CHAPTER 3: MARYLAND OUTDOOR RECREATION SUPPLY

A. Public Lands Inventory & Level of Service Analysis

A primary goal of the ***Maryland Land Preservation and Recreation Plan*** is to assess supply and demand for outdoor recreation and proximity of Maryland residents to outdoor recreation and natural resources statewide. For this purpose, the LPRP involved the following activities to determine Maryland's **supply** of outdoor recreation and natural resources:

- Updated the inventory of existing state and federal public lands
- Conducted a level of service analysis to determine resident proximity to public lands and access to water

> "It (outdoor recreation) brings families closer together and more quality time. Helps kids understand the importance of it all. Don't close any state parks because we need them."
>
> *Public Input Comment*

The following activities were also conducted to determine Maryland's **demand** for outdoor recreation and natural resources:

- Conducted statistically-valid survey and online open link surveys
- Received input from the Technical Advisory Committee, Trails Committee, stakeholders, and DNR Staff

Inventory

An inventory of state recreation assets was conducted, and included all publicly accessible Maryland DNR lands and waters, as well as all National Park Service (NPS) parks in the state. Other outdoor recreation assets owned and managed by counties, municipalities, and private providers were not included in this inventory due to a lack of comprehensive data. Completion of a comprehensive inventory of all outdoor recreation assets at a future date would provide a complete picture of outdoor recreation opportunities in Maryland. In addition, there is a gap in available data relative to the state's historic and cultural resources which needs to be addressed.

Only natural resource-based recreation sites were included in the inventory. User-based recreation facilities, such as sports complexes or swimming pools, were excluded, as such amenities are not within the purview of the DNR.

Data was gathered on all recreation amenities at each location such as facilities (shelter, boat ramp, etc.), permitted activities (hunting, swimming, etc.), and resources (natural area, beach, etc.). A detailed description methodology for compiling inventory data may be found in ***Appendix F***: ***Inventory and Level of Service Analysis Methodology and Maps.***

The following lists all amenities included in this inventory:

Beach	Equestrian Trails	Picnic Tables
Bicycling Trails	Exhibit or Interpretive Center	Playground
Boat Ramp	Fishing	Restrooms
Boat Rentals	Food	RV Sites/Shelters
Cabins	Hiking Trails	Shelter (Picnic)
Camper Cabins	Historic Site or Museum	Shooting Range
Camping	Hunting	Snowmobiles
Camping-Primitive	Lodging	Snowshoeing or X-Country Skiing
Camping-Youth	Mountain Bike Trails	Swimming
Canoeing	Park Store	Visitor Center
Dump Station	Pet Loop	Wheelchair Access

DNR Land Unit Designations

Below is a listing of DNR land unit designations:

- **State Parks (SP)** are operated primarily for outdoor recreation purposes. Improvements to facilitate users' access and comfort are typically found in sections of the property, although much of the land remains as undeveloped natural area in most cases.
- **State Forests (SF)** are managed for multiple purposes, including water quality protection, wildlife enhancement, timber, natural beauty, and low-intensity recreation. Recreational Improvements are generally very limited.
- **Wildlife Management Areas (WMA)** focus on wildlife enhancement and low intensity wildlife-related recreation, including hunting and observation. Recreational improvements are minimal.
- **Natural Resources Management Areas (NRMA)** are managed for optimal use of the resources on the site, which may suggest varying levels or intensities of recreational development.
- **Natural Environment Areas (NEA)** are large preserved land units of important natural attraction or unique geological or biological significance and high scenic landscape value. Recreational development is generally very limited.
- **Fish Management Areas (FMA)** are managed the Fisheries Service and includes major aquatic features such as a highly specialized fish propagation facility or a public fishing pond.
- **Wildlands** are areas of state-owned land or water that have retained their wilderness character or contain rare or vanishing species of plant or animal life. Designated by the Maryland General Assembly, they may include unique ecological, geological, scenic, and contemplative recreational areas.

Level of Service Analysis

The level of service analysis for this plan was based on GIS data provided by DNR, 2010 U.S. Census data, and random survey results of self-reported public use of recreation amenities throughout the state. The level of service analysis evaluated residents' proximity to state and federal public lands, assessed where within the state and to what extent these amenities are available.

B. Analysis Methodology

A statistically-valid phone survey was undertaken to collect data analyzed in the ***Maryland Land Preservation and Recreation Plan***. One part of this survey asked respondents to note those recreation activities they commonly use. This data provided a basis for map analysis based on the inventory compiled, specifically to examine those amenities the survey indicated to be most common.

Only those recreational activities in which most respondents tend to participate were targeted for analysis. Target activities chosen for analysis were:

- Walking
- Picnicking
- Visiting natural areas
- Water recreation including swimming, fishing, paddling, motor boating, and/or sailing

While the random survey respondents ranked visiting historical sites nearly as high as walking, GIS data was inadequate to develop a complete analysis of this activity. It is recommended that DNR work with the staff of the Maryland Historical Trust to develop a GIS layer to assess statewide levels of service for historic and cultural sites.

Popular license fee-based activities that deserve a more focused examination were also chosen for analysis. These activities were:

- Hunting
- Fishing

Site amenities that support these activities were determined by the consultant and verified by DNR staff. All locations with a particular type of amenity, such as hiking trails or picnic tables, were isolated and analyzed using specialized GIS tools developed for examining outdoor recreation included in Geo-Referenced Amenities Standards Program (GRASP®) methodology.

Proximity Analysis

All spatial analyses conducted for the Maryland LPRP were "proximity analyses." These analyses examine the extent of available recreation amenities. A specific distance, called a catchment, is applied to each location being analyzed. Such analysis reveals how many of each type of outdoor recreation amenity are available within that specified distance. The results are mapped to indicate greater or lesser proximity to the amenities across the state. These analyses do not indicate proximity to an actual amenity but rather show proximity to the property boundary of the location at which that amenity is provided.

A catchment distance of five miles was used for all final analyses. This distance approximately corresponds to a 10-15 minute drive or a reasonable bike ride. It is intended to capture the casual visitor using a recreation amenity after work or for just a couple of hours and assumes access to all included locations via roads, sidewalks, trails, or other circulation routes. This five-mile distance was chosen as most useful in determining proximity to recreation amenities for a project of this size and extent, and correlates to the unprecedented 72 percent visitor increase between 2008 and 2012 at state parks with accessible waterfront areas, swimming beaches, lakes, oceans and rivers.

Proximity vs. Access
A distinction must be made between proximity and access. The analyses conducted for the LPRP are intended solely to indicate areas of greater or lesser proximity to amenities within the state. These should not be read to suggest better or worse access, as that implies a host of other considerations beyond the scope of this study. Further, any indication of proximity to more or fewer amenities is relative to other areas of the State of Maryland. No comparison is being made to recreation systems in other states, or to any established standard for such resources.

C. Inventory and Level of Analysis

The level of service analysis is based on the proximity analyses and results from the statistically-valid survey. These are indicative of supply and demand, respectively, and are particularly useful in determining areas within the State of Maryland where level of service may be improved. Mapping these results can yield information that may directly inform and help guide future planning decisions.

Level of Service:
The capacity of the park system's components to meet the needs of the public.

5-Mile Analysis
Determining gaps in level of service used a 5-mile catchment area. This distance was determined to approximate a 15 minute drive, and is intended to reflect how far the casual visitor to an outdoor recreation area may travel by car or other modes including public transit, by bicycle, or on foot.

Gaps in service emerge as well as those areas with proximity to a greater number of locations providing a chosen amenity. This distance was used for all analyses and resulting findings discussed herein. To illustrate gaps in service using the 5-mile catchment area, two types of maps were produced for the ***Maryland Land Preservation and Recreation Plan***. Resource maps, used for reference, and Perspective maps that display analysis results.

D. Resource Maps (Reference)

Resource maps include a state base map (A), four regional key maps to identify inventory locations (B, C, D, and E), and a state population density map (F). The assets included in this inventory serve as the basis for all gap analyses conducted for the ***Maryland Land Preservation and Recreation Plan.***

The state population density and regional key maps are provided for an overview of DNR and NPS lands and a detailed inventory of natural and water based resources in each of the four regions – Central, Western, Southern, and Eastern. The resource maps, together with the Perspective maps, provide a well-rounded view of available resources and areas to target for land acquisition to achieve a balanced level of service throughout the DNR service areas.

Resource Map F: State Population Density

To provide context for analysis, this map displays population density in the state of Maryland by census tract as reported in the 2010 U.S. Census. Population densities range from five people per square mile, found in south Dorchester County, to nearly 50,000 people per square mile within the Langley Park area of Prince Georges County. The majority of Maryland residents are concentrated in and around the City of Baltimore and in the vicinity of Washington D.C.

These high density areas are worth noting in review of map analyses as gaps in service in densely populated areas can have a more significant impact than such gaps in less populated areas of the state. Improving level of service in such higher population areas can provide a greater return on investment for development of new amenities or enhancement of existing ones.

