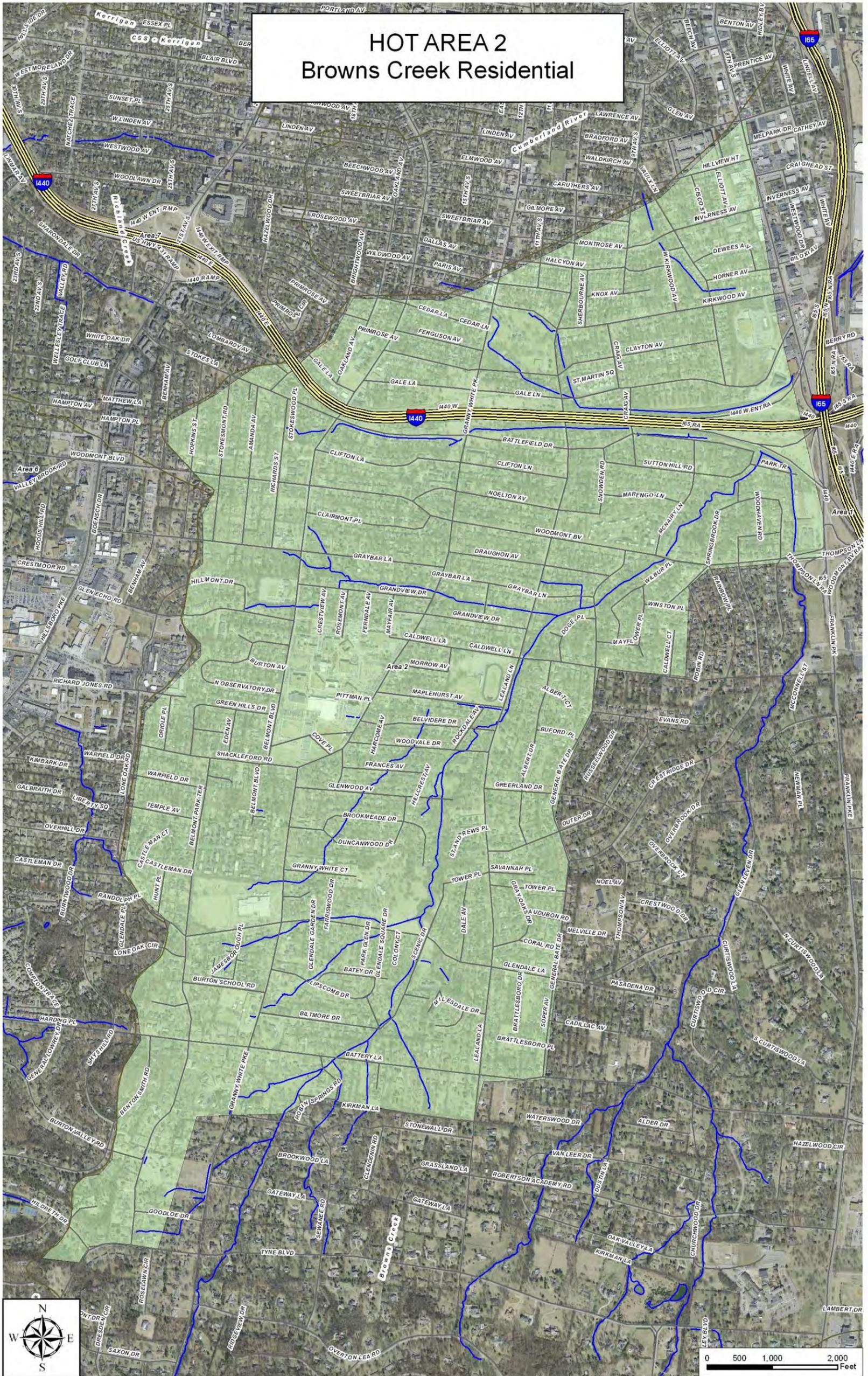
Throughout implementation of the PIE Plan, MWS will attempt to assess the effectiveness of the educational messages. Some potential assessment methods may include performing surveys to certain target audiences during presentations and analyzing monitoring data before and after targeted education has been performed.

