Attachment A - Existing Coverage Data Summary

This attachment addresses the following data needs identified by the Coverage Working Group: Provide a coverage inventory for each HRA including an 1) inventory of the banked coverage from the land banks, 2) an inventory of existing coverage in sensitive and non-sensitive land using TRPA LiDAR data, and 3) an inventory of the capacity for coverage transfers into Centers.

Item One: Inventory of the banked coverage from the land banks
The table below provides a current inventory of the banked coverage in different HRAs. The data presented in this table is from the California Tahoe Conservancy and the Nevada Division of State Lands.

Inventory of Banked Coverage from the land banks

Coverage Type	HRA, Land Capability Class (if provided)	Amount of Banked Coverage (sq. ft.)
California Tahoe Conservancy (CTC)		
Potential Coverage	South Stateline	697,106
	Upper Truckee	1,401,648
	Emerald Bay	1,200
	McKinney Bay	35,255
	Tahoe City	610,651
	Agate Bay	555,632
Soft Coverage	Upper Truckee	46,033
	Agate Bay	4,387
The Nevada Land Bank (NDSL)		
Potential Coverage	Incline, 1a	42,633
	Incline, 1b	10,000
	Incline, 4	7,026
	Incline, 6	13,257
Soft Coverage	Incline, 1b	17,860.
	Incline, 6	6,000
	South Stateline, 4	5,959.
	South Stateline, 1a	6,800
	Cave Rock, 1a	12,989
Hard Coverage	South Stateline, 1b	311
	Agate Bay, 1a	1,063

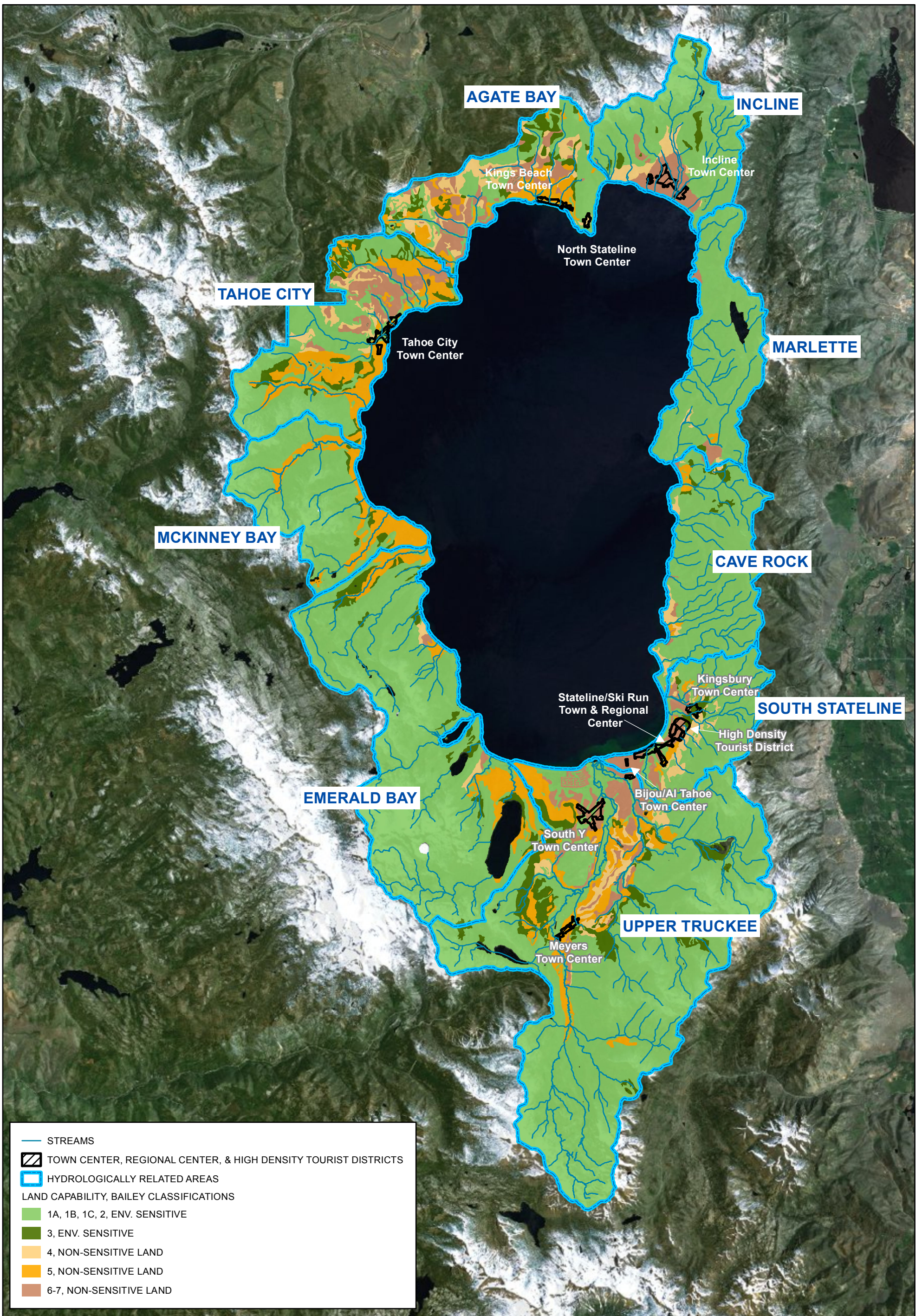<u>Item Two: Existing coverage in sensitive and non-sensitive land using TRPA LiDAR data</u>
The estimated acreage and percent of existing impervious surface coverage in the Stream Environment Zones (SEZs), other environmentally-sensitive lands, and non- sensitive lands is provided in the following table. These estimates are based on GIS data and do not represent verified land capability of existing coverage. In addition, maps of Hydrologically Related Areas (HRAs), Land Capability Classifications, and existing coverage are shown after the tables.

