

Appendix H: Supplemental Information, Level of Service Analysis

- **GRASP® Standards**
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Commonly Referenced LOS Capacity “Standards”

Activity/ Facility	Recommended Space Requirements	Service Radius and Location Notes	Number of Units per Population
Baseball Official Little League	3.0 to 3.85 acre minimum 1.2 acre minimum	¼ to ½ mile Unlighted part of neighborhood complex; lighted fields part of community complex	1 per 5,000; lighted 1 per 30,000
Basketball Youth High school	2,400 – 3,036 vs. 5,040 – 7,280 s.f.	¼ to ½ mile Usually in school, recreation center or church facility; safe walking or bike access; outdoor courts in neighborhood and community parks, plus active recreation areas in other park settings	1 per 5,000
Football	Minimum 1.5 acres	15 – 30 minute travel time Usually part of sports complex in community park or adjacent to school	1 per 20,000
Soccer	1.7 to 2.1 acres	1 to 2 miles Youth soccer on smaller fields adjacent to larger soccer fields or neighborhood parks	1 per 10,000

Activity/ Facility	Recommended Space Requirements	Service Radius and Location Notes	Number of Units per Population
Softball	1.5 to 2.0 acres	¼ to ½ mile May also be used for youth baseball	1 per 5,000 (if also used for youth baseball)
Swimming Pools	Varies on size of pool & amenities; usually ½ to 2-acre site	15 – 30 minutes travel time Pools for general community use should be planned for teaching, competitive & recreational purposes with enough depth (3.4m) to accommodate 1m to 3m diving boards; located in community park or school site	1 per 20,000 (pools should accommodate 3% to 5% of total population at a time)
Tennis	Minimum of 7,200 s.f. single court area (2 acres per complex)	¼ to ½ mile Best in groups of 2 to 4 courts; located in neighborhood community park or near school site	1 court per 2,000
Volleyball	Minimum 4,000 s.f.	½ to 1 mile Usually in school, recreation center or church facility; safe walking or bike access; outdoor courts in neighborhood and community parks, plus active recreation areas in other park settings	1 court per 5,000
Total land Acreage		Various types of parks - mini, neighborhood, community, regional, conservation, etc.	10 acres per 1,000

Sources:

David N. Ammons, *Municipal Benchmarks - Assessing Local Performance and Establishing Community Standards*, 2nd Ed., 2002

Roger A. Lancaster (Ed.), *Recreation, Park and Open Space Standards and Guidelines* (Alexandria, VA: National Recreation and Park Association, 1983), pp. 56-57.

James D. Mertes and James R. Hall, *Park, Recreation, Open Space and Greenways Guidelines*, (Alexandria, VA: National Recreation and Park Association, 1996), pp. 94-103.

Low-Scoring Facilities and Components

Figure 1: Low-Scoring Facilities

Location	Ownership	Mgr.	Class	Inventory Visit Comments	Current Level
117th and Sunnyside Rd	NCPRD	NCPRD	Natural Area	Lacking in design and ambiance, public access or identification signage.	Threshold
Alma Myra Park	NCPRD	NCPRD	Neighborhood Park	Nice neighborhood park that borders underserved area. This park is limited to walkable access due to lack of parking.	Threshold / Underserved
Altamont Park	NCPRD	NCPRD	Neighborhood Park	Nice newer park with parking limited to on-street parking. Area is currently underserved.	Threshold / Underserved
Ann Toni Schreiber Park	NCPRD	NCPRD	Neighborhood Park	Parking lot condition is poor, Parking undersized for size of park, amenities, activities (use). Park is located in an area that is currently underserved.	Threshold
Ardenwald Park	City of Milwaukie	NCPRD	Neighborhood Park	Shelter area also serves as stage. Upgrading with electricity. Summer concerts; parking is provided at school lot across the street. Upgraded electricity.	Threshold
Balfour	City of Milwaukie	NCPRD	Neighborhood Park	Currently undeveloped parcel in residential area.	Underserved
Bunnell Park	Clackamas County	NCPRD	Neighborhood Park	Currently only minimal park development on this parcel.	Underserved
Carver Boat Launch	Clackamas County	Clackamas County Parks	Special Use	Property is beyond district boundary but likely provides important water access to district resident but not necessarily from a walkable distance. Access is by permit or fee and facility is well used and a bit dated. Parking appears a bit limited during peak times.	Underserved
Century Park	City of Milwaukie	NCPRD	Neighborhood Park	Consider year round restroom availability. On-street park may be adequate for this location depending on park usage.	Underserved
Dogwood Park	City of Milwaukie	NCPRD	Neighborhood Park	A relative urban type park setting with available on-street parking. May benefit from a few designated on-street parking stalls.	Threshold
Errol Heights Park	Portland Parks	Portland Parks	Natural Area	Mostly a natural area provided by Portland Parks. It does provide limited level of service to adjacent district residents in a currently underserved area. In addition to a natural area there is also a community garden in this park.	Underserved
Heddie Notz Park	NCPRD	NCPRD	Neighborhood Park	Vehicle access and parking is very limited. Has frontage to SE Strawberry Lane but that appears too busy for parking.	Underserved
Homewood Park	City of Milwaukie	NCPRD	Neighborhood Park	Limited on street parking.	Underserved