PIE Plan
Attachment A
Individual Geographic “Hot Areas” Maps

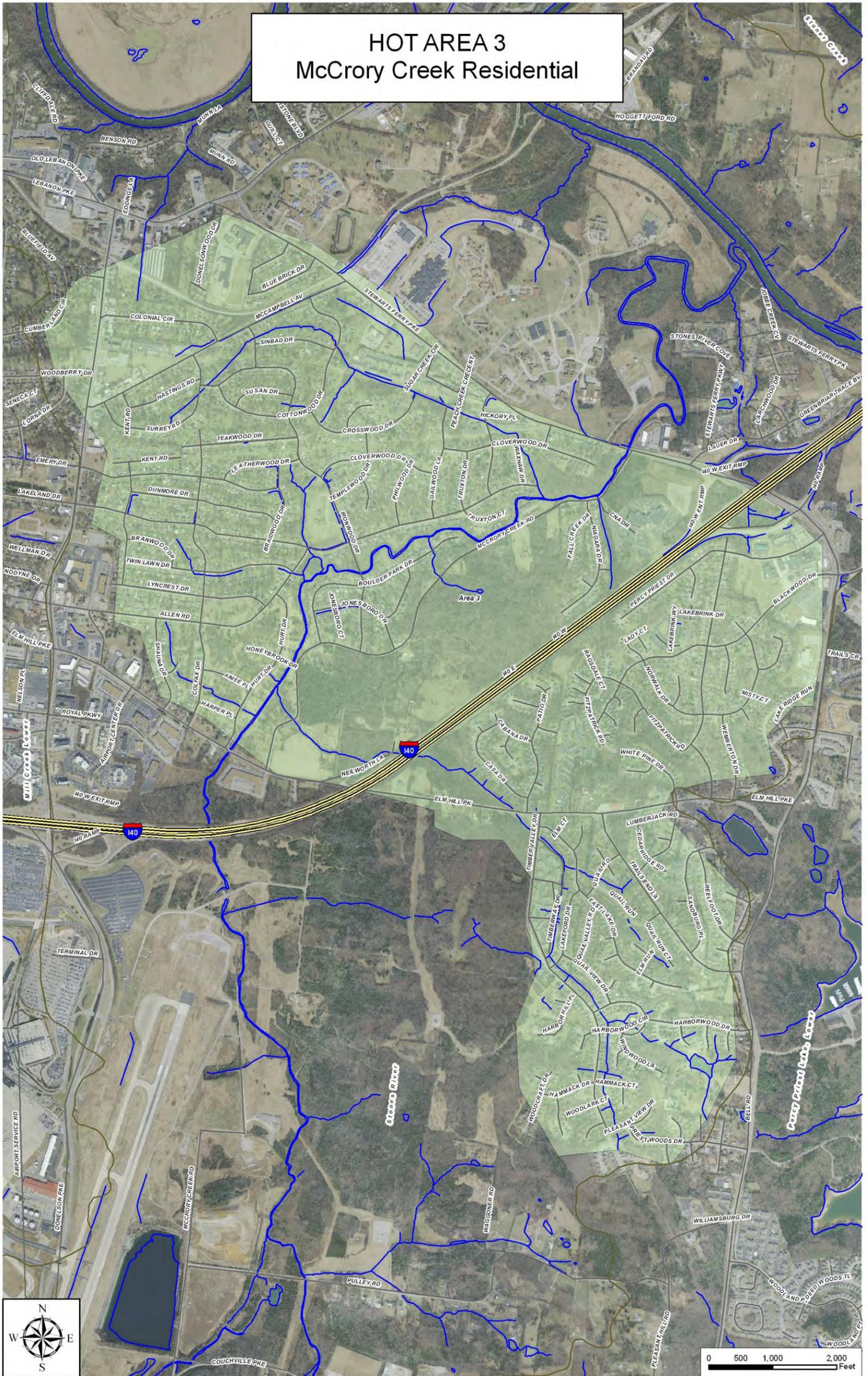
HOT AREA 1 Browns Creek Industrial/Heavy



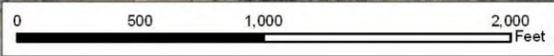
HOT AREA 2 Browns Creek Residential



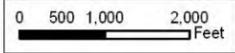
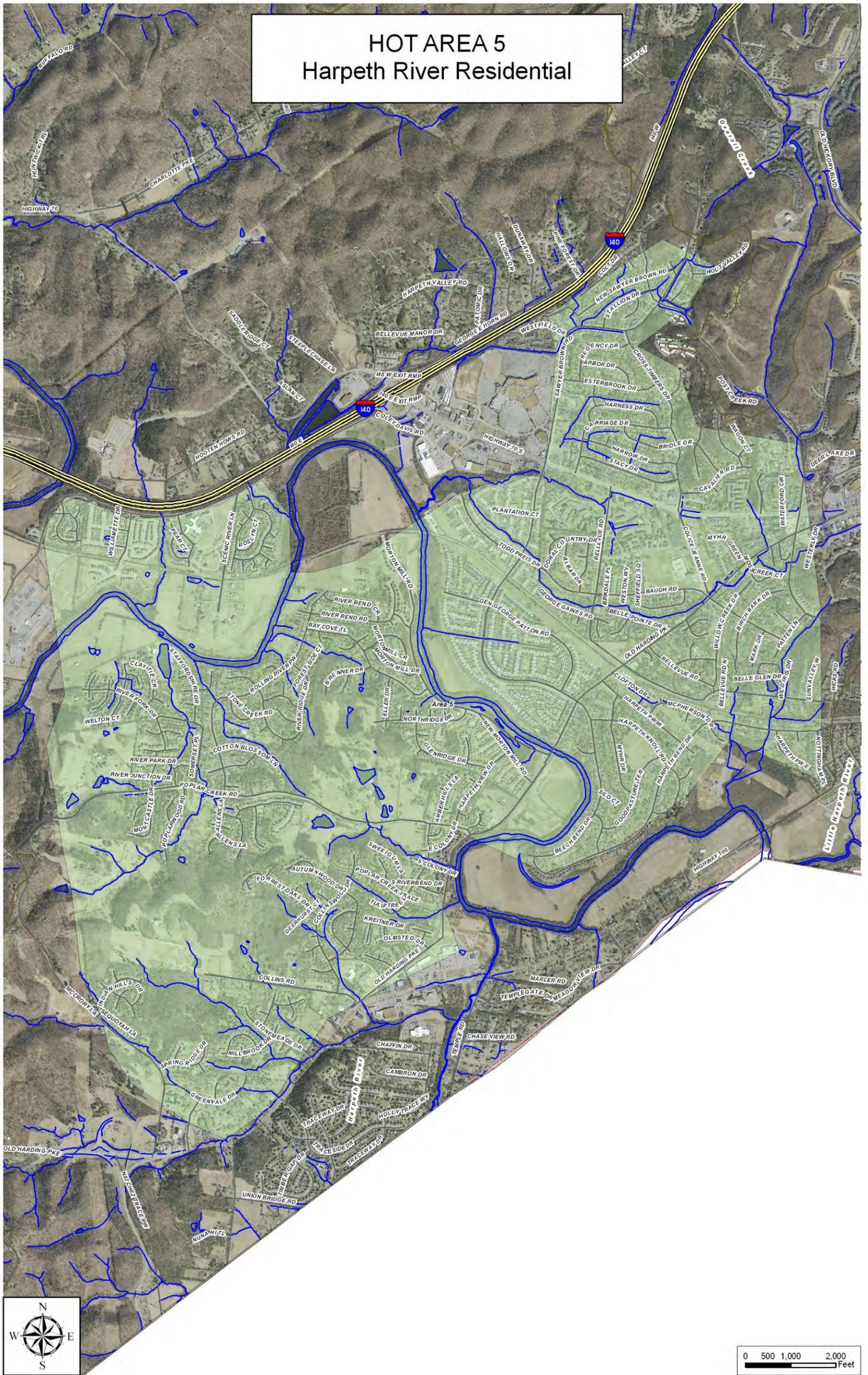
HOT AREA 3 McCroy Creek Residential