Inventory of Existing Coverage in HRAs in the Tahoe Region

Hydrologically Related Area (HRA) Name	Stream Environment Zones (SEZs)		Other Environmentally Sensitive Lands		Non-Environmentally Sensitive Land		
	1B LC, Acres Covered	% of Total 1B Covered	1A, 1C, 2, & 3 LCD; Acres Covered	% of Total 1A, 1C, 2, & 3 Covered	4 to 7 LCD, Acres Covered	% of Total 4-7 Covered	Total Acres in LCD 1A, 1B, 1C, 2, 3, 4, 5, 6, & 7
Agate Bay	62.2	12.4%	229.5	3.6%	611.2	8.6%	903.0
Cave Rock	29.7	5.6%	282.6	2.1%	134.3	15.5%	446.6
Emerald Bay	62.5	2.8%	271.0	0.9%	113.8	4.4%	447.3
Incline	75.3	9.2%	347.9	3.2%	678.3	29.9%	1,101.6
Marlette	6.6	1.3%	126.3	1.1%	30.5	5.5%	163.4
McKinney Bay	60.9	6.5%	126.9	1.1%	226.8	10.1%	414.6
South Stateline	293.2	17.5%	349.5	5.0%	615.7	25.3%	1,258.4
Tahoe City	157.4	9.5%	181.2	1.8%	527.6	6.9%	866.2
Upper Truckee	654.2	7.6%	433.4	0.9%	1,247.2	14.8%	2,334.8
Total	1,402.0	8.0%	2,348.4	1.6%	4,185.4	12.3%	7,935.8

Land capability estimates based on the Baily land capability districts and is not field verified. This acreage excludes areas not in land capability classification 1A, 1B, 1C, 2, 3, 4, 5, 6, or 7 (such as waterbodies). The acreages were derived using GIS tools and should only be considered general estimates.

AGATE BAY

INCLINE

Kings Beach
Town Center

Incline
Town Center

North Stateline
Town Center

TAHOE CITY

Tahoe City
Town Center

MARLETTE

MCKINNEY BAY

CAVE ROCK

Kingsbury
Town Center

Stateline/Ski Run
Town & Regional
Center

SOUTH STATELINE

High Density
Tourist District

Bijou/Al Tahoe
Town Center

EMERALD BAY

South Y
Town Center

UPPER TRUCKEE

Meyers
Town Center

— STREAMS

▨ TOWN CENTER, REGIONAL CENTER, & HIGH DENSITY TOURIST DISTRICTS

▢ HYDROLOGICALLY RELATED AREAS

LAND CAPABILITY, BAILEY CLASSIFICATIONS

1A, 1B, 1C, 2, ENV. SENSITIVE
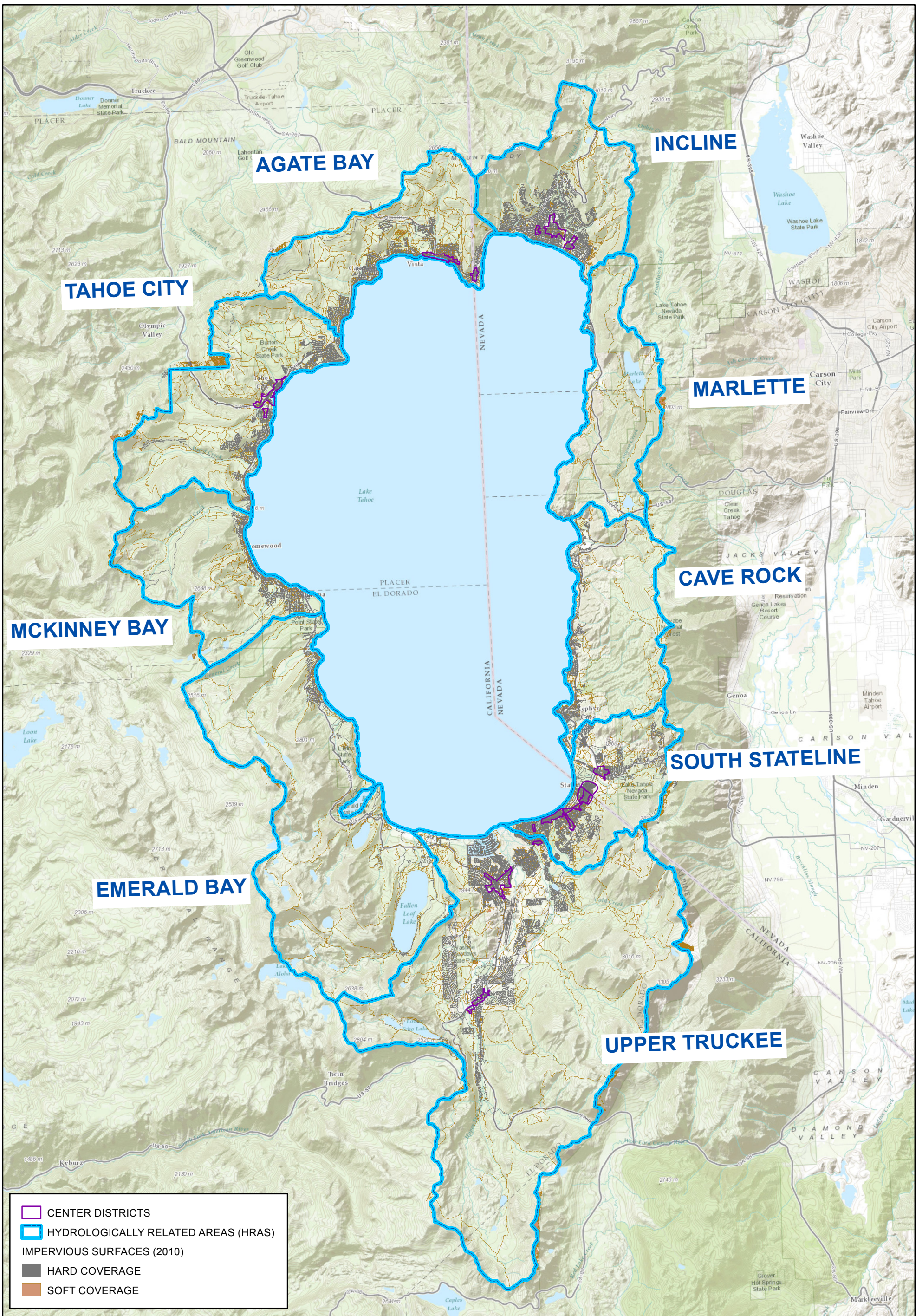
3, ENV. SENSITIVE