Hull Street Open Space	NCPRD	NCPRD	Natural Area	Lacking in design and ambiance, public access or identification signage.	Underserved
James Abel Park Property	NCPRD	NCPRD	Natural Area	Lacking in design and ambiance, public access or identification signage.	Underserved
Johnson Creek Park	Portland Parks	Portland Parks	Neighborhood Park	A Portland Park but is adjacent to the district and may provide limited level of service to some district residents in a currently underserved area.	Underserved
Johnson Creek Property	NCPRD	NCPRD	Community Park	Limited access property adjacent to Springwater trail. Has potential with trail connection.	Threshold
Justice Property	NCPRD	NCPRD	Neighborhood Park	Undeveloped parcel in residential area. Has potential to provide walkable access.	Underserved
McKenna Ridge Connection	City of Happy Valley	City of Happy Valley	Greenway	This is a trail corridor running behind houses, trail is paved. Owned and Maintained by HV. Limited possibilities for additional LOS in generally well served area. Could potentially provide neighborhood trail linkage.	Threshold
North Clackamas Aquatic Park	NCPRD	NCPRD	Special Use	Parking appears to be lacking during peak times. Any additional opportunities here should also include additional parking.	Threshold
Orchard Summit Open Space	NCPRD	NCPRD	Natural Area	Current natural area. Could provide potential level of service with passive recreation opportunities.	Threshold
Pfeifer Park	NCPRD	NCPRD	Neighborhood Park	Provide portable restroom and enclosure.	Threshold
Southern Lites Park	NCPRD	NCPRD	Neighborhood Park	This park is well hidden in a residential neighborhood with limited visibility and access other than by adjacent residents. It does appear to connect to a trail that goes beyond its limits. Additional development as a wayside along this trail and perhaps limited parking as a trailhead?	Threshold
Spring Park	City of Milwaukie	NCPRD	Natural Area	A nice little park and natural area but very limited on street parking. Trails provide access to water.	Threshold
Stanley Park	City of Milwaukie	NCPRD	Neighborhood Park	This property is relatively undeveloped. Provides connection to adjacent school. Could serve as a small neighborhood park with amenities not found at the adjacent school. Shelter, community garden, public art, etc.	Underserved
Swanson Place Open Space	Clackamas County	NCPRD	Natural Area	Natural area adjacent to Hull Street Open Space. Potential for some future passive recreation opportunities.	Underserved
Willamette Drive Open Space	City of Milwaukie	NCPRD	Natural Area	Natural area currently on the edge of an underserved area. Could provide future level of service through passive recreation opportunities.	Threshold/ Underserved