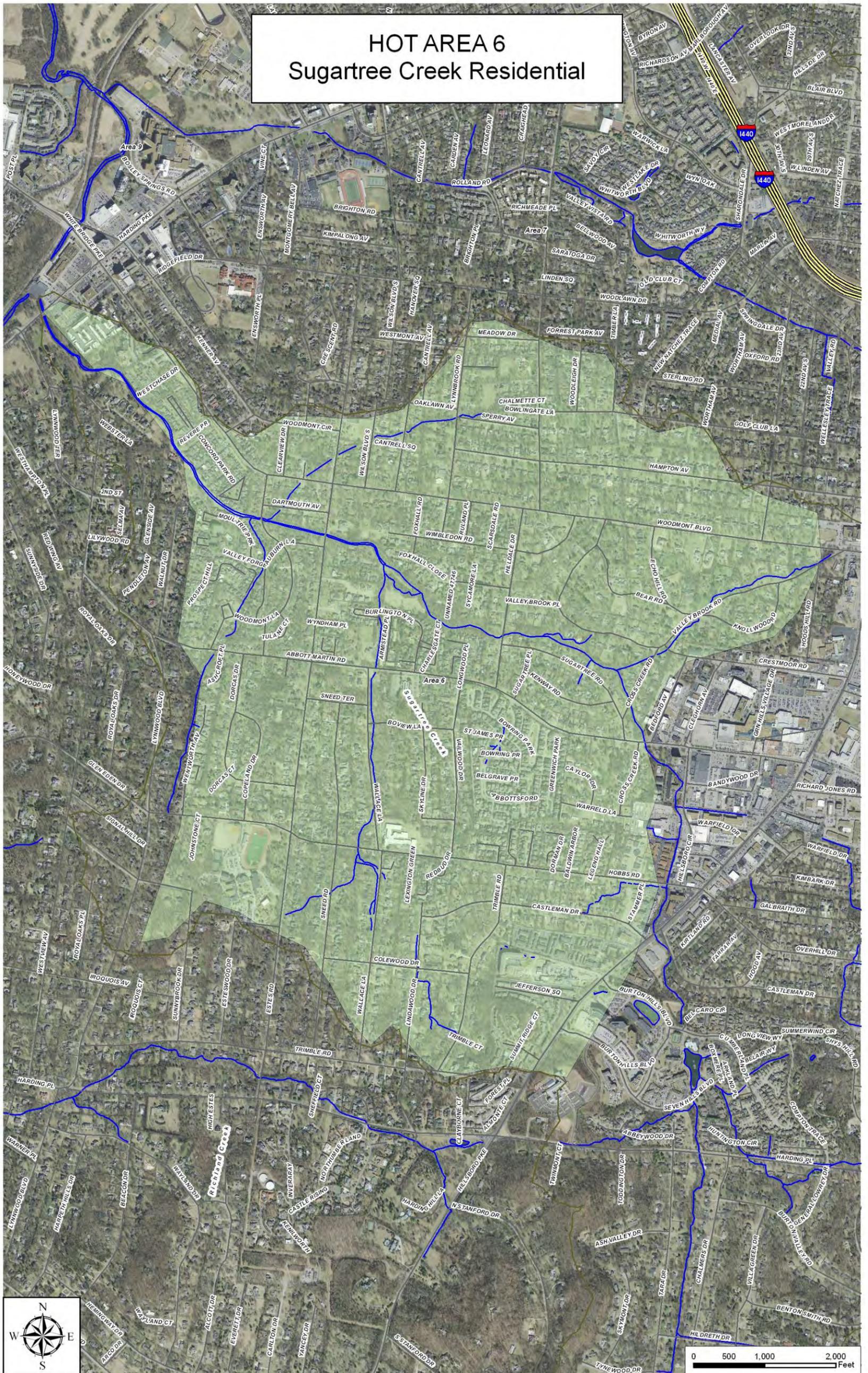
HOT AREA 4
Harpeth River Residential



HOT AREA 5 Harpeth River Residential



HOT AREA 6 Sugartree Creek Residential