Resource Maps B, C, D, and E: Regional Public Lands Inventory

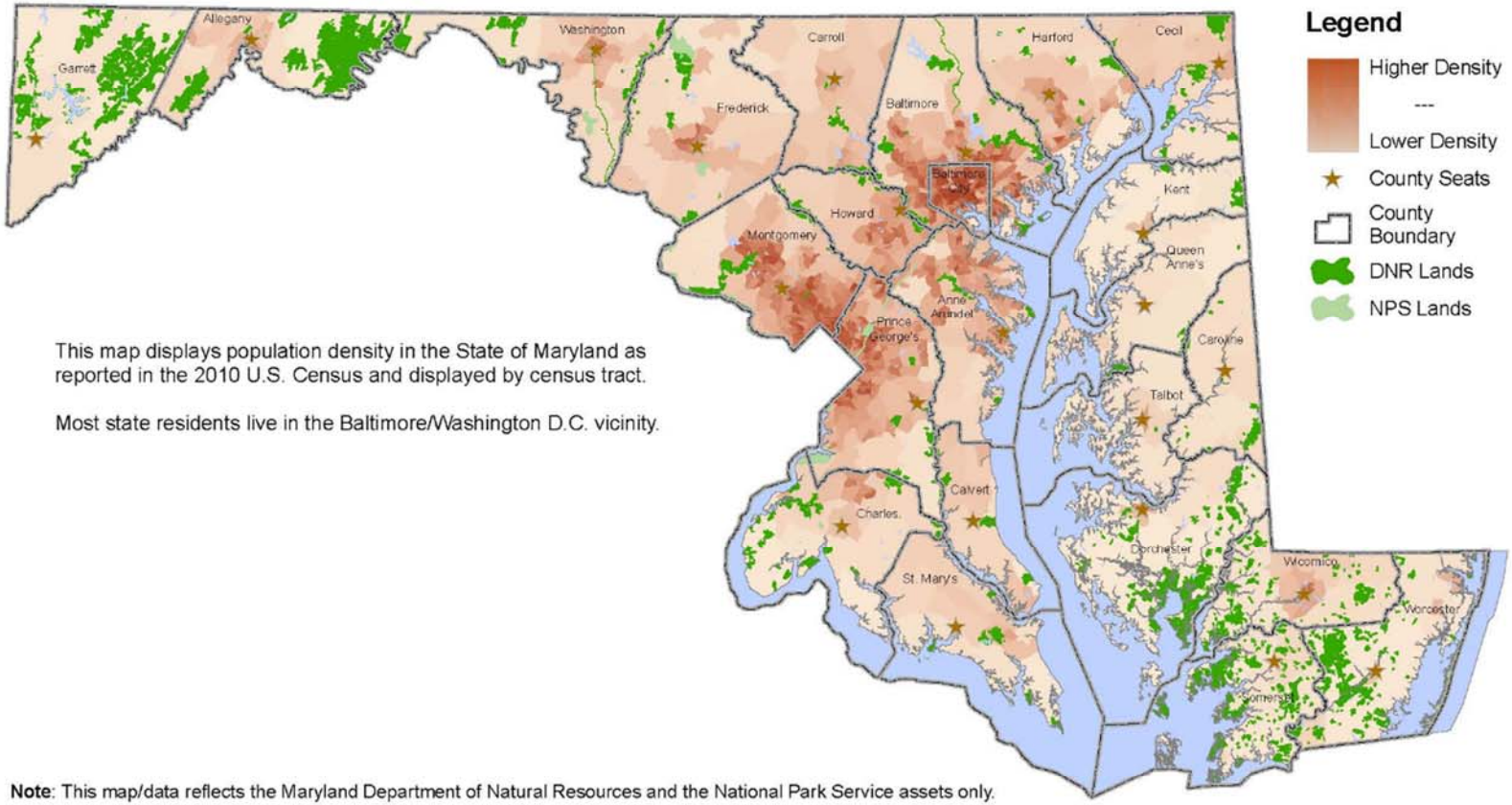
Regional inventory resource maps provided a detailed reference showing the distribution of different types of publicly accessible DNR and NPS natural and water based resources. These include state parks, wildlife management areas, state forests, National Park Service properties, and other DNR assets.

Map 2: Resource Map F: State Population Density

Maryland Department of Natural Resources: Land Preservation and Recreation Plan

Resource Map F: State Population Density

Connecting People and Places



This map displays population density in the State of Maryland as reported in the 2010 U.S. Census and displayed by census tract.

Most state residents live in the Baltimore/Washington D.C. vicinity.

Note: This map/data reflects the Maryland Department of Natural Resources and the National Park Service assets only.

GRASP

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Map Product for MD Dept. of Natural Resources by The GRASP® Team
This map is intended for planning and discussion only.
Please refer to the project document for map details.
GIS sources may include: MD Dept. of Natural Resources, ESRI, GRASP® Team
DNR November 2013

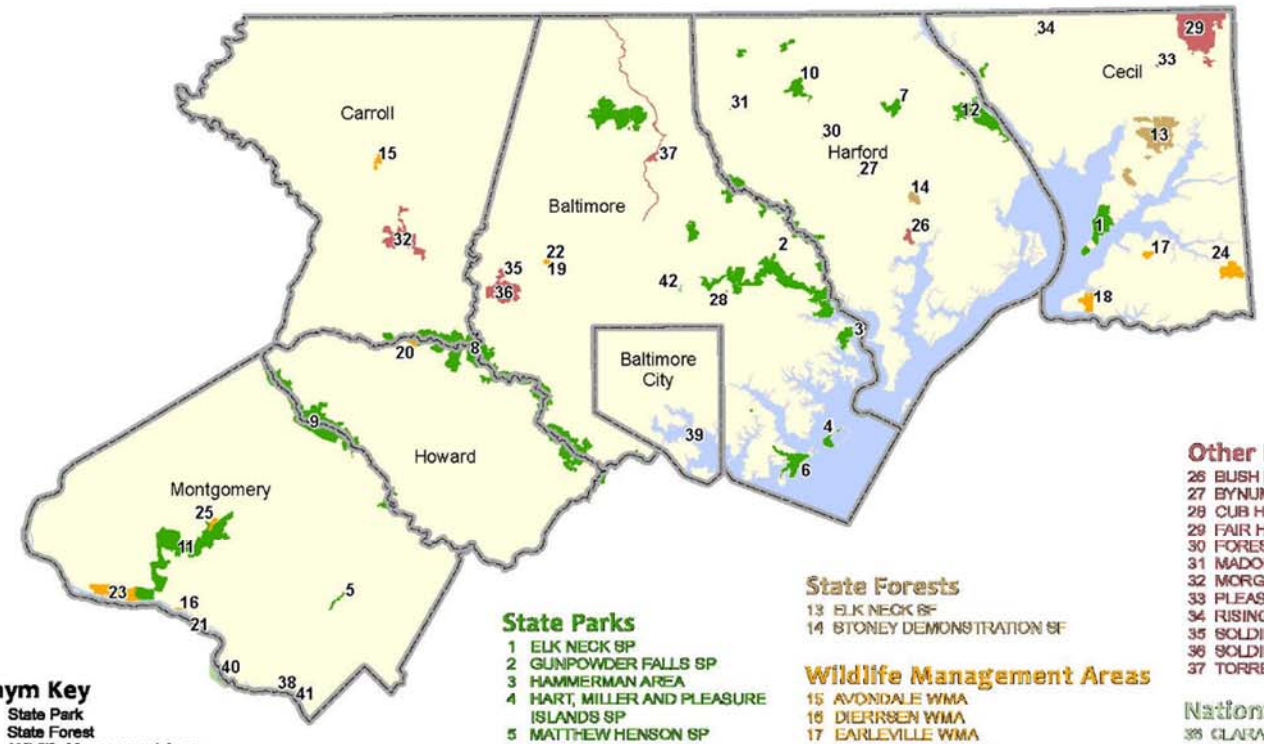
0 5 10 20 30 40 Miles

N W E S

Map 3: Resource Map B: Central Region Inventory

Maryland Department of Natural Resources: Land Preservation and Recreation Plan

Resource Map B: Central Region Inventory



Note: This map/data reflects the Maryland Department of Natural Resources and the National Park Service assets only.