Figure 2: Facilities with Low-Scoring Components

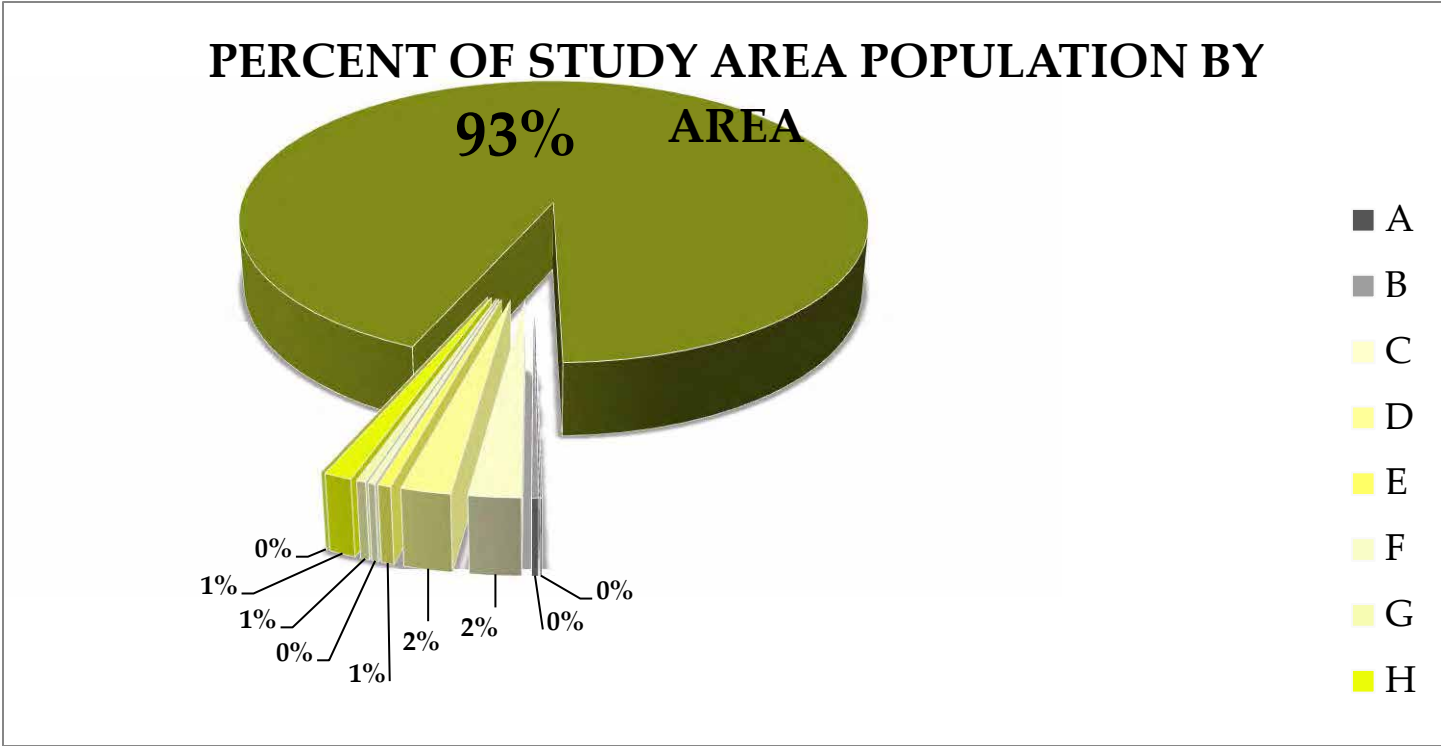
Location	Owner	Mgr.	Class	Low-Scoring Component	Map_ID	Comments
Bunnell Park	Clackamas County	NCPRD	Neighborhood Park	Open Turf	C027	The main feature in this park is open turf but the quality of the turf is below standard.
Happy Valley Park	City of Happy Valley	City of Happy Valley	Community Park	Basketball	C049	Shared court with 4 hoops. Providing court striping would be consistent with other parks in the system.
Happy Valley Park	City of Happy Valley	City of Happy Valley	Community Park	Multi-Purpose Field (Small)	DC17	Shared.
Happy Valley Park	City of Happy Valley	City of Happy Valley	Community Park	Tennis	C043	Courts should be resurfaced to maintain system quality.
Johnson Creek Park	Portland Parks	Portland Parks	Neighborhood Park	Playground, Local	DC100	Playground does not meet NCPRD system quality.
Johnson Creek Property	NCPRD	NCPRD	Community Park	Natural Area	C071	Lacks quality of other NCPRD natural areas.
Justice Property	NCPRD	NCPRD	Neighborhood Park	Natural Area	C072	Lacks quality of other NCPRD natural areas.
Lucille Park	City of Happy Valley	City of Happy Valley	Greenway	Natural Area	C074	Lacks quality of other NCPRD natural areas.
McNary Property	Clackamas County	NCPRD	Natural Area	Natural Area	C075	Lacks quality of other NCPRD natural areas.
Meldrum Bar Park	Gladstone	Gladstone	Community Park	MP Field, Large	DC81	Shared.
Meldrum Bar Park	Gladstone	Gladstone	Community Park	Playground, Local	DC80	Lacks quality of NCPRD playgrounds.
Mill Park	NCPRD	NCPRD	Neighborhood Park	Passive Node	DC901	Overlooks water, benches would be nice.
Milwaukie Riverfront Park	City of Milwaukie	NCPRD	Community Park	Water access, Developed	DC902	Boat ramp erosion issues.
Minthorn North Natural Area	City of Milwaukie	NCPRD	Natural Area	Natural Area	C079	Lacks quality of other NCPRD natural areas.
North Clackamas Park	City of Milwaukie/NCPRD	NCPRD	Community Park	Dog Park	C084	Fencing falls below NCPRD standards.
North Clackamas Park	City of Milwaukie/NCPRD	NCPRD	Community Park	Horseshoes	DC35	Needs repairs.
North Clackamas Park	City of Milwaukie/NCPRD	NCPRD	Community Park	Volleyball	DC33	Needs sand and updating.