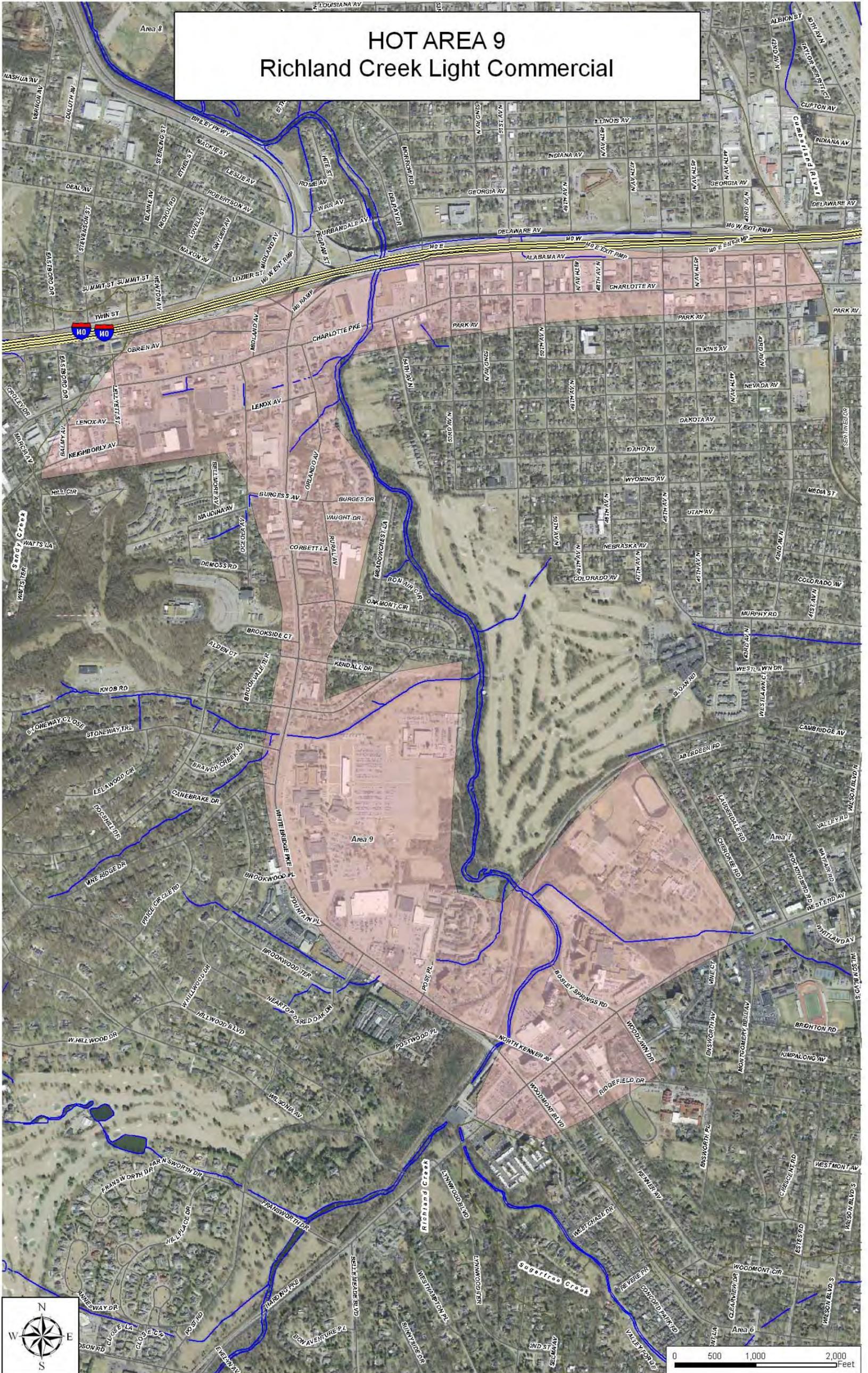


HOT AREA 7 Bosley Springs Branch



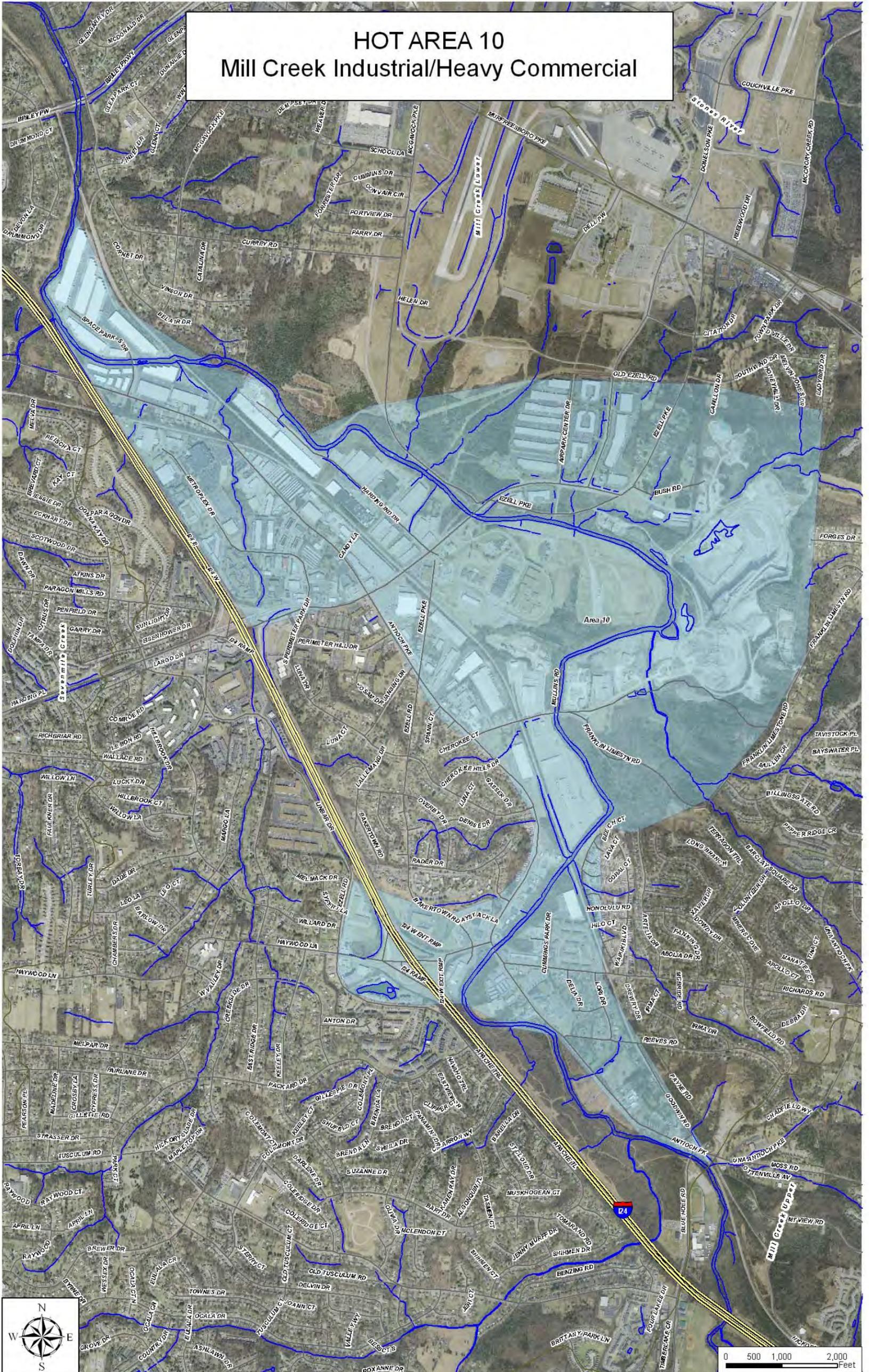
HOT AREA 9

Richland Creek Light Commercial