4, NON-SENSITIVE LAND

5, NON-SENSITIVE LAND

6-7, NON-SENSITIVE LAND

TAHOE REGIONAL PLANNING AGENCY

Hydrologically Related Areas (HRA)
Land Capability, Lake Tahoe Region

MILES
0   3

N

INCLINE

AGATE BAY

TAHOE CITY

MARLETTE

CAVE ROCK

MCKINNEY BAY

SOUTH STATELINE

EMERALD BAY

UPPER TRUCKEE

CENTER DISTRICTS
HYDROLOGICALLY RELATED AREAS (HRAS)
IMPERVIOUS SURFACES (2010)
HARD COVERAGE
SOFT COVERAGE

TAHOE
REGIONAL
PLANNING
AGENCY

Impervious Surfaces (2010), Centers, & HRAs
Lake Tahoe Region

MILES
0   3

N

TRPA MAP DISCLAIMER: This map was developed and produced by the TRPA GIS department. It is provided for reference only and is not intended to show map scale accuracy or all inclusive map features.
The material on this map was compiled using the most current data available, but the data is dynamic and accuracy cannot be guaranteed. *Data Sources: Spatial Informatics Group, LLC (Impervious Surface dataset, 2010).
Spatial Informatics Group, LLC makes no representations of any kind, including but not limited to the warranties of merchantability or fitness for particular use, nor are any such warranties to be implied with respect to the data.

Item 3: Inventory of the capacity for coverage transfers into Centers
The potential for coverage to be transferred into Centers cannot be definitively determined at a regional scale because it depends on a variety of site specific factors such as the field verified land capability of individual sites, the amount of field verified legally existing and illegal excess coverage, the boundaries of individual project areas, and the land use category of future projects (i.e. residential, public service, commercial, etc.). However, several estimates of the capacity for coverage transfers into Centers have been prepared to provide an estimate of the maximum amount of future coverage transfers in Centers.

These estimates include an estimate of coverage transfers into Centers based on full build-out of available land use commodities and average coverage per land use commodity (i.e. Commercial Floor Area, Tourist Accommodation Units, and Residential Units).

In addition, an estimate was prepared that assumed each existing private commercial, tourist, or multi-family zoned parcel maximized their allowable coverage. It is important to note that, neither of these estimates account for existing excess coverage within Centers. Some of this existing excess coverage would likely be relocated to meet the demand for new projects in Centers, limiting the amount of coverage that may be transferred into Centers. The table below provides order of magnitude estimates of the long-term potential for coverage transfers into Centers.

Approach	Max Transferred Coverage Estimate	Required Coverage Reduction if Transferred from Sensitive Land	Required Coverage Reduction if Transferred from Non-sensitive Land
Full build out of land use commodities in Centers[1]	64 acres	64 acres	128 acres
Maximum allowable coverage for private parcels[2]	55 acres	55 acres	110 acres

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[1] Regional Plan Update Draft EIS, Table 3.7-8 at page 3.7-21
[2] Regional Plan Update Final EIS, Vol. 1, Appendix C, Table C-2 at page C-4

Estimate of Existing Coverage in Centers

Hydrologically Related Area (HRA) Name	Center Name	Stream Environment Zones (SEZs)		Other Environmentally Sensitive Lands		Non-Environmentally Sensitive Land				
		LC 1B Covered, Acres	LC 1B, % Covered	Sum LC 1A, 1C, 2, & 3, Acres	LC 1A, 1C, 2, & 3, % Covered	Sum LC 4-7, Acres	LC 4-7, % Covered	Sum of Total Acres in Center	Overall Acres Covered	Overall Percent Covered
Agate Bay	Kings Beach Town Center	22.5	18%	0.1	0.1%	33.7	27%	127.2	56.3	44%
	North Stateline Town Center	0.5	1%	4.5	9.9%	20.7	46%	45.1	25.7	57%
Incline	Incline Town Center	4.3	2%	0.3	0.1%	121.8	45%	268.8	126.5	47%
South Stateline	Bijou / Al Tahoe Town Center	44.7	40%	0.0	0.0%	32.1	29%	112.5	76.9	68%
	High Density Tourist District	10.8	9%	8.7	7.5%	58.8	51%	115.4	78.3	68%
	Kingsbury Commercial Town Center	2.7	3%	31.8	36.0%	15.7	18%	88.2	50.2	57%
	Stateline / Ski Run Town Center	13.5	12%	0.0	0.0%	42.8	37%	116.6	56.3	48%
	Regional Center	42.1	35%	0.0	0.0%	46.9	39%	119.3	89.0	75%
Tahoe City	Tahoe City Town Center	52.6	25%	3.0	1.5%	28.9	14%	207.6	84.6	41%
Upper Truckee	Bijou / Al Tahoe Town Center	0.2	1%	0.0	0.0%	12.0	63%	19.1	12.2	64%
	Meyers Town Center	12.8	13%	0.0	0.0%	23.1	24%	97.8	35.9	37%
	South Y Town Center	39.3	15%	0.0	0.0%	86.7	34%	257.8	126.1	49%

This acreage excludes areas not in land capability classification 1A, 1B, 1C, 2, 3, 4, 5, 6, or 7 (such as Lake Tahoe). The acreages were derived using GIS tools and should only be considered general estimates.

Attachment B - IPES Watershed Condition Score Summary

As a part of Individual Parcel Evaluation System developed during the late 1980s, the watersheds of the Tahoe Region were evaluated by a committee including experts in soil science, hydrology, engineering, and planning. A total of 64 watersheds were evaluated. The watersheds, shown in the Watershed and Priority Condition Map, below, were ranked by their relative ability to deliver sediments and nutrients to Lake Tahoe. Each watershed was assigned a numerical score, with higher scores indicating the watershed had a lower potential to deliver sediment and nutrients and lower scores indicating the watershed had a higher potential to deliver sediment and nutrients.