Acronym Key

SP	State Park
SF	State Forest
WMA	Wildlife Management Area
HCF	Heritage Conservation Fund Site
NEA	Natural Environment Area
NRMA	Natural Resource Management Area
FMA	Fish Management Area
FT	Fire Tower
MPT	Marine Police Terminal

State Parks

1 ELK NECK SP
2 GUNPOWDER FALLS SP
3 HAMMERMAN AREA
4 HART, MILLER AND PLEASURE ISLANDS SP
5 MATTHEW HENSON SP
6 NORTH POINT SP
7 PALMER SP
8 PATAPSCO VALLEY SP
9 PATUXENT RIVER SP
10 ROCKS SP
11 SENECA CREEK SP
12 SUSQUEHANNA SP

State Forests

13 ELK NECK SF
14 STONEY DEMONSTRATION SF

Wildlife Management Areas

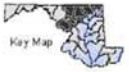
15 AVONDALE WMA
16 DIERKSEN WMA
17 EARLEVILLE WMA
18 GROVE FARM WMA
19 GWYNNBROOK WMA
20 HUGG-THOMAS WMA
22 L-1 MPT
23 MCKEE BESHERS WMA
24 OLD BOHEMIA WMA
25 STRIDER WMA

Other DNR Assets

26 BUSH DECLARATION NRMA
27 BYNUM RUN POND FMA
28 CUB HILL FT
29 FAIR HILL NRMA
30 FOREST HILL LAKE FMA
31 MADONNA FT
32 MORGAN RUN NEA
33 PLEASANT HILL FT
34 RISING SUN POND FMA
35 SOLDIERS DELIGHT HCF
36 SOLDIERS DELIGHT NEA
37 TORREY C BROWN RAIL TRAIL

National Park Service

38 CLARA BARTON NATIONAL HISTORIC SITE
39 FORT MCHENRY NATIONAL MONUMENT AND HISTORIC SHRINE
40 GEORGE WASHINGTON MEMORIAL PARKWAY
41 GLEN ECHO PARK
42 HAMPTON NATIONAL HISTORIC SITE

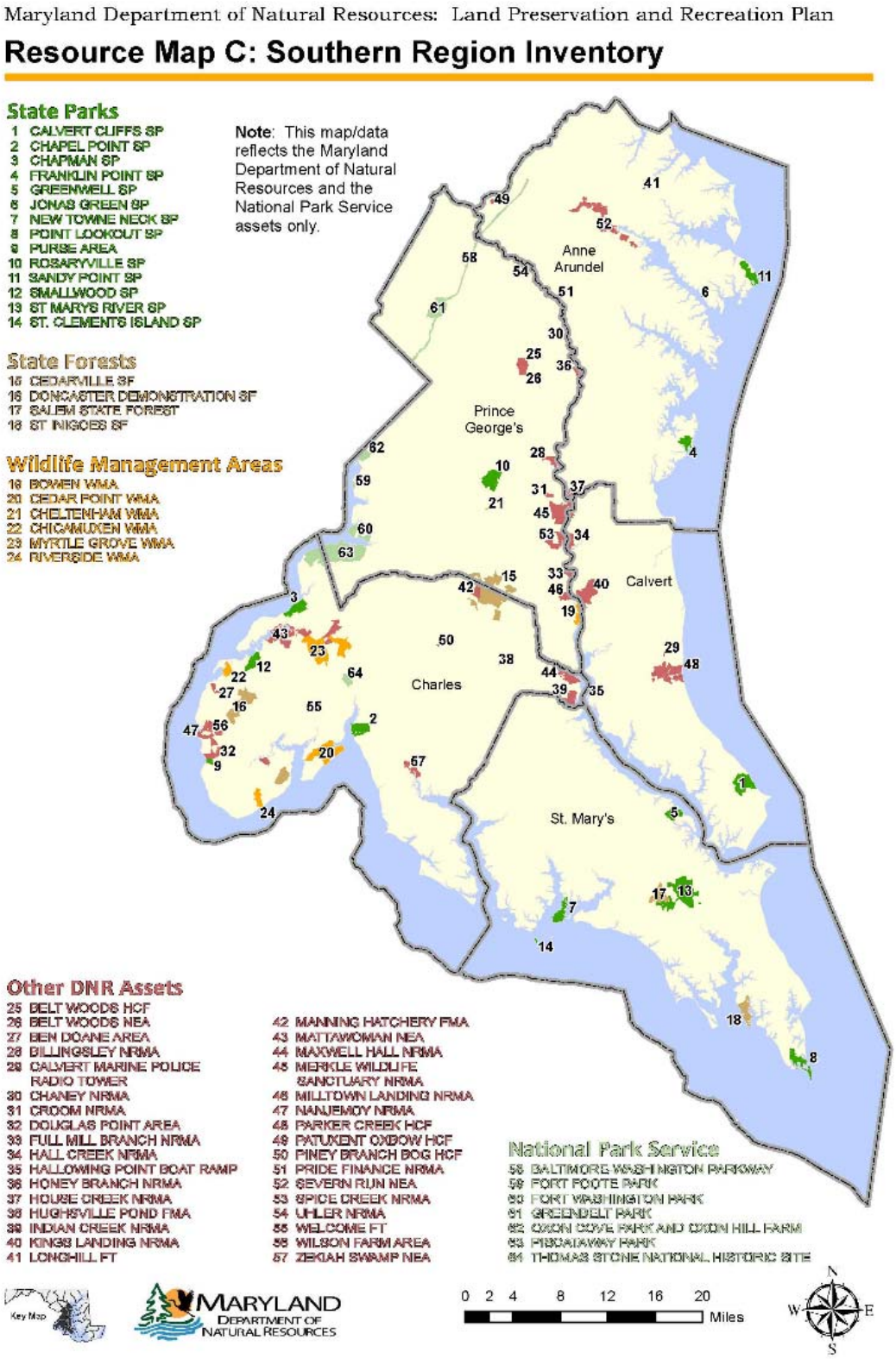


MARYLAND DEPARTMENT OF NATURAL RESOURCES

0 2 4 8 12 16 20 Miles

N W E S

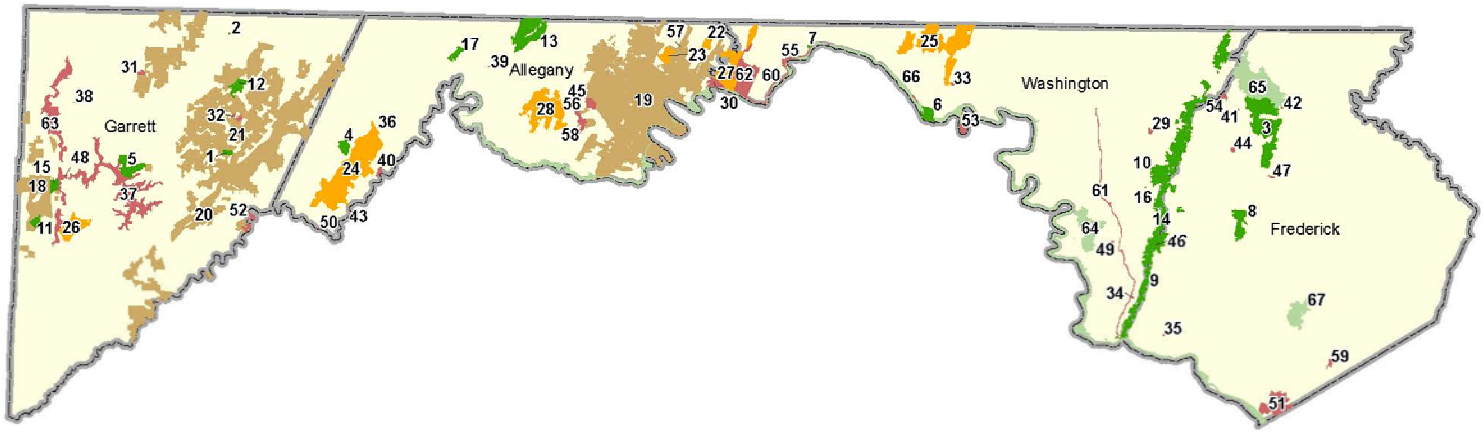
Map 4: Resource Map C: Southern Region Inventory



Map 5: Resource Map D: Western Region Inventory

Maryland Department of Natural Resources: Land Preservation and Recreation Plan

Resource Map D: Western Region Inventory



State Parks

1 BIG RUN SP
2 CASSELMAN BRIDGE SP
3 CUNNINGHAM FALLS SP
4 DANS MOUNTAIN SP
5 DEEP CREEK LAKE SP
6 FORT FREDERICK SP
7 FORT TONOLOWAY SP
8 GAMBRILL SP
9 GATHLAND SP
10 GREENBRIER SP
11 HERRINGTON MANOR SP
12 NEW GERMANY SP
13 ROCKY GAP SP
14 SOUTH MOUNTAIN SP
15 SWALLOW FALLS SP
16 WASHINGTON MONUMENT SP
17 WILLS MOUNTAIN SP

State Forests

18 GARRETT SF
19 GREEN RIDGE SF
20 POTOMAC SF
21 SAVAGE RIVER SF

Wildlife Management Areas

22 BELLE GROVE WMA
23 BILLMEYER WMA
24 DANS MOUNTAIN WMA
25 INDIAN SPRINGS WMA
26 MT. NEBO WMA
27 SIDELING HILL WMA
28 WARRIOR MOUNTAIN WMA

Other DNR Assets

29 A.M. POWELL HATCHERY FMA
30 AARON STRAUS HCF
31 BEAR CREEK HATCHERY FMA
32 BEAR PEN HEADWATERS HCF
33 BOYD MOUNTAIN POND HCF
34 BROWNSVILLE POND FMA
35 BRUNSWICK POND FMA
36 DANS ROCK FT
37 DEEP CREEK LAKE NRMA
38 ELDER HILL FT
39 EVITTS CREEK POND FMA
40 FORT HILL HCF
41 FOXVILLE LOOKOUT TOWER
42 FRANK BENTZ POND FMA
43 GARY A YODER FMA
44 GRAVEL HILL SWAMP HCF
45 HANGING PRAIRIE SHALE BARREN HCF
46 LAMBS KNOLL FT
47 LEWISTOWN HATCHERY FMA
48 LOWER DEEP CREEK HCF
49 MCCLELLANS LOOKOUT FT
50 MCCOOLE FMA
51 MONOCACY NRMA
52 NORTH BRANCH POTOMAC FMA
53 PRATHERS NECK HCF
54 RIDENOUR SWAMP HCF
55 ROUND TOP HILL HCF
56 SUGAR HOLLOW HCF
57 TOWN HILL FT
58 TURKEY CAMP SHALE BARREN HCF
59 URBANA LAKE FMA
60 WESTERN MARYLAND RAIL TRAIL
61 WEVERTON ROXBURY CORRIDOR RAIL TRAIL
62 WOODMONT NRMA
63 YOUGHIOGHENY RIVER NEA

Note: This map/data reflects the Maryland Department of Natural Resources and the National Park Service assets only.