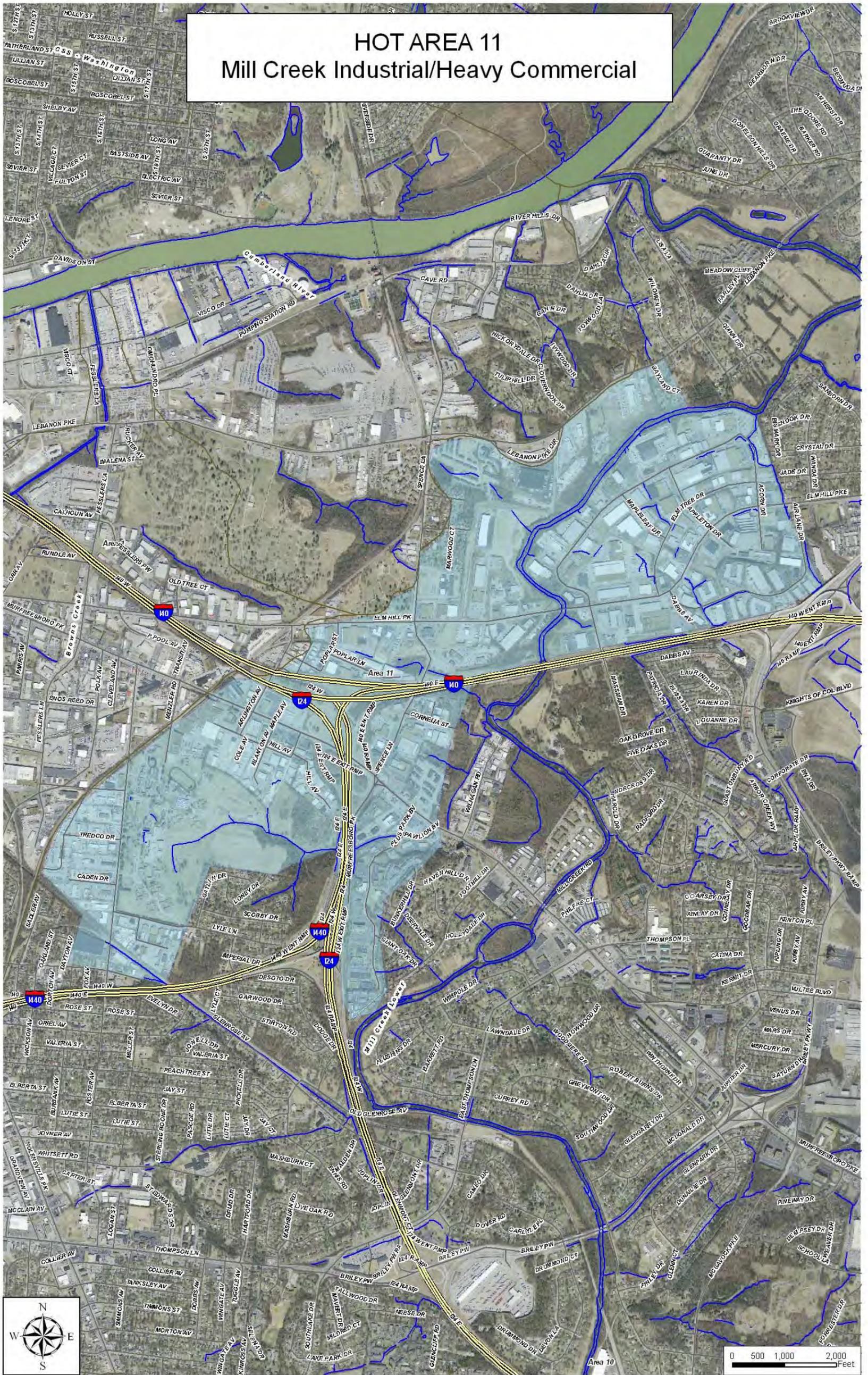
HOT AREA 10

Mill Creek Industrial/Heavy Commercial

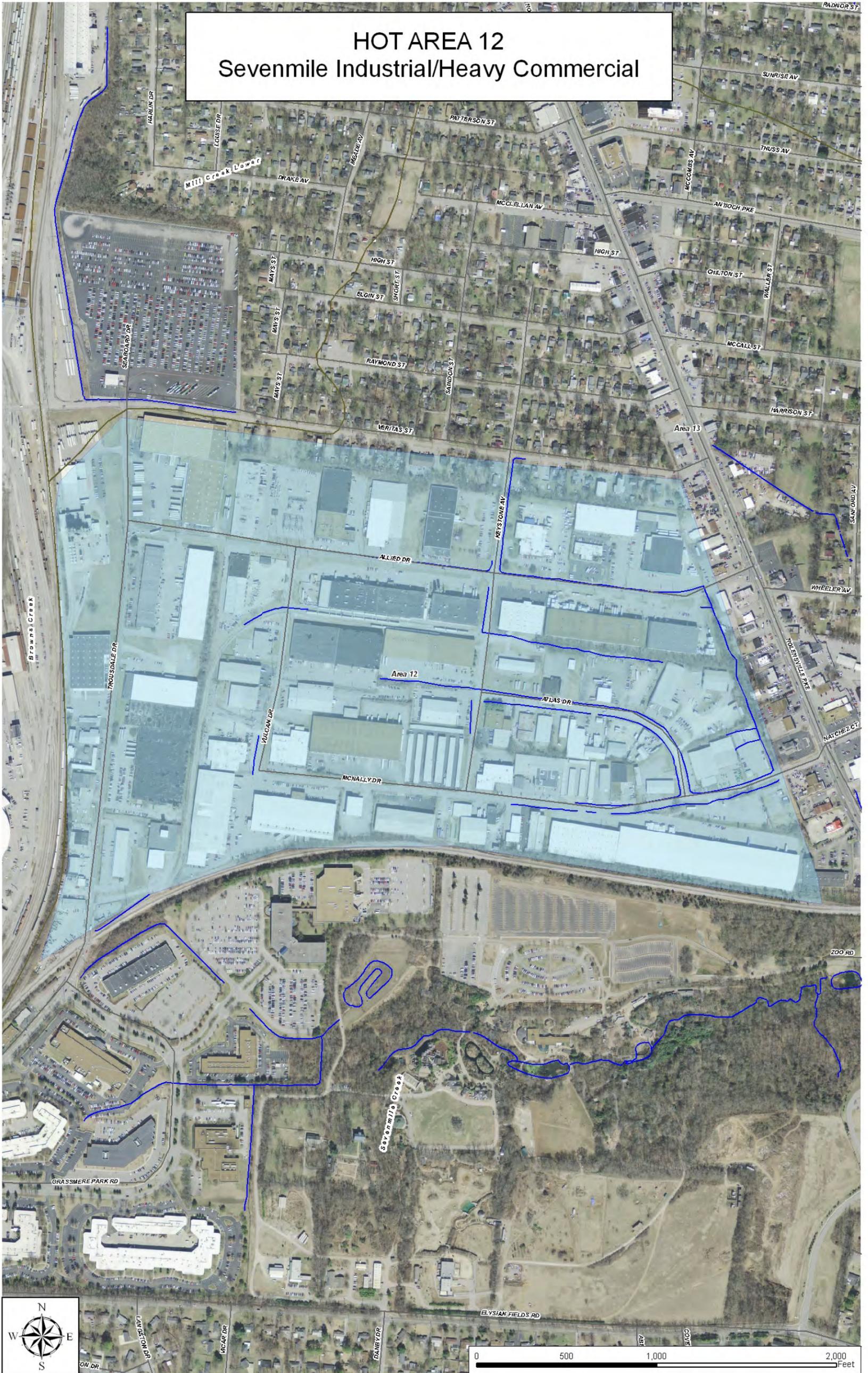


HOT AREA 11

Mill Creek Industrial/Heavy Commercial