Riverside Park and Boat Launch	Clackamas River Water District	Clackamas River Water District	Community Park	Open Turf	DC606	Open turf quality is below standard.
Robert Kronberg Park	City of Milwaukie	NCPRD	Neighborhood Park	Natural Area	C073	Lacks quality of other NCPRD natural areas.
Southern Lites Park	NCPRD	NCPRD	Neighborhood Park	Basketball	HC12	Update and improve court.
Wichita Park	City of Milwaukie	NCPRD	Neighborhood Park	Open Turf	C142	Open turf quality is below standard.

Additional Information: Perspective A

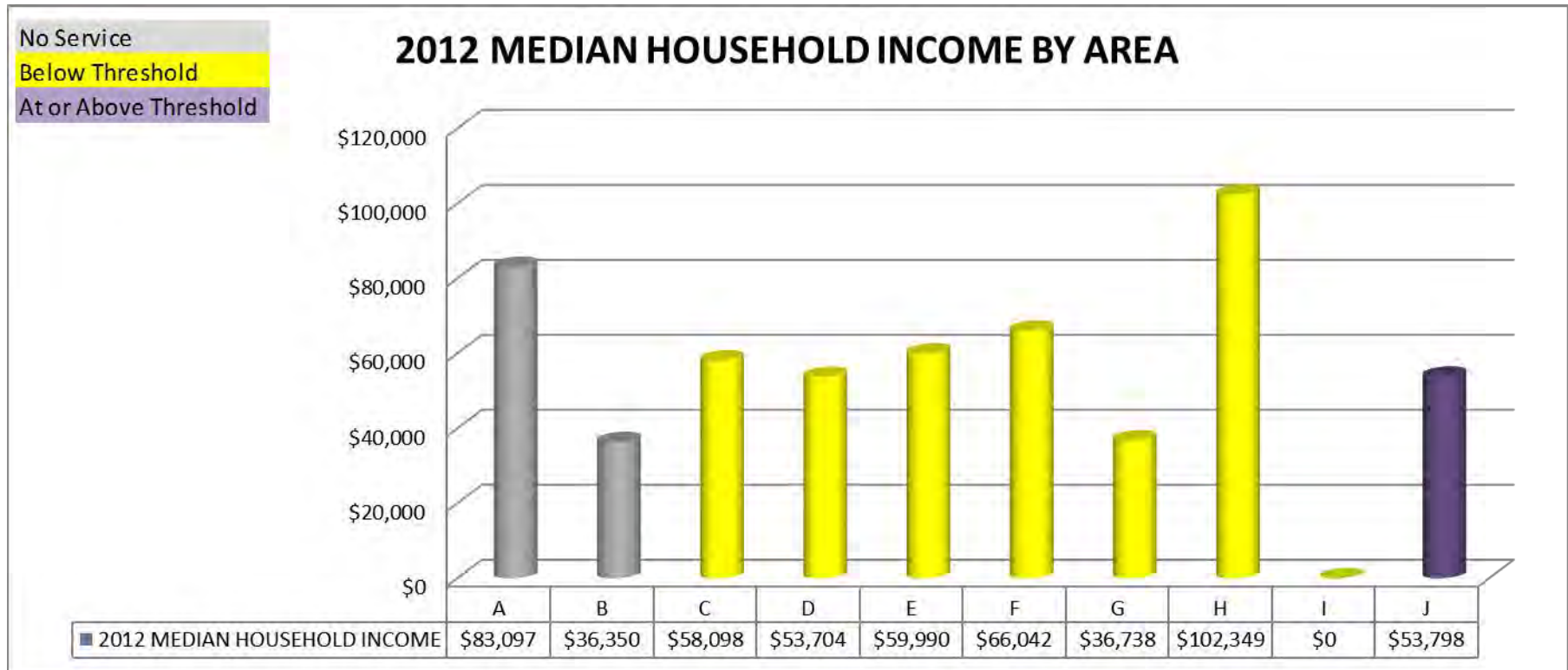
Based on this ESRI analysis, over 93% of the residents of NCPRD live in an area that exceeds the threshold for level of service (Figure 3). The Figure 5 pie chart displays the statistics from inset map PA-1 in a graphic format for easier interpretation. One conclusion here could be that NCPRD is providing an exceptional level of service to users. However, the primary indication here is that 93% of the residents have access to recreation, but that opportunity is highly dependent on access to a motor vehicle or public transportation. Please refer to Perspective A Threshold Analysis PA-1, and Figure 5 for area and color key. There is poor access if you don't have access to a car and have to walk to recreation. Each analysis is a tool and no one analysis should be used to make final decisions.