National Park Service

64 ANTIETAM NATIONAL BATTLEFIELD
65 CATOCTIN MOUNTAIN PARK
66 CHESAPEAKE AND OHIO CANAL NATIONAL HISTORICAL PARK
67 MONOCACY NATIONAL BATTLEFIELD

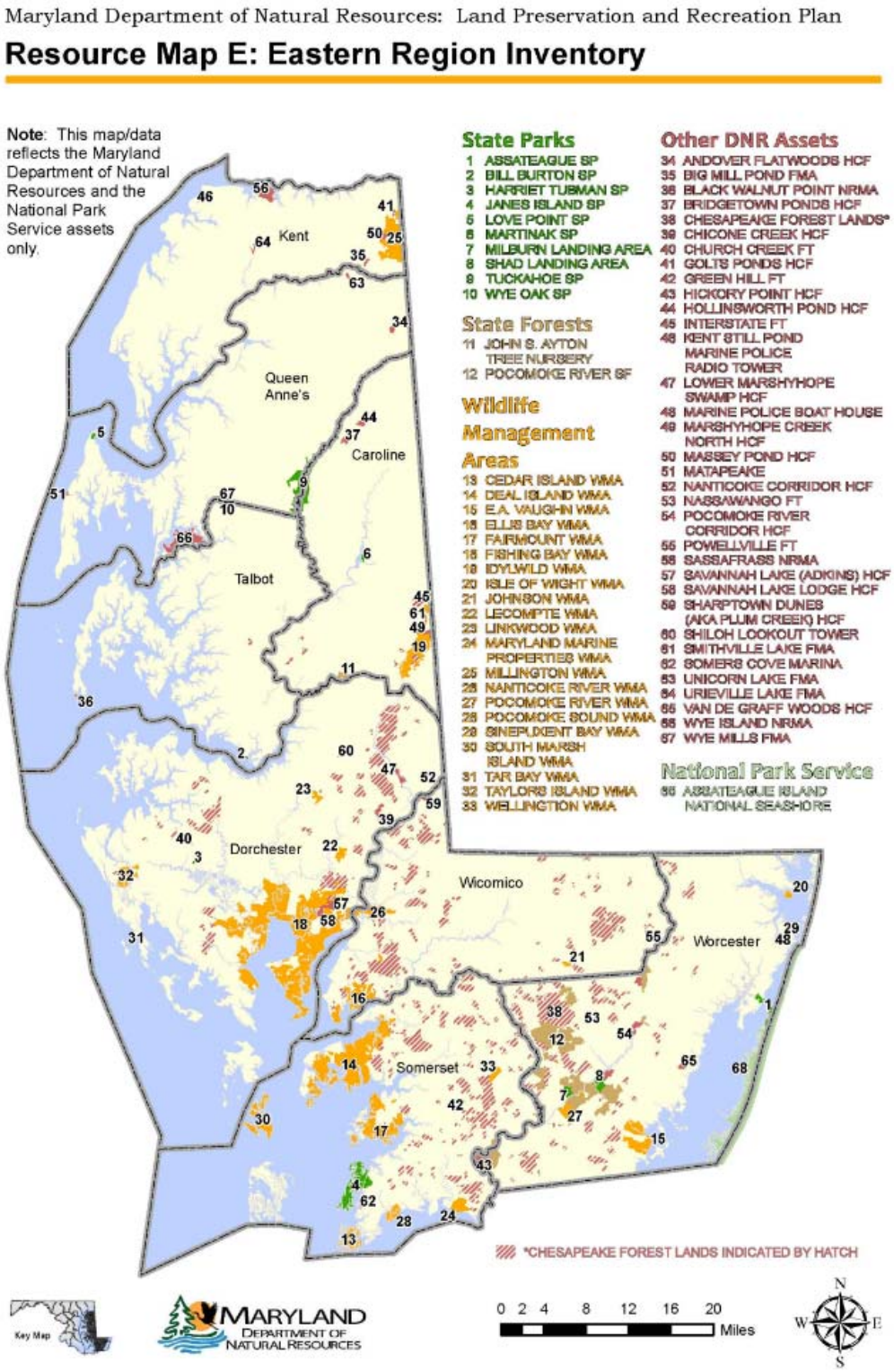
Key Map

MARYLAND DEPARTMENT OF NATURAL RESOURCES

0 2 4 8 12 16 20 Miles

N W E S

Map 6: Resource Map E: Eastern Region Inventory



E. Perspective Maps (Analytical)

The perspective maps produced for the ***Maryland Land Preservation and Recreation Plan*** yield valuable information regarding supply and demand for outdoor recreation in the state. These maps only reflect the inventory included in the ***Maryland Land Preservation and Recreation Plan***, which is limited to DNR and National Park Service (NPS) assets. Thus, the results of these map analyses are limited. ***Any indicated service gaps may in fact be served by counties, municipalities, districts, non-public facilities, or private providers.***

For the purposes of this study, the following terms are used:

- "Level of service" refers to proximity to greater or fewer focus amenities within five mile proximity.
- "Higher level of service" refers to more proximate amenities
- "Lower level of service" refers to fewer proximate amenities.
- "Gaps in service" or "unserved areas" refer to an absence of at least one location with such amenities within five miles. Such service gaps are highlighted by a red dotted line on the associated map graphic.

Most perspective map layouts actually include two maps. One displays the results of a proximity analysis, such as proximity to hiking trails or picnic tables. A smaller inset map is also included to show level of participation in a related activity, such as walking or picnicking, by county. Taken together, these two maps are intended to provide an understanding of both supply and demand of outdoor recreation in the state of Maryland.

Proximity analysis maps display five-mile proximity to an amenity or set of outdoor recreation amenities at DNR or NPS sites. The following key was used to illustrate proximity data on Perspective maps:

- ***Gray*** shaded areas indicate that such amenities or resources are not available within five miles of a location. It is important to note these areas as gaps in service.
- ***Light orange*** tones show that a given amenity or set of amenities is available in at least one location within five miles.
- ***Deeper orange*** tones indicate that more instances of such amenities are available.

Inset participation maps display the level of survey respondent participation in an activity by county. The percentage of county respondents participating in a given activity is displayed on the map, with lighter or deeper orange shading to represent lesser or greater intensity.

Findings as a result of these analyses focus on areas that are without service or are unserved based on level of participation in an activity. This focus is provided to facilitate future planning to improve levels of service and resource allocation.

"There is a direct link between a lack of exposure to nature and higher rates of attention-deficit disorder, obesity, and depression. In essence, parks and recreation agencies can and are becoming the 'preferred provider' for offering this preventative healthcare."