The watersheds were grouped into three categories that were used for prioritizing capital improvement and SEZ restoration projects. As shown in the following tables, 22 watersheds were considered high priority (greatest potential for sediment & nutrient delivery, points range from 0-30), 20 were determined to be medium priority (points range from 31-46), and 22 were deemed low priority (lowest relative potential for sediment and nutrient delivery, points range from 47-70).
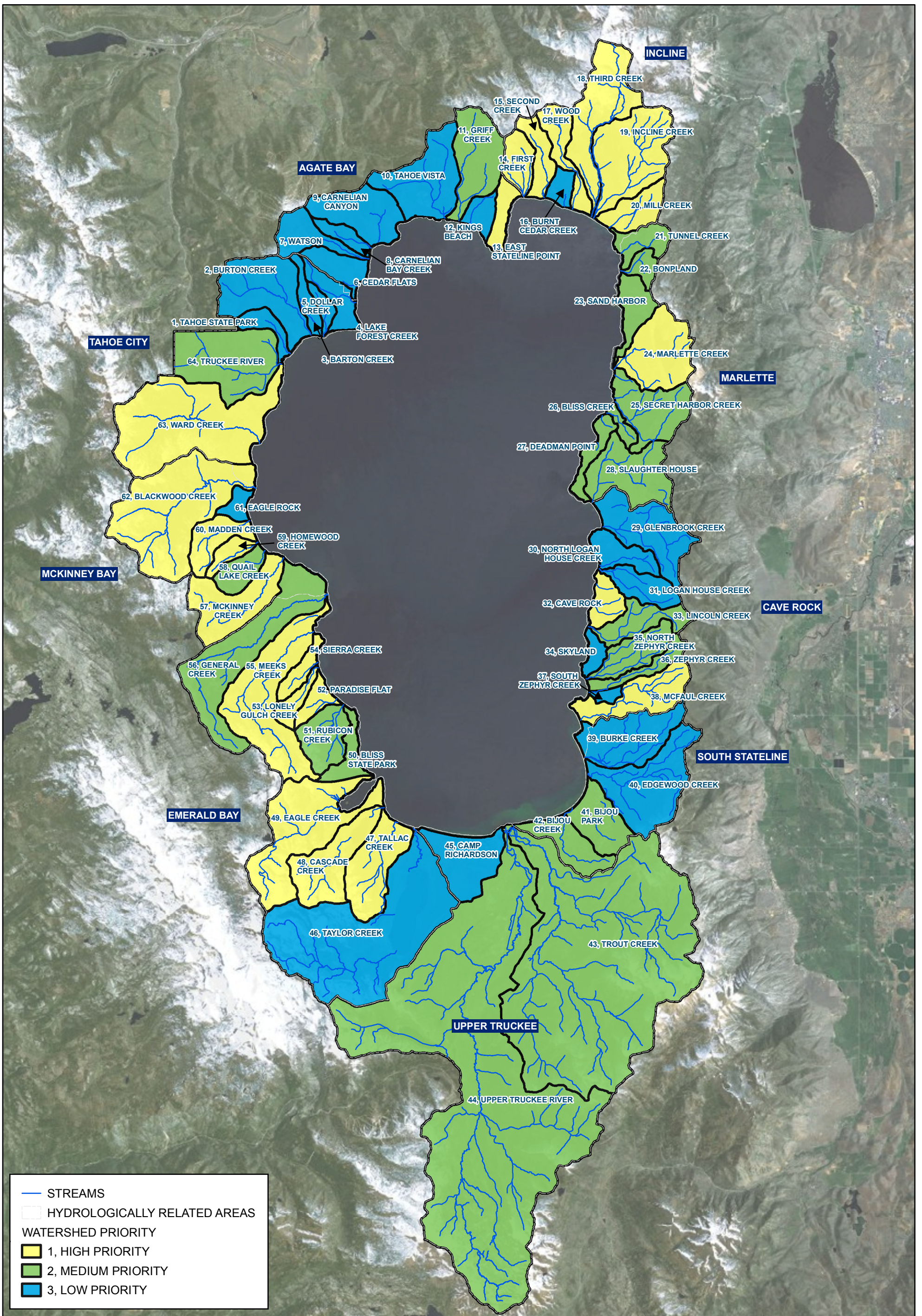
Each watershed was classified by the following criteria:
1) Geomorphic, precipitation, and stream flow characteristics (available points range between 0 to 28):
    a. Mean slope of the drainage basin,
    b. Percent of drainage basin area with slopes greater than 30%,
    c. Percent of drainage basin with bare rock exposed,
    d. Mean channel slopes,
    e. Mean annual stream flow.
2) Nutrient and sediment yields, expressed in production in per unit area of drainage basin, e.g., pounds of nitrate-nitrogen per square mile of drainage basin (available points range between 0-35):
    a. Nitrate-nitrogen,
    b. Dissolved organic nitrogen,
    c. Dissolved orthophosphate, and
    d. Suspended sediments.
3) Existing land coverage compared to allowable land coverage, as defined by the Bailey Land Capability System, for each watershed. Available points range between 0-7.

Resources:
- The 208 Plan adopted in 1988 Volume VII, Technical Appendix (available here: http://www.trpa.org/wp-content/uploads/208_Vol_VII_BMP_Handbook_Technical_Appendix.pdf) provides more information. The Classification of the Watershed Section is included in the following section.
- Data for criteria 1 were taken from the study by Brown and Skau (unpublished manuscript) Forested watersheds of the East Central Nevada - Studies of the Quality of Natural Waters, in press, UNR. Data for criteria 2 were derived from Brown and Skau (above), Tahoe Research group data, and data collected by the USFS. Data for criteria 3 used TRPA data system.