Figure 3: 2012 Percent of Population for PA-1 GRASP® Threshold Analysis



Additional statistics can also be obtained from this analysis. In *Figure 4* we see the median household income for each of the areas (labeled A-J on inset map PA-1).

Figure 4: 2012 Median Household Income by Area for PA-1 GRASP® Threshold Analysis



It may be important to consider median income of an area when prioritizing future park improvements. In some cases agencies are concerned with social equity and median household income can be one indicator of need. Further investigation may also be necessary to determine the variety in ranges for this chart. For example, it would appear that area “I” which has no current population and \$0 median income is perhaps an industrial area and therefore has no need for access to threshold level of service.

Additional Information: Perspective B

Figure 5 shows the total number of people that live in each area with no current service based on 2012 ESRI BAO estimates. (www.esri.com/ba) Areas "C" and "E" have significantly more residents than the other no service areas. Similarly, if further analysis is done on areas that currently have some level of service but that service is not meeting the threshold we see that areas such as "J" and "U" have a significant number of residents that could be positively impacted by future increases in level of service. And Figure 6 shows the total number of people that live in each area with service below threshold based on the same 2012 ESRI BAO estimates.

Figure 5: 2012 Population by Areas with No Service for PB-1 GRASP® Threshold Analysis

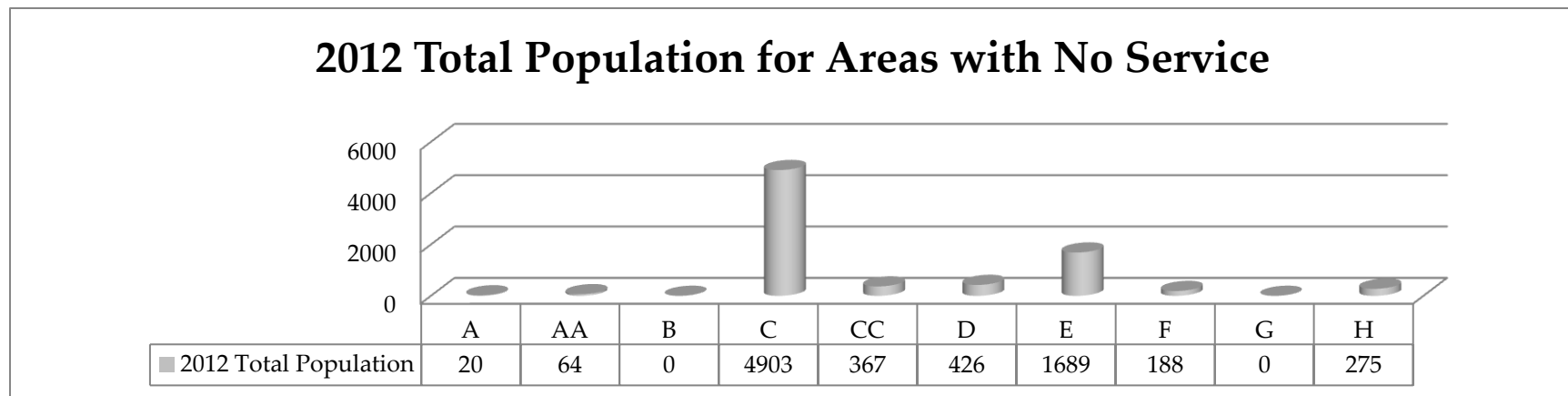
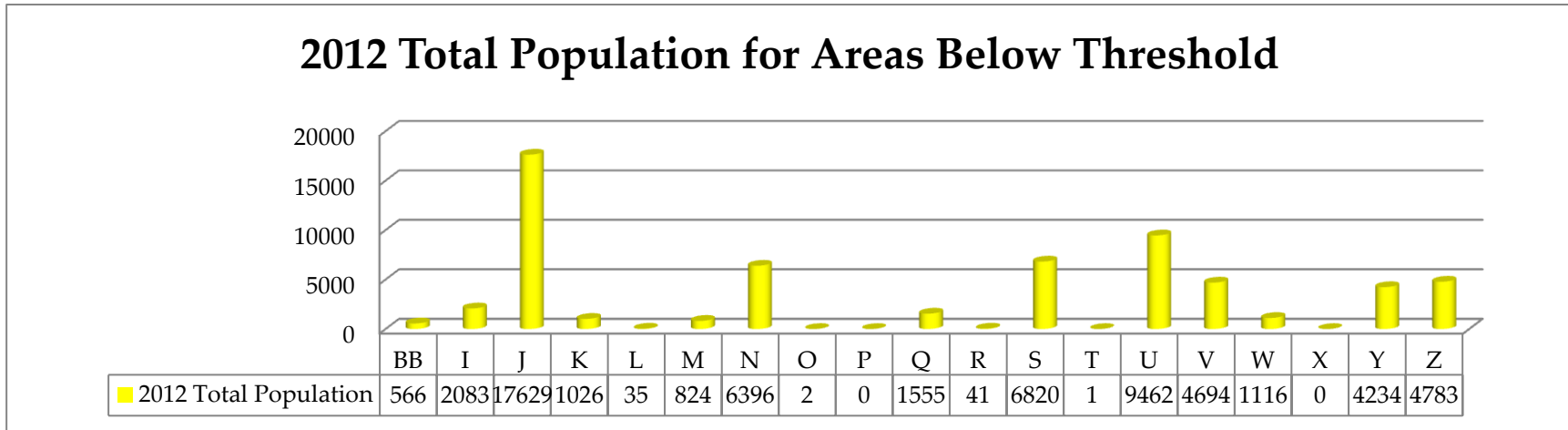