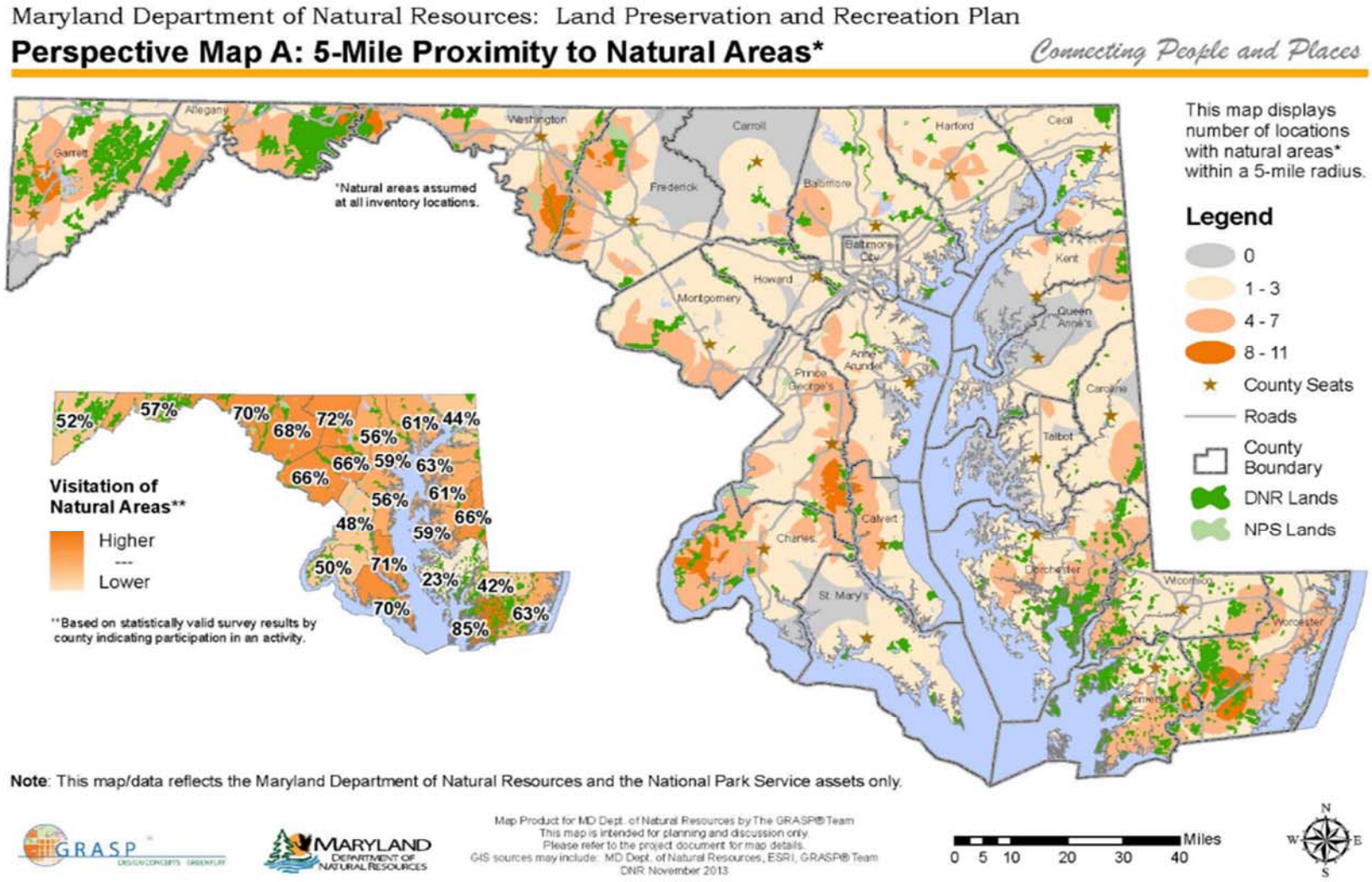
Fran P. Mainella, former Director of the National Park Service & Co-Founder of the U.S. Play Coalition

The following discussion highlights findings for map analyses of natural areas, water access, picnicking, hunting, fishing, hiking, and the statewide network of various trail types.

Perspective Map A: 5-Mile Proximity to Natural Areas

For the purposes of this analysis, all locations included in the inventory were assumed to have associated natural areas. Upon comparison with the level of visitation to natural areas by county, notable gaps in service emerge in north Carroll County, East Frederick County, north St. Mary's County, Kent County, Queen Anne's County, and Talbot County. At least two-thirds of survey respondents in these counties report visitation of natural areas as a common outdoor recreation activity. As no existing inventory locations fall within these areas, these may be good target areas for future land acquisition.

Map 7: Perspective Map A: Proximity to Natural Areas



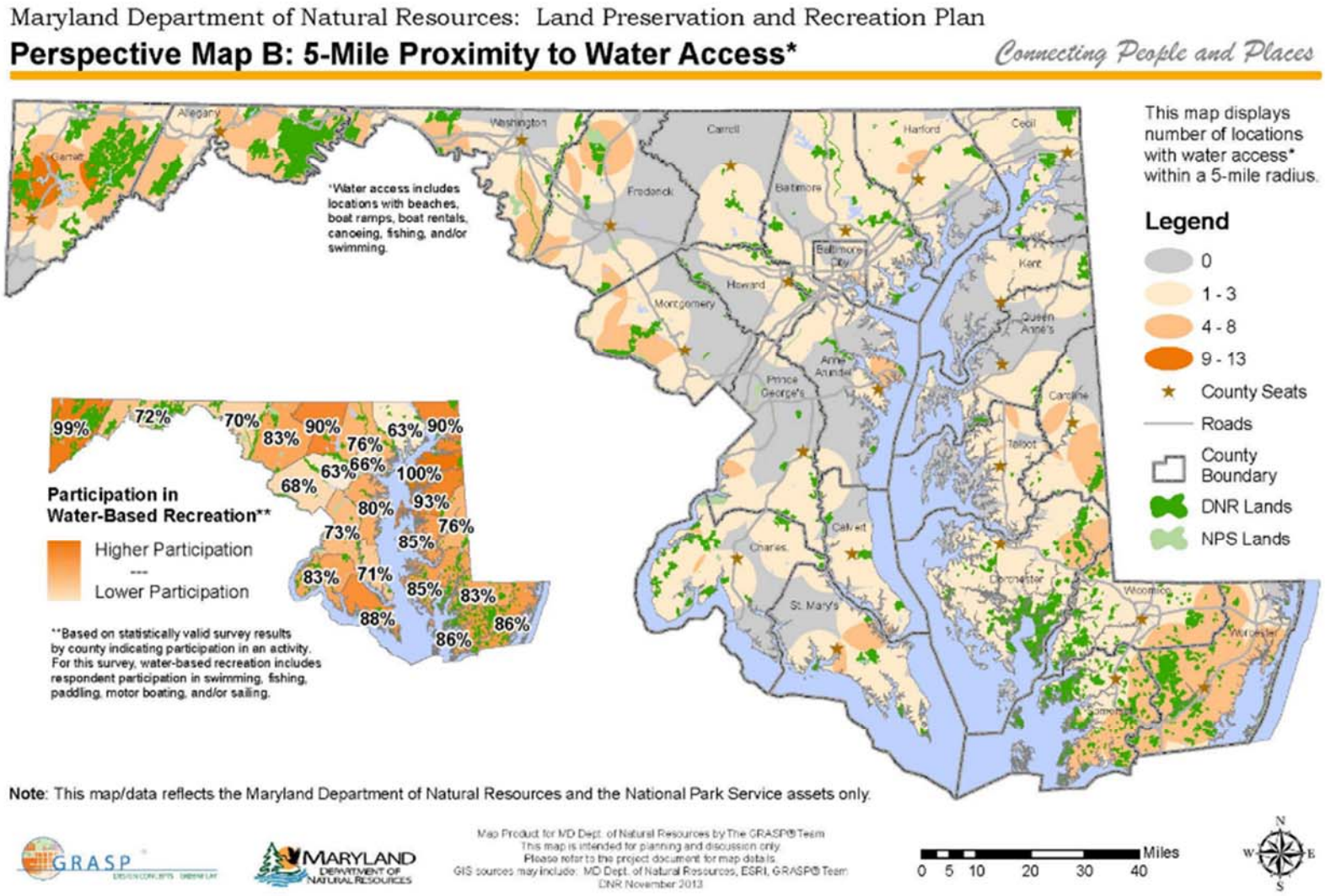
Perspective Map B: 5-Mile Proximity to Water Access

The water access analysis included locations with beaches, boat ramps, boat rentals, canoeing, fishing, and/or swimming. Survey respondent participation in one or more of the following activities was used in the creation of this map: swimming, fishing, paddling, motor boating, and/or sailing.

The most outstanding gap in service exists as a contiguous band from Chesapeake Bay to the state border with Pennsylvania and extending to the City of Baltimore. This area with lesser proximity to water access includes seven counties in which at least two-thirds of respondents participate in outdoor water recreation in most counties. It is notable that this unserved area includes some of the highest population densities in the state. Unserved areas may be served by other outdoor recreation providers such as counties, municipalities and private providers.

Some opportunity does exist to enhance outdoor water recreation in this area. Patuxent River State Park currently reports no water based recreation. Fishing or canoeing could potentially be made available at this location which runs the length of much of the unserved area and could fill part of this service gap. Bay and freshwater access could be provided at Franklin Point State Park or Severn Run Natural Environmental Area, both of which are currently undeveloped. Additionally, the expansive Patapsco Valley State Park is adjacent to much of this service gap area. There may be opportunities to further enhance this resource to better serve nearby residents. Unserved parts of Frederick and Carroll counties may be best addressed through future land acquisitions, as no inventory locations currently exist in those areas.