Watershed Priority & Condition
Lake Tahoe Region

INCLINE
18, THIRD CREEK
15, SECOND CREEK
17, WOOD CREEK
11, GRIFF CREEK
19, INCLINE CREEK
10, TAHOE VISTA
14, FIRST CREEK
AGATE BAY
9, CARNELIAN CANYON
20, MILL CREEK
7, WATSON
16, BURNT CEDAR CREEK
12, KINGS BEACH
21, TUNNEL CREEK
2, BURTON CREEK
8, CARNELIAN BAY CREEK
13, EAST STATELINE POINT
22, BONPLAND
6, CEDAR FLATS
23, SAND HARBOR
5, DOLLAR CREEK
1, TAHOE STATE PARK
4, LAKE FOREST CREEK
TAHOE CITY
64, TRUCKEE RIVER
3, BARTON CREEK
24, MARLETTE CREEK
63, WARD CREEK
MARLETTE
26, BLISS CREEK
25, SECRET HARBOR CREEK
27, DEADMAN POINT
62, BLACKWOOD CREEK
28, SLAUGHTER HOUSE
61, EAGLE ROCK
60, MADDEN CREEK
29, GLENBROOK CREEK
59, HOMEWOOD CREEK
30, NORTH LOGAN HOUSE CREEK
MCKINNEY BAY
58, QUAIL LAKE CREEK
31, LOGAN HOUSE CREEK
CAVE ROCK
57, MCKINNEY CREEK
32, CAVE ROCK
33, LINCOLN CREEK
35, NORTH ZEPHYR CREEK
54, SIERRA CREEK
34, SKYLAND
36, ZEPHYR CREEK
56, GENERAL CREEK
55, MEEKS CREEK
37, SOUTH ZEPHYR CREEK
38, MCFAUL CREEK
52, PARADISE FLAT
53, LONELY GULCH CREEK
39, BURKE CREEK
51, RUBICON CREEK
SOUTH STATELINE
50, BLISS STATE PARK
40, EDGEWOOD CREEK
EMERALD BAY
49, EAGLE CREEK
42, BIJOU CREEK
41, BIJOU PARK
47, TALLAC CREEK
45, CAMP RICHARDSON
48, CASCADE CREEK
46, TAYLOR CREEK
43, TROUT CREEK
UPPER TRUCKEE
44, UPPER TRUCKEE RIVER

STREAMS
HYDROLOGICALLY RELATED AREAS
WATERSHED PRIORITY
1, HIGH PRIORITY
2, MEDIUM PRIORITY
3, LOW PRIORITY

TAHOE REGIONAL PLANNING AGENCY

MILES
0   3

N

CONDITIONS OF WATERSHEDS IN THE LAKE TAHOE REGION

PRIORITY SCORE	LEVEL	ID	NAME	ACREAGE
70	LOW PRIORITY	2	BURTON CREEK	3,655.3
67	LOW PRIORITY	3	BARTON CREEK	721.8
67	LOW PRIORITY	5	DOLLAR CREEK	1,176.1
67	LOW PRIORITY	31	LOGAN HOUSE CREEK	1,379.6
63	LOW PRIORITY	39	BURKE CREEK	3,181.6
61	LOW PRIORITY	8	CARNELIAN BAY CREEK	635.9
61	LOW PRIORITY	9	CARNELIAN CANYON	2,664.1
61	LOW PRIORITY	37	SOUTH ZEPHYR CREEK	263.3
58	LOW PRIORITY	4	LAKE FOREST CREEK	447.6
58	LOW PRIORITY	6	CEDAR FLATS	1,167.4
58	LOW PRIORITY	30	NORTH LOGAN HOUSE CREEK	1,308.8
54	LOW PRIORITY	1	TAHOE STATE PARK	782.3
54	LOW PRIORITY	10	TAHOE VISTA	3,498.3
54	LOW PRIORITY	12	KINGS BEACH	748.3
54	LOW PRIORITY	16	BURNT CEDAR CREEK	580.4
54	LOW PRIORITY	34	SKYLAND	505.0
54	LOW PRIORITY	45	CAMP RICHARDSON	2,657.4
53	LOW PRIORITY	7	WATSON	1,491.3
53	LOW PRIORITY	29	GLENBROOK CREEK	3,236.6
49	LOW PRIORITY	40	EDGEWOOD CREEK	4,277.4
47	LOW PRIORITY	46	TAYLOR CREEK	11,786.6
47	LOW PRIORITY	61	EAGLE ROCK	528.2
44	MEDIUM PRIORITY	11	GRIFF CREEK	2,916.5
44	MEDIUM PRIORITY	26	BLISS CREEK	398.0
44	MEDIUM PRIORITY	27	DEADMAN POINT	865.5
44	MEDIUM PRIORITY	28	SLAUGHTER HOUSE	3,143.9
44	MEDIUM PRIORITY	50	BLISS STATE PARK	940.4
44	MEDIUM PRIORITY	58	QUAIL LAKE CREEK	1,050.4
44	MEDIUM PRIORITY	64	TRUCKEE RIVER	4,370.1
40	MEDIUM PRIORITY	41	BIJOU PARK	1,974.7
40	MEDIUM PRIORITY	42	BIJOU CREEK	1,809.9
39	MEDIUM PRIORITY	56	GENERAL CREEK	5,783.9
36	MEDIUM PRIORITY	43	TROUT CREEK	26,427.9
36	MEDIUM PRIORITY	44	UPPER TRUCKEE RIVER	36,236.3
33	MEDIUM PRIORITY	21	TUNNEL CREEK	1,093.2
33	MEDIUM PRIORITY	22	BONPLAND	564.6
33	MEDIUM PRIORITY	23	SAND HARBOR	1,332.9
33	MEDIUM PRIORITY	25	SECRET HARBOR CREEK	2,725.3
33	MEDIUM PRIORITY	33	LINCOLN CREEK	1,647.9
33	MEDIUM PRIORITY	35	NORTH ZEPHYR CREEK	1,675.5
33	MEDIUM PRIORITY	36	ZEPHYR CREEK	937.7
33	MEDIUM PRIORITY	51	RUBICON CREEK	1,827.1
30	HIGH PRIORITY	18	THIRD CREEK	3,861.8
30	HIGH PRIORITY	24	MARLETTE CREEK	3,166.0
30	HIGH PRIORITY	38	MCFAUL CREEK	2,522.4

CONDITIONS OF WATERSHEDS IN THE LAKE TAHOE REGION

30	HIGH PRIORITY	48	CASCADE CREEK	3,019.2
30	HIGH PRIORITY	52	PARADISE FLAT	714.2
30	HIGH PRIORITY	53	LONELY GULCH CREEK	692.0
26	HIGH PRIORITY	13	EAST STATELINE POINT	850.4
26	HIGH PRIORITY	20	MILL CREEK	1,410.6
26	HIGH PRIORITY	32	CAVE ROCK	1,016.0
26	HIGH PRIORITY	54	SIERRA CREEK	764.3
25	HIGH PRIORITY	55	MEEKS CREEK	5,607.7
22	HIGH PRIORITY	14	FIRST CREEK	1,116.7
22	HIGH PRIORITY	47	TALLAC CREEK	2,934.6
21	HIGH PRIORITY	63	WARD CREEK	8,214.8
18	HIGH PRIORITY	17	WOOD CREEK	1,511.3
18	HIGH PRIORITY	19	INCLINE CREEK	4,295.4
18	HIGH PRIORITY	57	MCKINNEY CREEK	3,135.1
14	HIGH PRIORITY	60	MADDEN CREEK	1,467.1
7	HIGH PRIORITY	49	EAGLE CREEK	5,643.2
7	HIGH PRIORITY	62	BLACKWOOD CREEK	7,425.8
0	HIGH PRIORITY	15	SECOND CREEK	1,181.9
0	HIGH PRIORITY	59	HOMEWOOD CREEK	644.8