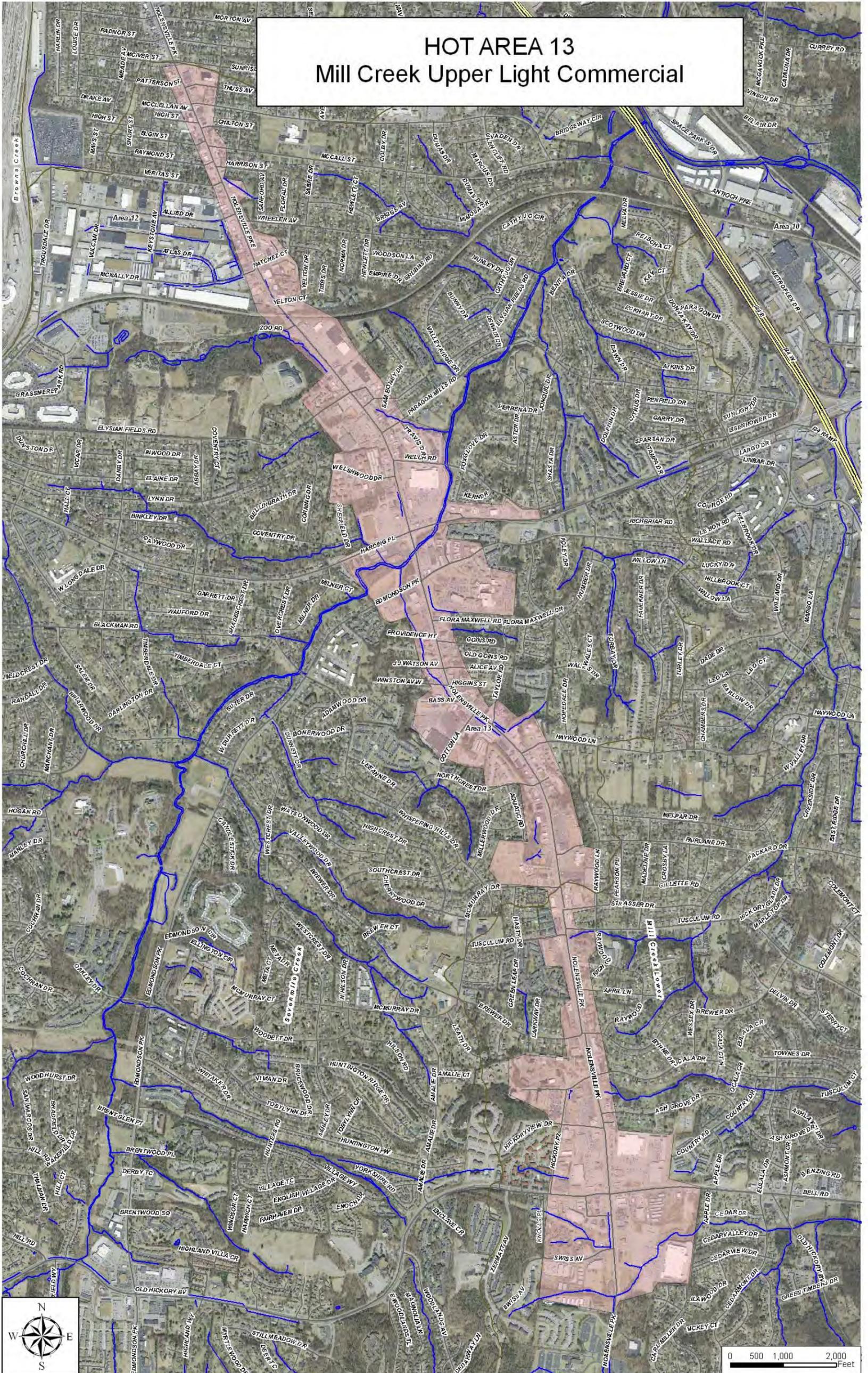


HOT AREA 12
Sevenmile Industrial/Heavy Commercial



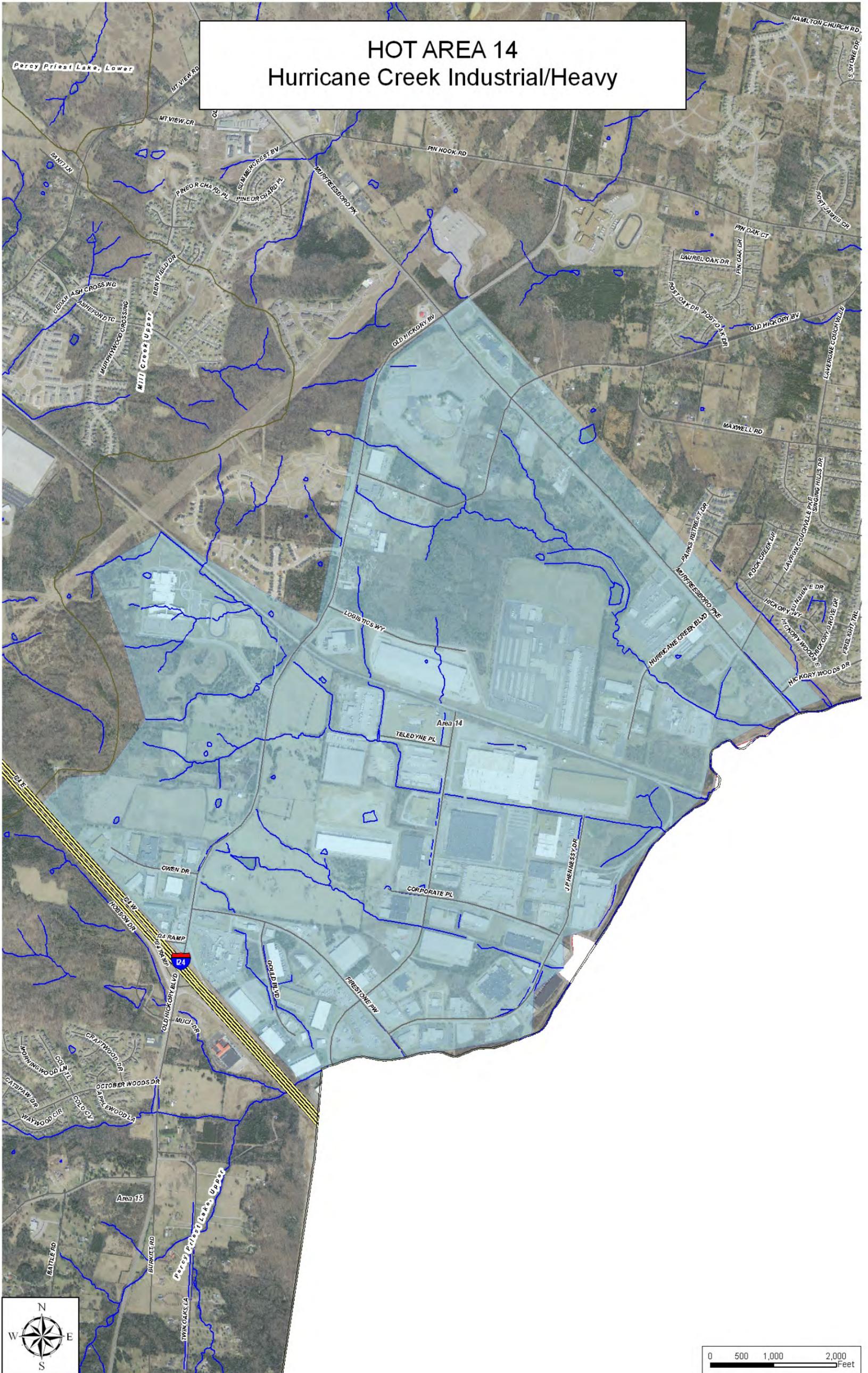
HOT AREA 13

Mill Creek Upper Light Commercial