Map 8: Perspective Map B: Proximity to Water Access



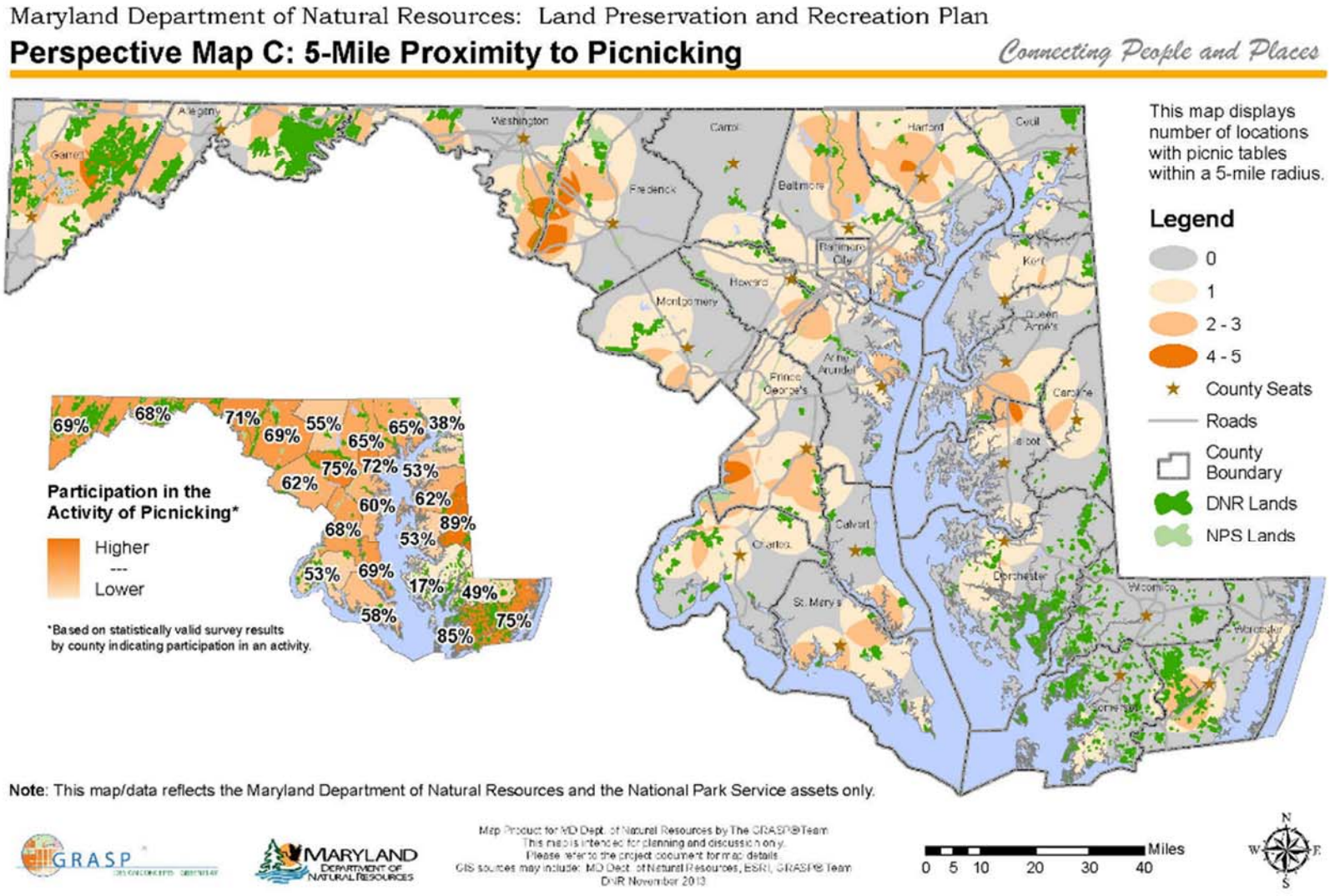
Perspective Map C: 5-Mile Proximity to Picnicking

This analysis focused on all inventory locations with at least one picnic table. Comparison with the mapped survey results for participation may reveal a relationship in many counties between picnicking activity and proximity to an inventory location with a picnic area. This is not consistently true in all areas of the State.

Based on the inventory analysis, extensive gaps in service for picnicking facilities managed by DNR or NPS exist in every county in the State of Maryland. However, these unserved areas are likely to be served by other providers, such as city and county governments. Further, some locations may not be suitable for picnic areas due to environmental sensitivity, or they may be too remote for adequate maintenance or a consistent level of public use. These and other factors likely contribute to the wide gap in picnic facilities.

While certain areas of higher population density do show some level of service for picnicking, others could be enhanced. As noted in ***Chapter 6: Recommendations and Actions***, a more complete data set to include alternative providers such as counties and municipalities is needed for greater clarity.

Map 9: Perspective Map C: Proximity to Picnicking

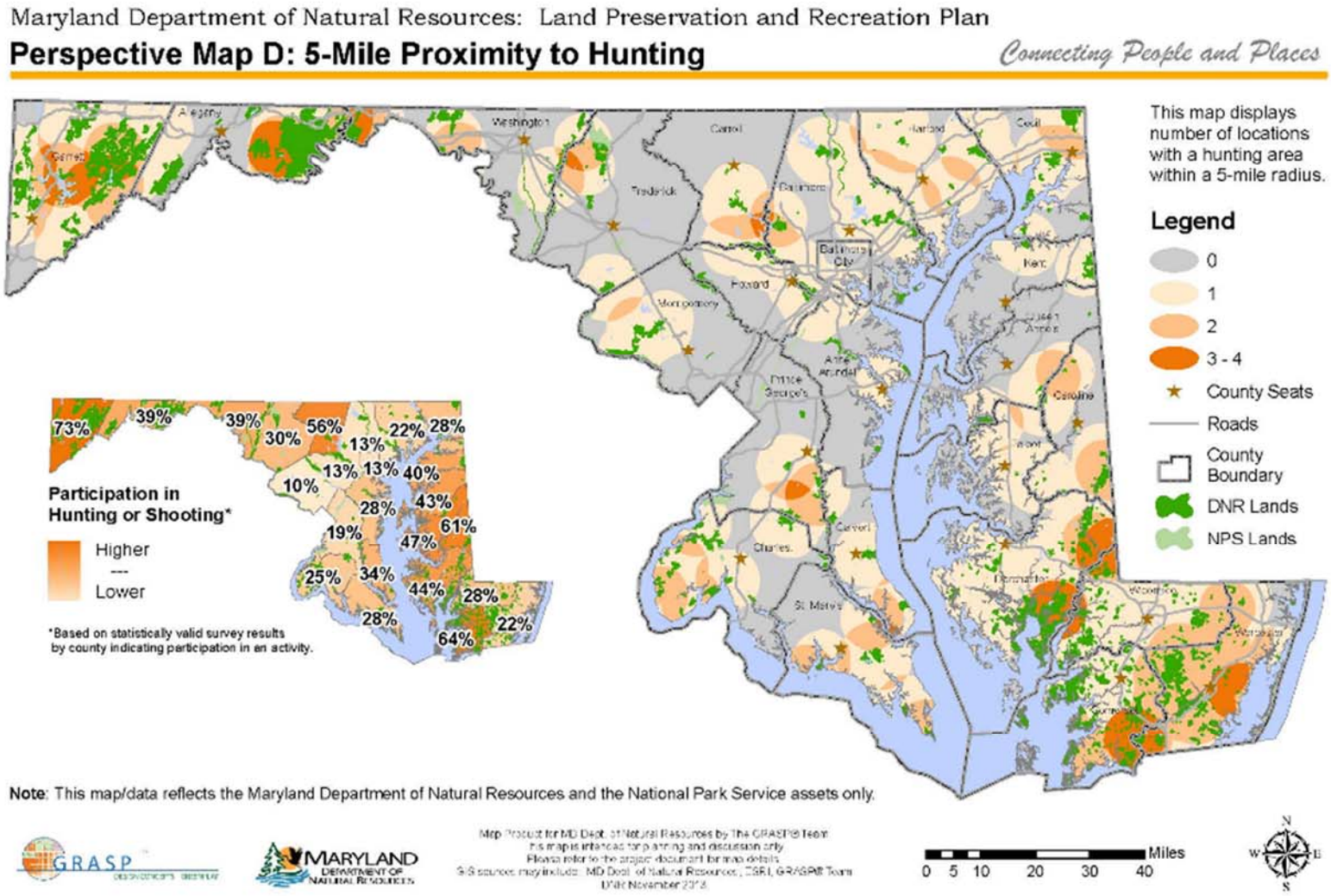


Perspective Map D: 5-Mile Proximity to Hunting

Participation in hunting or shooting is variable between Maryland counties, and ranges from as low as 10 percent of respondents to as high as 73 percent. Counties with higher participation tend to have the best proximity to more locations that allow hunting. These counties also tend to have lower population density.

It may not be desirable to fill gaps in service in more densely populated areas, as doing so could create a public safety hazard. Findings seem to indicate that the highest level of service for hunting is provided in the parts of the state where Marylanders most commonly participate in hunting and shooting sports. As such, hunting resources in the state appear to be adequate in terms of supply and demand.