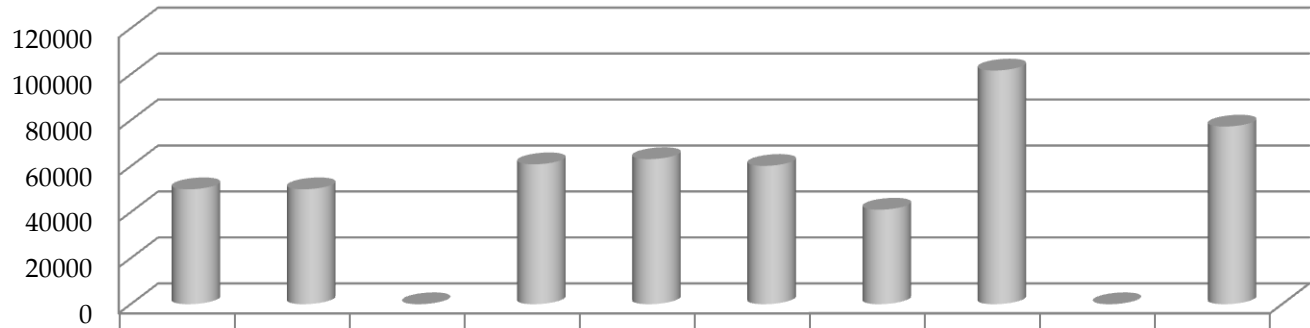
Figure 6: 2012 Population by Areas with Service Below Threshold for PB-1 GRASP® Threshold Analysis



Additional statistics can also be obtained from this analysis. In *Figure 7* we see the median household income for each of the areas with no service and in *Figure 8* we see the median household income for each of the areas with service below the threshold score. This indicates capital investment priorities in lower income or disadvantaged areas. For reference, areas that are above threshold have a 2012 Median Household Income of \$58,196.

Figure 7: 2012 Median Household Income by Areas with No Service for PB-1 GRASP® Threshold Analysis