APPENDIX C

Classification of Watersheds in the
Tahoe Region Relating to Their Priority
for Watershed Improvement Projects

Tahoe Regional Planning Agency

October 12, 1988

Abstract

The watersheds of the Tahoe Region were rated for their relative ability to deliver sediments and nutrients to Lake Tahoe. The criteria used were the:

1. geomorphic, precipitation, and stream flow characteristics,
2. nutrient and sediment yields, and
3. coverage for each watershed.

The watersheds were grouped into three categories that were used for prioritizing capital improvement and stream environment zone restoration projects. Of the 64 watersheds classified, 22 were in the high priority category, 20 were in the medium priority category, and 22 were in the low priority category.

Introduction

As part of the Individual Parcel Evaluation System (IPES), the IPES technical committee developed a watershed condition classification system to rank each watershed for its relative ability to deliver nutrients and sediments to Lake Tahoe. The committee was composed of experts in the fields of soil science, hydrology, engineering, and planning. They felt that parcels located in watersheds that had a low ability to deliver nutrients and sediments to the Lake should receive higher IPES ratings than those in watersheds with higher sediment and nutrient delivery.

Methods and Materials

Each watershed in the Region was classified using the following criteria:

1. Geomorphic, precipitation, and stream flow characteristics:
   a. mean slope of the drainage basin
   b. percent of drainage basin area with slopes greater than 30%
   c. percent of drainage basin with bare rock exposed,
   d. mean channel slopes
   e. mean annual stream flow.

2. Nutrients and sediments in stream flow, expressed in production per unit area of drainage basin, e.g., pounds of nitrate-nitrogen per square mile of drainage basin:
   a. nitrate-nitrogen
   b. dissolved organic nitrogen
   c. dissolved orthophosphate
   d. suspended sediments.

3. Existing land coverage compared to allowable land coverage, as defined by the Bailey Land Capability System

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Data for criteria 1 were taken from the study by Brown and Skau (unpublished manuscript) Forested Watersheds of the East Central Sierra Nevada - Studies of the Quality of Natural Waters, in press, University of Nevada at Reno. Data for criteria 2 were derived from Brown and Skau (above), Tahoe Research Group data, and data collected by the U.S. Forest Service. For criteria 3, TRPA's data system was used.

Point values were assigned to each criteria. For the geomorphic characteristics, available points ranged between 0-28; for the water quality data, available points ranged between 0-35; for the coverage criteria, available points ranged between 0-7 points for a total potential of 70 points. In IPES, the higher the point value, the lower the potential for nutrient and sediment delivery.

Results

Table 1 summarizes the results of the IPES technical committee's classifications. TRPA used this system to categorize capital improvement and stream environment zone restoration projects. TRPA grouped the watersheds into three categories: 1 - high priority, 2 - medium priority, and 3 - low priority. The high priority category represents the watersheds with the greatest relative potential for sediment and nutrient delivery to Lake Tahoe and includes those watersheds with point values ranging from 0 to 30. The medium priority watersheds were those with point values from 31 to 46 and the low priority watersheds representing those with the lowest relative potential for nutrient and sediment delivery, from 47 to 70 points. There were 22 watersheds in the high priority category, 20 in the medium priority category, and 22 in the low priority category.

Conclusions

This system provides a mechanism for addressing water quality improvement needs in a cost-effective manner. By focusing efforts on those watersheds with the highest potential for sediment and nutrient delivery, reductions in overall loading to Lake Tahoe and the tributary streams should be realized sooner.

Table 1 Condition Classing of the Watersheds

Watershed No.	Name	Pts.	Watershed No.	Name	Pts.
1	Tahoe State Park	54	36	Zephyr Creek	33
2	Burton Creek	70	37	South Zephyr Creek	61
3	Barton Creek	67	38	McFaul Creek	30
4	Lake Forest Creek	58	39	Burke Creek	63
5	Dollar Creek	67	40	Edgewood Creek	49
6	Cedar Flats	58	41	Bijou Park	40
7	Watson	53	42	Bijou Creek	40
8	Carnelian Bay Creek	61	43	Trout Creek	36
9	Carnelian Canyon	61	44	Upper Truckee River	36
10	Tahoe Vista	54	45	Camp Richardson	54
11	Griff Creek	44	46	Taylor Creek	47
12	Kings Beach	54	47	Tallac Creek	22
13	East Stateline Point	26	48	Cascade Creek	30
14	First Creek	22	49	Eagle Creek	7
15	Second Creek	0	50	Bliss State park	44
16	Burnt Cedar Creek	54	51	Rubicon Creek	33
17	Wood Creek	18	52	Paradise Flat	30
18	Third Creek	30	53	Lonely Gulch Creek	30
19	Incline Creek	18	54	Sierra Creek	26
20	Mill Creek	26	55	Meeks	25
21	Tunnel Creek	33	56	General Creek	39
22	Unnamed	33	57	McKinney Creek	18
23	Sand harbor	33	58	Quail Lake Creek	44
24	Marlette Creek	30	59	Homewood Creek	0
25	Secret Harbor Creek	33	60	Madden Creek	14
26	Bliss Creek	44	61	Eagle Rock	47
27	Deadman Point	44	62	Blackwood Creek	7
28	Slaughter House	44	63	Ward Creek	21
29	Glenbrook Creek	53	64	Truckee River	44
30	North Logan House Creek	58			
31	Logan House Creek	67			
32	Cave Rock	26			
33	Lincoln Creek	33			
34	Skyland	54			
35	North Zephyr Creek	33			

Attachment C - TMDL Catchment Summary

This attachment provides information on the following data needs identified by the Coverage Working group: 1) Pollutant loading from different land uses, and 2) maps of catchments currently registered and those anticipated to be registered in the future.