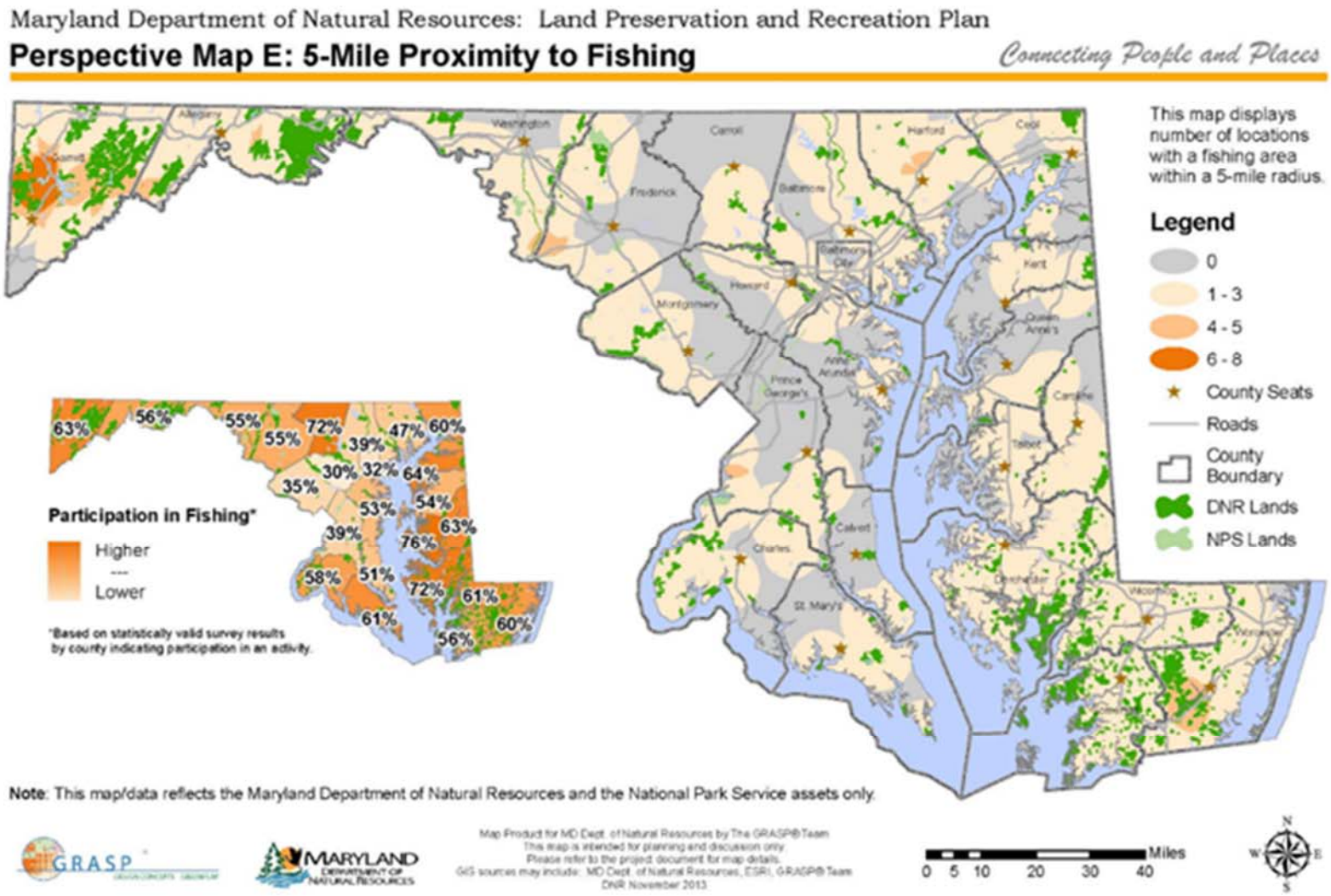
Map 10: Perspective Map D: Proximity to Hunting



Perspective Map E: 5-Mile Proximity to Fishing

Level of service for fishing is higher in less densely populated areas. Comparison of levels of participation by county with proximity to inventory locations with fishing shows that fishing is a well distributed amenity statewide. Notable gaps in service exist in more highly populated areas around Baltimore and on the outskirts of Washington D.C. If opportunity exists to develop fishing amenities at Patuxent River State Park or Severn Run Natural Environmental Area such gaps could be minimized. Additional fishing amenities at the undeveloped Franklin Point State Park or at any of several Natural Resource Management Areas along the Patuxent River watershed would also serve this purpose.

Map 11: Perspective Map E: Proximity to Fishing

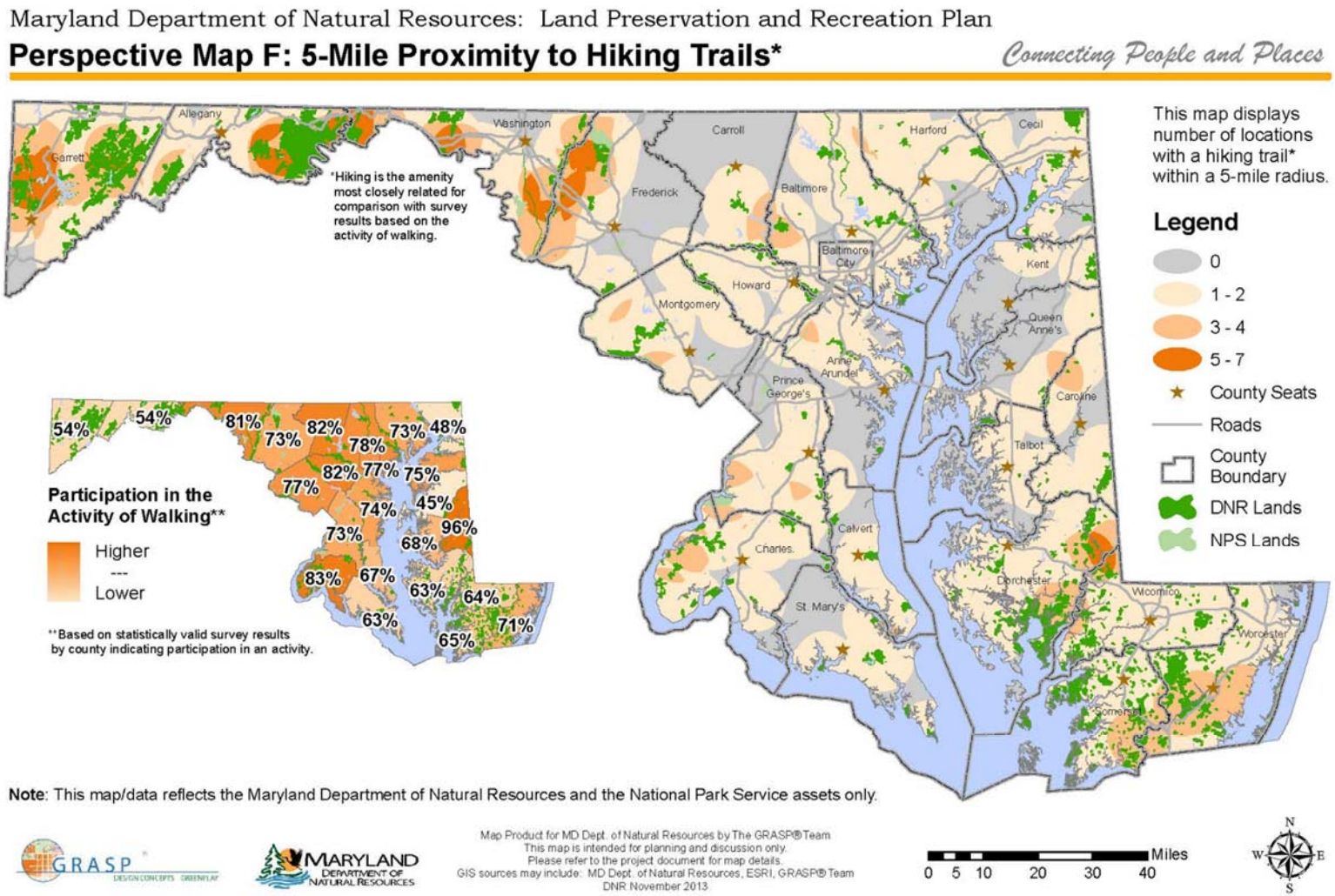


Perspective Map F: 5-Mile Proximity to Hiking Trails

This Perspective highlights walking as the top participation activity among respondents in the statistically-valid survey. Three quarters (75%) of all respondents statewide indicated participation in the activity of walking, more than for any other activity mentioned. Though walking can be undertaken in a variety of contexts it is compared here with proximity to inventory locations with hiking trails. As a low cost, low impact activity walking is widely recognized to be highly beneficial for health and well-being for persons of all ages and may serve as an introductory activity to first time users of DNR lands. Level of service for hiking trails may have particular significance for this reason.

By county, participation in walking ranges from 54 percent to 96 percent of survey respondents. Of those counties with two-thirds or more of respondents indicating walking as a chosen activity, most show good proximity to locations with hiking trails. Notable gaps in service exist in highly populated areas of Baltimore City and outside Washington D.C. As hiking typically requires a natural or naturalized area, it is not surprising that such resources under DNR or NPS ownership are somewhat absent. Opportunity to improve level of hiking service to these greater metropolitan populations may be limited due to the densely populated nature of these areas. One existing inventory location within this service gap where hiking could be developed is Matthew Henson State Park, where a trail amenity is nearly complete. Additional land acquisition may be necessary to further improve proximity to hiking amenities for residents of these areas. A closer look at hiking trails provided by counties, municipalities and other providers would provider a greater understanding of the true gaps in service for hiking in densely developed areas.