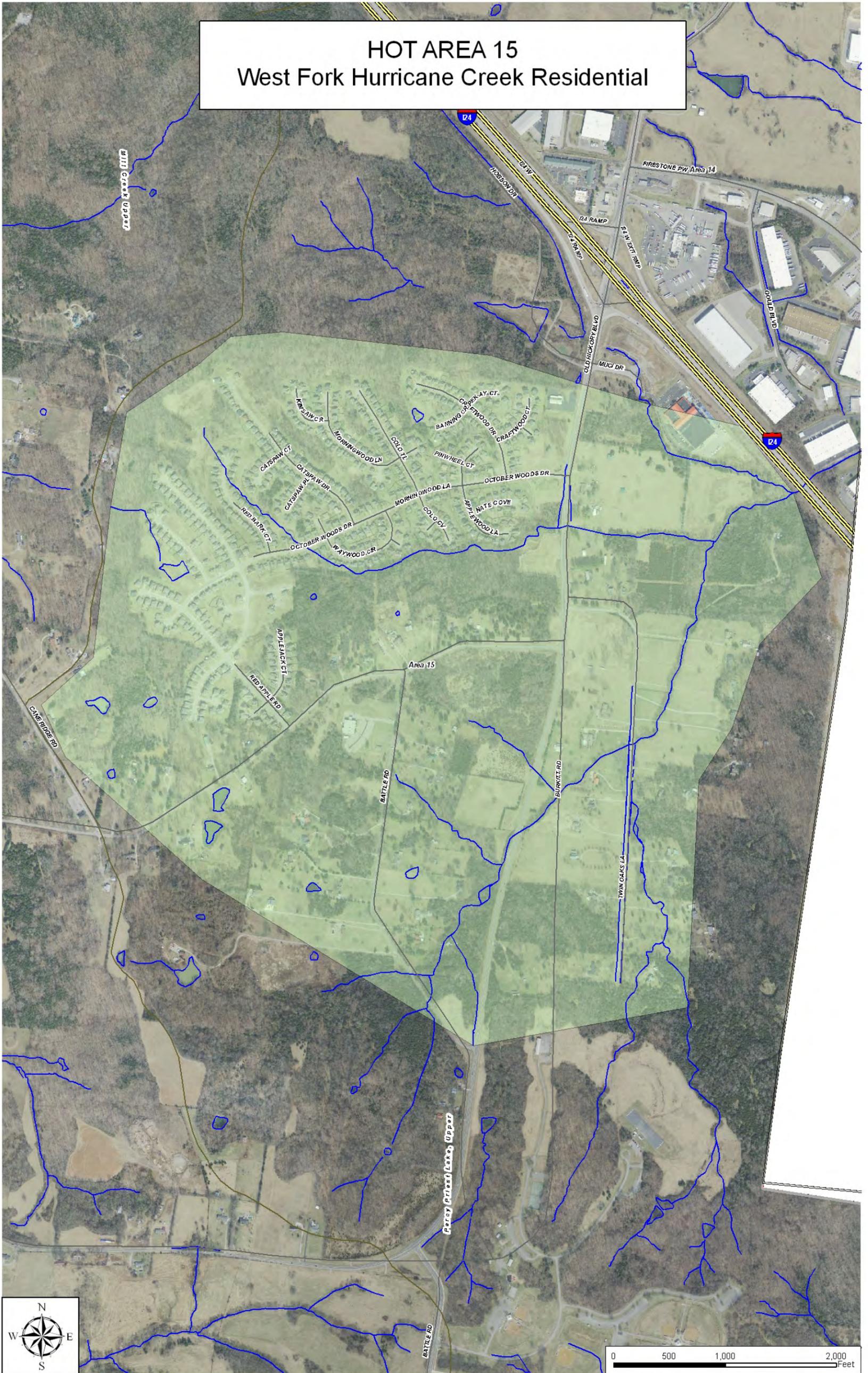
HOT AREA 14

Hurricane Creek Industrial/Heavy



HOT AREA 15

West Fork Hurricane Creek Residential