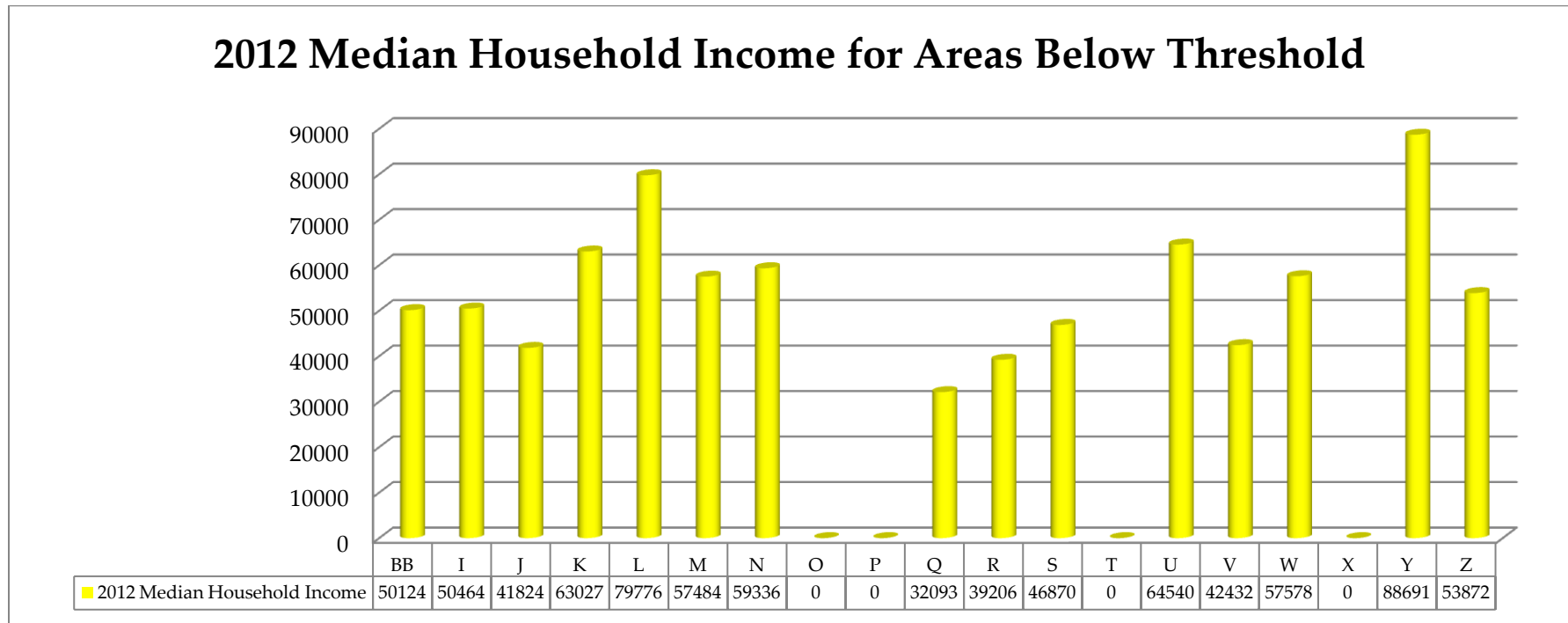
2012 Median Household Income for Areas with No Service



■ 2012 Median Household Income

	A	AA	B	C	CC	D	E	F	G	H
2012 Median Household Income	50000	50000	0	60874	63142	60181	41133	101687	0	77299

Figure 8: 2012 Median Household Income by Areas with Service Below Threshold for PB-1 GRASP® Threshold Analysis





Comparative Data

Figures 10 and 11 provide comparative data from other communities or districts including GRASP® scores of comparable size. The data is intended to show the range of results for level of service analyses that have been used in this study, and how NCPRD compares. Because every community is unique, there are no standard or “correct” numbers; however, most communities like to see where they compare to others.

Figure 10: GRASP® Level of Service Comparisons

STATE	CITY	POPULATION	STUDY AREA SIZE (Acres)	# OF SITES (Parks, Facilities etc.)	TOTAL # OF COMPONENTS
WA	Tacoma	203,984	34,133	104	488
VA	Arlington	190,000	NA	225	494
FL	Ft Lauderdale	181,095	23,230	91	483
CO	Lakewood	144,369	27,494	105	738
IA	Cedar Rapids	143,788	45,987	98	759
CO	Fort Collins	130,681	33,388	45	619
FL	Winter Haven	100,000	42,191	31	230
NC	Cary	139,382	35,578	43	562
IN	South Bend	164,396	65,387	64	339
ID	Post Falls	29,062	24,928	35	271
OR	Corvallis	54,462	18,006	54	309
OR	THPRD	224,627	29,097	253	1211
OR	NCPRD	115,924	23,040	93	295

As shown in Figure 10 of the Oregon agencies compared, NCPRD falls between Corvallis and THPRD in population, study area size, and number of sites in the inventory but is the lowest in the number of components. Based on relatively similar sizes of study areas, THPRD has more parks than NCPRD with 253 versus 93 respectively. This indicates that the per capita component quantity is lower than those agencies compared. As a result, NCPRD should make efforts to increase both the number and quality of facilities and components to better serve existing and future residents of the District.



The GRASP® Index shown in *Figure 11* is derived by dividing the total numerical value of all of the components, amenities of a park and recreation system in a given area by the population of that area, in thousands. The GRASP® Index reflects the total value of assets in the area in relation to the number of people the assets are designed to serve.

Figure 11 shows us that the GRASP® Index for NCPRD is far below the two other Oregon comparison agencies, which means the total value of the assets in NCPRD in relation to the number of people the assets serves is far lower. (Note that the NCPRD GRASP® Index is 19 compared to 30 for Tualatin Hills Park and Recreation District and 80 for the City of Corvallis Parks and Recreation Department – a higher number is indicative of a higher level of service).