Item One: Average Loading from different Land Uses:
Based on pollutant loading modelling prepared to support development of the Lake Tahoe TMDL, the average loading of Total Suspended Solids (TSS) from major land uses are as follows:
- Single Family Residential (SFR): TSS =56.4 mg /l
- Commercial: TSS=446.4mg /l (around 8 times more TSS than SFR)
- Highways: TSS=951.6mg /l (around 17 times more TSS than SFR)

Data source: Tetra Tech, Inc. 2007. *Watershed Hydrologic Modeling and Sediment and Nutrient Loading Estimation for the Lake Tahoe Total Maximum Daily Load.* Final modeling report. Prepared for the Lahontan RWQCB and University of California, Davis.

Item Two: Maps of Catchments Currently Registered or Anticipated to be Registered in the Future
The following map titled: Hydrologically Related Areas and TMDL Catchment Areas, is provided to show the catchments in the Lake Tahoe Region. Catchments shown in the attached map are being used to develop load reduction plans for each jurisdiction in the Region. Catchments where load reductions are being targeted to achieve the first five-year milestone are required to be registered by 2016.

Map labels:
- AGATE BAY
- INCLINE
- TAHOE CITY
- MARLETTE
- MCKINNEY BAY
- CAVE ROCK
- SOUTH STATELINE
- EMERALD BAY
- UPPER TRUCKEE
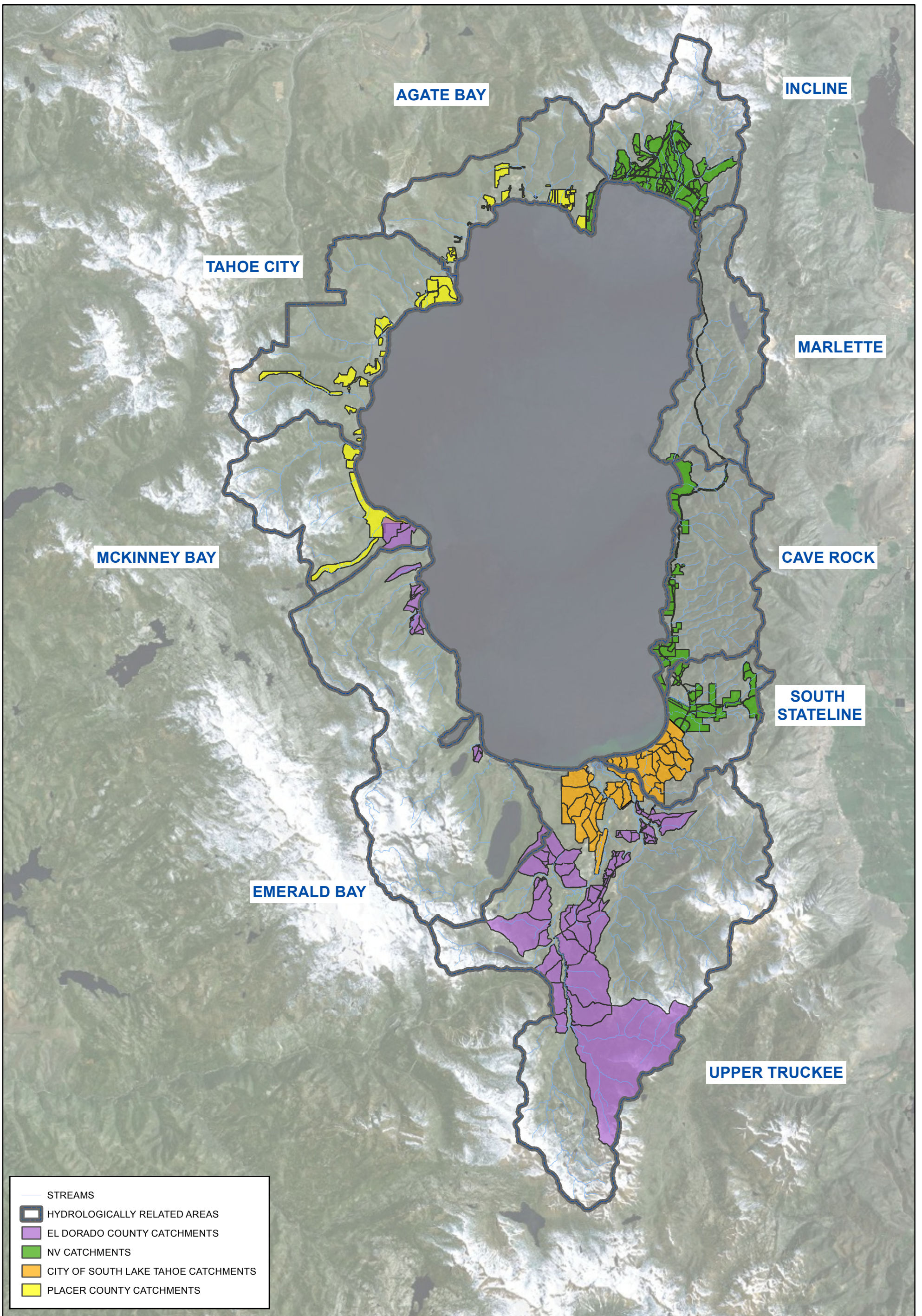
Legend:
- STREAMS
- HYDROLOGICALLY RELATED AREAS
- EL DORADO COUNTY CATCHMENTS
- NV CATCHMENTS
- CITY OF SOUTH LAKE TAHOE CATCHMENTS
- PLACER COUNTY CATCHMENTS

TAHOE REGIONAL PLANNING AGENCY

Hydrologically Related Areas & TMDL Catchment Areas
Lake Tahoe Region

MILES
0   3

N

Attachment D – Map of nearshore conditions

In response to the need for data on nearshore conditions, identified by the working group, a map is attached that shows the average levels of Periphyton Biomass Index (Attached Algae) from 2008-2012. This average is based on the distribution of Periphyton Biomass Index (% coverage x filament length in cm) during the Spring of each measured year, timed approximately to capture the maximum annual biomass. This information can help determine which sites experience chronically high attached algae levels in the spring (such as along the northwest shore).