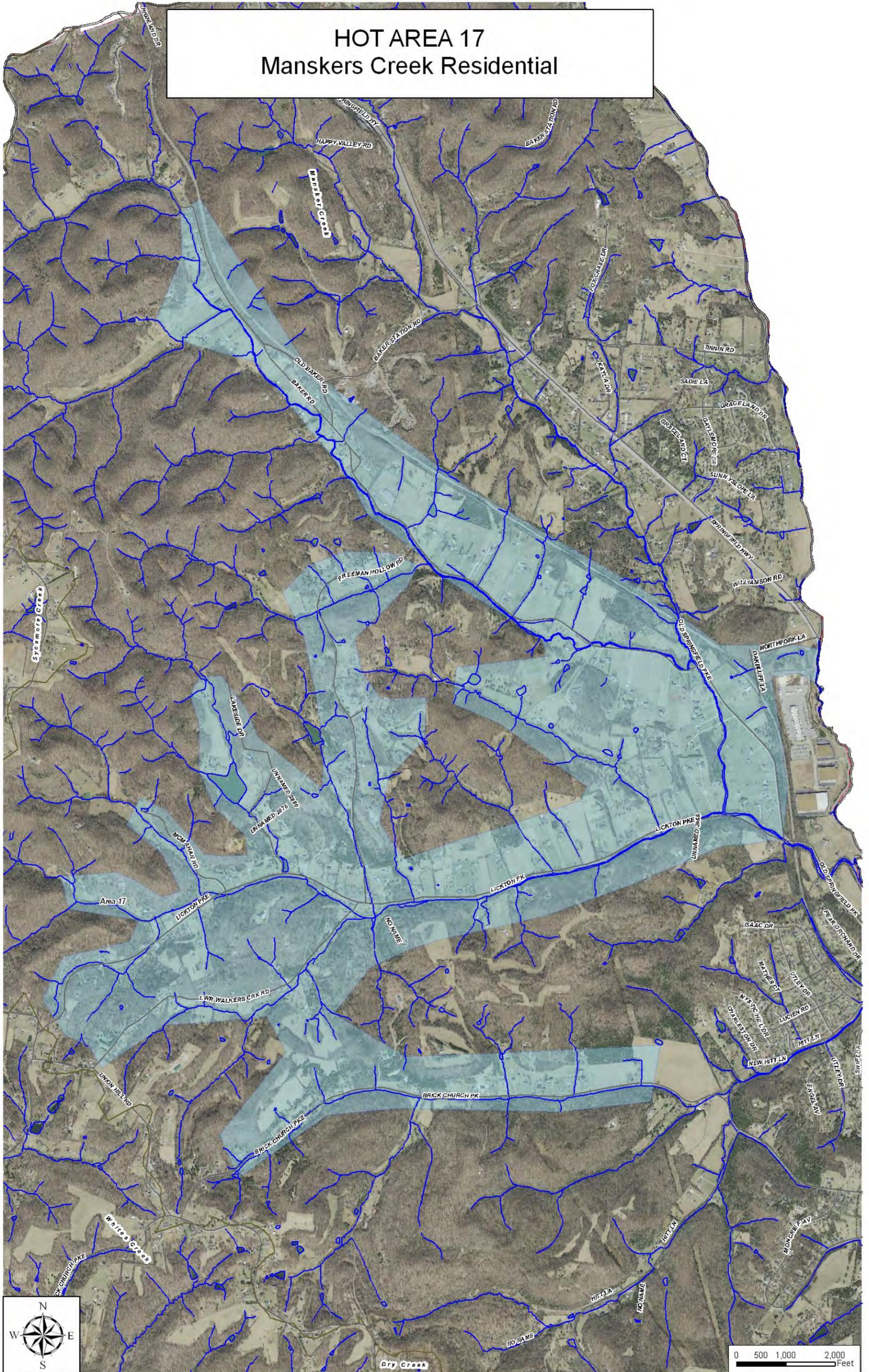


HOT AREA 16
Whites Creek Light Residential



HOT AREA 17

Manskers Creek Residential



HOT AREA 18

Gibson and Dry Creek Light Commercial