Map 12: Perspective Map F: Proximity to Hiking Trails



Perspective Map G: 5-Mile Proximity to All Trails

This map displays proximity to locations with hiking, bicycling, mountain bicycling, and/or equestrian trails. Gaps in service for all trails are much the same as those for the hiking trails analysis, and are particularly notable in Baltimore City and around Washington D.C. As few DNR assets exist in these highly populated parts of the state, an examination of alternative providers and potential for additional land acquisition may be warranted to improve level of service in these areas.

Additionally, this map displays "unserved communities" as identified in the 2010 *Strategic Trail Implementation Plan* produced for the Maryland Department of Transportation (MDOT). This plan examines the state network of transportation trails and provides a planning approach and vision for the future. The focus of this MDOT plan was the use of trails for the purpose of transportation, as distinguished from recreational use. Display of this data on this map is intended for reference in consideration of a greater and more integrated statewide network of recreation and transportation trails.

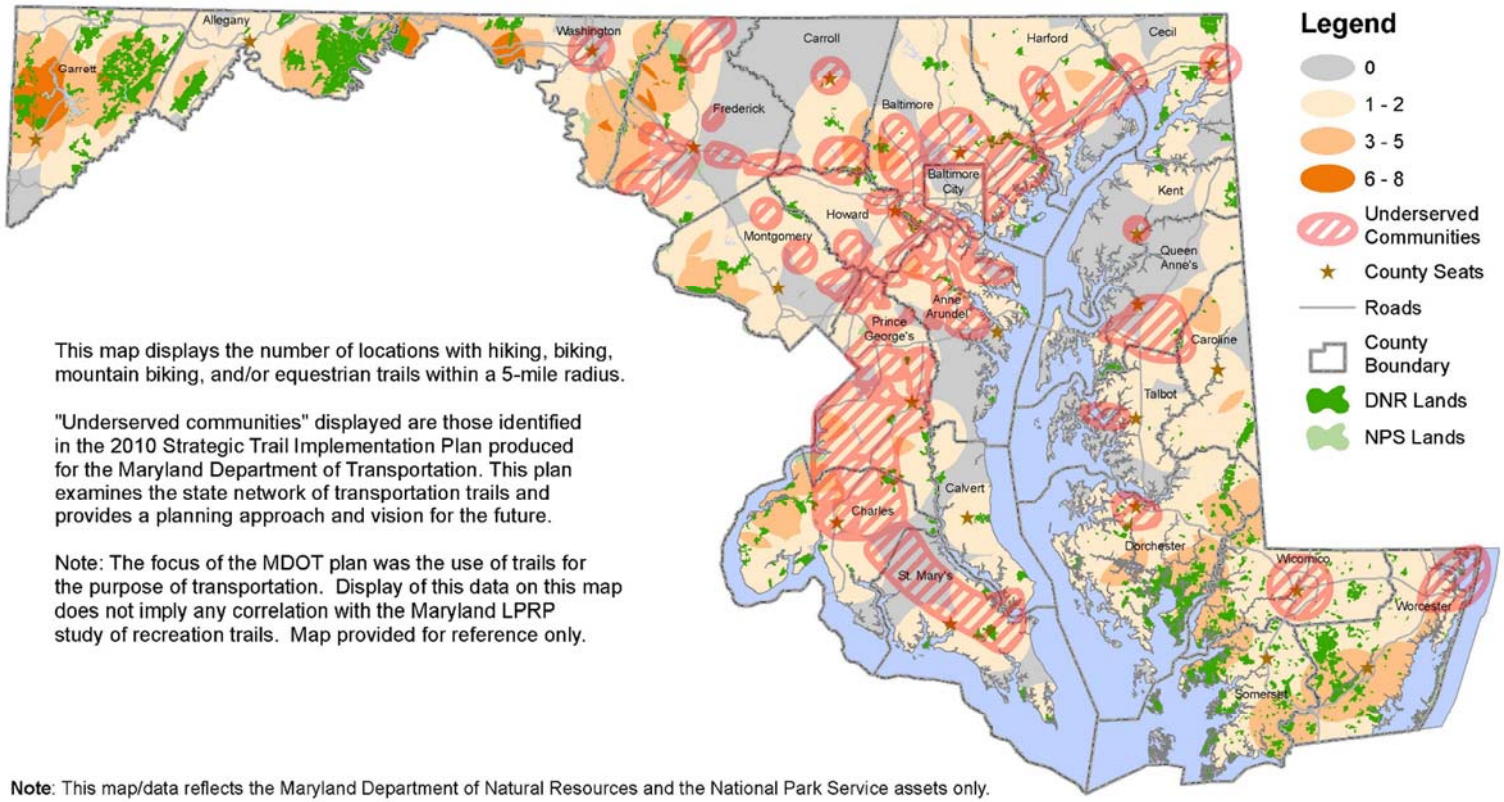
One notable finding is the extent to which areas unserved by transportation trails, as indicated in the MDOT study, seem to be relatively well served by recreational trails. Most areas unserved by transportation trails are within five miles of at least one (and as many as five) locations with some type of recreational trail. This might be interpreted to indicate the possibility of such recreational trails supplementing the existing transportation trail network under certain circumstances. It may not be realistic to expect such expanded functionality for all recreational trails with proximity to a gap in transportation trail service. However, the complementarity of the two trail systems is worth noting, as instances may exist for recreation trails to adequately serve this transportation trail function.
There may be opportunity as well for transportation trails to supplement the DNR and NPS recreation trails included in this inventory and analysis. Future discussion between Maryland DNR and MDOT may be useful in determining a vision and strategies to enhance trail connectivity for Maryland residents.

Map 13: Perspective Map G: Proximity to All Trails

Maryland Department of Natural Resources: Land Preservation and Recreation Plan

Perspective Map G: 5-Mile Proximity to All Trails

Connecting People and Places



This map displays the number of locations with hiking, biking, mountain biking, and/or equestrian trails within a 5-mile radius.

"Underserved communities" displayed are those identified in the 2010 Strategic Trail Implementation Plan produced for the Maryland Department of Transportation. This plan examines the state network of transportation trails and provides a planning approach and vision for the future.

Note: The focus of the MDOT plan was the use of trails for the purpose of transportation. Display of this data on this map does not imply any correlation with the Maryland LPRP study of recreation trails. Map provided for reference only.

Note: This map/data reflects the Maryland Department of Natural Resources and the National Park Service assets only.

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MARYLAND DEPARTMENT OF NATURAL RESOURCES

Map Product for MD Dept. of Natural Resources by The GRASP® Team
This map is intended for planning and discussion only.
Please refer to the project document for map details.
GIS sources may include: MD Dept. of Natural Resources, ESRI, GRASP® Team
DNR November 2013

0 5 10 20 30 40 Miles

N W E S

F. General Recommendations Based on Findings

Several general recommendations emerge from level of service analysis for the ***Maryland Land Preservation and Recreation Plan***. The most outstanding of these is the need for coordination of recreation system data among various providers in the State of Maryland. Level of service gaps indicated in this study by proximity analysis are limited to DNR and NPS public lands only. "Unserved" areas are likely to be served by other outdoor recreation providers such as counties, municipalities, and private providers.

Inventory data from these and other providers is needed to paint a complete picture of recreational assets in the State. It is hoped that the LPRP process may provide an impetus for sharing of such data among various entities and between different levels of government. The data set compiled for this plan may serve as the basis for future data gathering and analysis.

Another limiting factor of this study is the fact that proximity to a given amenity was measured by the property boundary rather than the distance to the amenity being analyzed. Provided that more refined geospatial data for amenities becomes available, future analysis could focus on proximity to the actual location of an amenity rather than the property boundary of the amenity.

In the future, it may be more realistic to expect this refined level of data collection and analysis only for specific types of amenities. For example, an analysis of proximity to trailheads or park entries for county and municipal trail systems combined with DNR and NPS sites might prove particularly useful, as these access points could serve to connect users to a coordinated system of amenities.

In general, the significance of any service gaps identified by this analysis must be assessed individually. Several unserved areas stand out as lacking five-mile proximity to outdoor recreation locations as included in the inventory for this study. This suggests that further examination is necessary on a case by case basis to determine need for service in these areas. Unserved areas may be served by other outdoor recreation providers such as counties, municipalities and private providers. These unserved parts of the state are currently without any existing DNR assets, so further land acquisition would be necessary to improve level of service, at least based on a five mile proximity. However, it may be acceptable for unserved residents of these areas to expect a longer travel time to reach an outdoor recreation location. This may be particularly true, as these areas have a low population density relative to other parts of the state; thus, fewer residents affected by service gaps. Such areas may also be served by alternative providers, but this data is currently unavailable.