Figure 11: GRASP® Index Level of Service Comparisons

STATE	CITY / DISTRICT	AVG. # COMPONENTS per SITE	TOTAL GRASP® VALUE (Entire System)	GRASP® INDEX	AVG. SCORE/SITE	% of TOTAL AREA with LOS >0
WA	Tacoma	4.7	NA	NA	NA	NA
VA	Arlington	2.2	NA	NA	NA	NA
FL	Ft Lauderdale	5.3	2662	15	29.3	98
CO	Lakewood	7.0	6476	45	61.7	100
IA	Cedar Rapids	7.7	2467	17	25.2	86
CO	Fort Collins	13.8	2675	20	59.4	83
FL	Winter Haven	7.4	328	3	10.6	37
NC	Cary	13.1	2843	20	66.1	97
IN	South Bend	5.3	2417	15	37.8	72
ID	Post Falls	7.7	1005	36	28.7	71
OR	Corvallis	5.7	2217	80	41.1	93
OR	THPRD	5	6843	30	27	100
OR	NCPRD	3.2	2207	19	23.7	97

Other Methods and Analysis: GRASP® Index



The capacities table found in Chapter 8, Page 66 of the 2014 Master Plan is based purely on the quantity of assets without regard to quality or functionality. Higher level of service (LOS) is achieved only by adding assets, regardless of the condition or quality of those assets. However, in theory, the LOS provided by assets should be based on their quality as well as their quantity.

GreenPlay Inc. has developed a tool that incorporates both quantity and quality for any given set of assets into a single indicator called the GRASP® Index. *Figure 12* shows the GRASP® Indices for the various components based on the 2012 population.

Figure 12 GRASP® Index

	2012 Population:	115,924	2017 Projected Population:	121,476
	Total GRASP® Community Score per component type	GRASP® score per 1000 population (GRASP® Index)	Total GRASP® score needed at projected population	Additional GRASP® score needed
Ballfield	128.4	1.11	135	6.6
Basketball	47.7	0.41	50.0	2.3
Educational Experience	16	0.14	16.8	0.8
Gardens, Community	9.2	0.08	9.6	0.4
Loop Walk	63.4	0.55	66.4	3.0
MP Field, all sizes	30.4	0.26	31.9	1.5
Open Turf	121.3	1.05	127.1	5.8
Picnic Grounds	45.2	0.39	47.4	2.2
Playground, all sizes	159.8	1.38	167.5	7.7
Shelter, all sizes	26	0.22	27.2	1.2
Skate Park	7.2	0.06	7.5	0.3
Tennis	26.4	0.23	27.7	1.3
Volleyball	16.4	0.14	17.2	0.8
Water Access, all	44.8	0.39	47	2.2

This index is a per capita ratio of the functional score per population in thousands. The GRASP® Index can move up or down over time as either quantity or quality changes. For example, if all of the playgrounds in a community are allowed to deteriorate over time, but none are added or taken away, the LOS provided by the playgrounds is decreasing. Similarly, if all of the playgrounds are replaced with new and better ones, but no additional playgrounds



are added, the LOS increases even though the per-capita quantity of playgrounds did not change. In the case of NCPRD, playgrounds currently score at 159.8 and have a GRASP® Index of 1.38.

Based on population projections by the year 2017, NCPRD would need to provide an additional 7.7 worth of GRASP® scoring through playgrounds to maintain the current level of service per capita. It should be noted that an increase in GRASP® score can occur through upgrades to current components, addition of new components, or a combination of upgrades and additions. For the sake of discussion a typical component with typical park modifiers will register an overall GRASP® score of 4.8 points. Therefore in this case of needing 7.7 GRASP® playground scoring, a possible solution would be a single new playground and upgrades to one to two other playgrounds.

This is especially useful in communities where the sustainability of the parks and recreation system over time is important. In the past, the focus was on maintaining adequate capacity as population growth occurred. Today, many communities are reaching build-out while others have seen population growth slow. The focus in such communities has shifted to maintaining current levels of service as components age or become obsolete, or as needs change. The GRASP® Index can be used to track LOS under such conditions over time.

This analysis is directly related to Capital Improvement and Capital Asset Replacement Plans, in that failure to maintain facilities and components within those facilities will in no doubt cause a decrease in level of service based on the functionality of individual components.

For example, failure to maintain a playground or basketball court that currently meets expectations (i.e. scores a "2") will result, at some point in time, that component failing to meet expectations or actually needing to be removed for safety reasons. Decrease in score or removal of a component directly affects the overall level of service of a park or facility in the GRASP® methodology.