In addition to the Attached Algae map, the Lake Tahoe Nearshore Evaluation and Monitoring Framework Report, released in October 2013, offers a summary on the current conditions of the nearshore. The Desert Research Institute offers a web-link to download this report: http://www.dri.edu/lake-tahoe-watershed. This report suggests the measurement of turbidity and transmissivity (light transmittance) for evaluating nearshore water clarity; though the authors assert that transmissivity might be the superior measure since turbidity tends to lack sufficient sensitivity to detect variations in more pristine areas. The authors suggest a combination of measures including chlorophyll concentrations, Periphyton Biomass Index levels, and Phytoplankton Count (free-floating algae) metrics to provide a full outlook on the trophic status (or biological productivity). They also suggest reviewing biological surveys including macrophyte (native and non-native aquatic plants), macroinvertebrates, and fish measurements to determine ecosystem health. Sections 7 to 13 of this report provide a data summary on the above-mentioned metrics for Lake Tahoe. In terms of mapped information, Figures 11-1, 11-3, 11-5, 12-1, and 12-3 in this report provide turbidity and light transmissivity levels and Figures 13-4, 13-5, and 13-9 in this report offer information on conditions related to Chlorophyll concentration levels.

References:
The Attached Algae data was collected by UC Davis (data) and the California Tahoe Conservancy.

Heyvaert, A.C., Reuter, J.E., Chandra, S., Susfalk, R.B., Schaldow, S.G. Hackley, S.H. 2013. Lake Tahoe Nearshore Evaluation and Monitoring Framework. Final Report prepared for the USDA Forest Service Pacific Southwest Research Station).
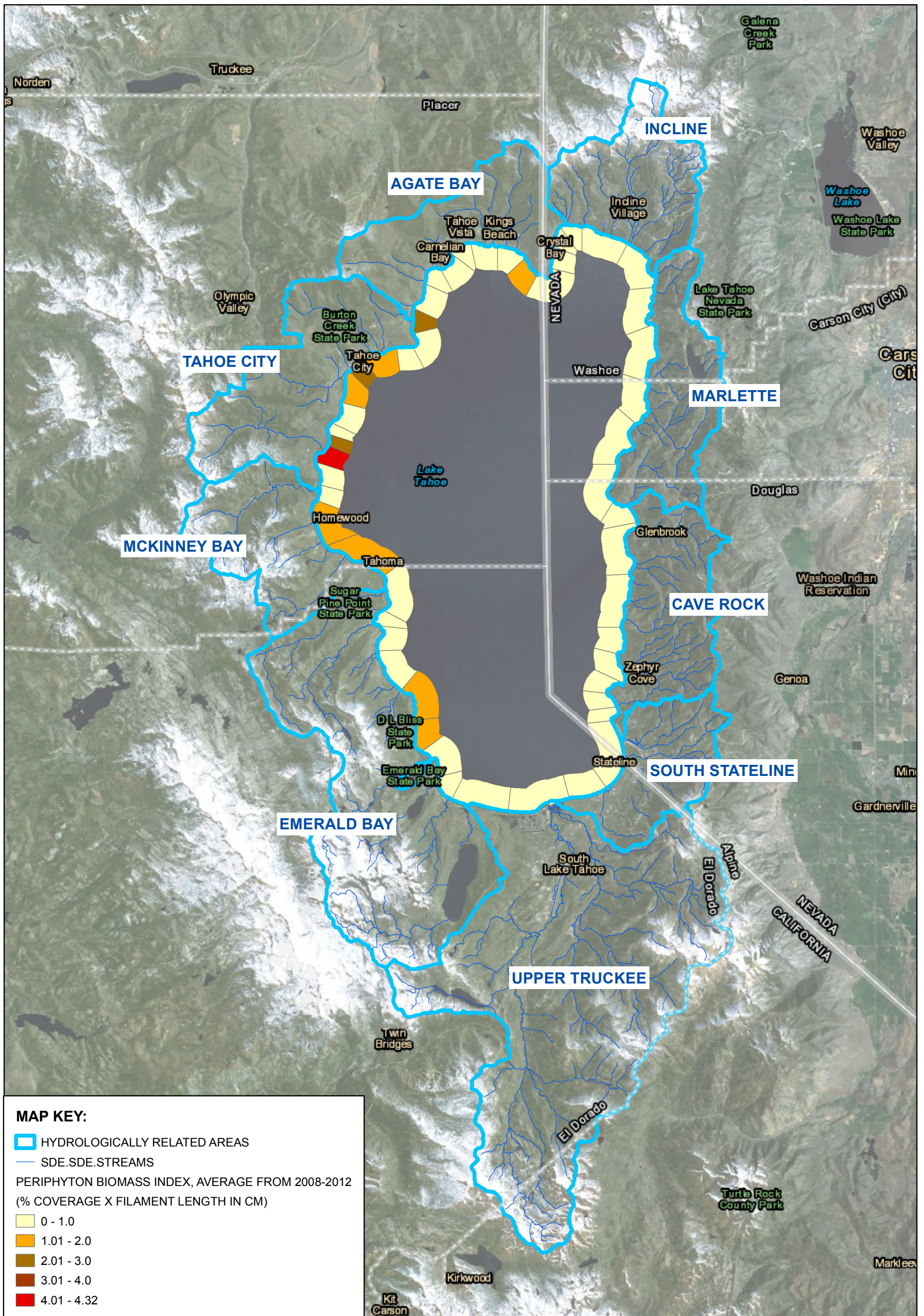
Average Periphyton Biomass Index (Attached Algae) 2008-2012, Lake Tahoe Region

MAP KEY:

☐ HYDROLOGICALLY RELATED AREAS

— SDE.SDE.STREAMS

PERIPHYTON BIOMASS INDEX, AVERAGE FROM 2008-2012
(% COVERAGE X FILAMENT LENGTH IN CM)

☐ 0 - 1.0
☐ 1.01 - 2.0
☐ 2.01 - 3.0
☐ 3.01 - 4.0
☐ 4.01 - 4.32

TAHOE REGIONAL PLANNING AGENCY

MILES
0   3

N

TRPA MAP DISCLAIMER: This map was developed and produced by the TRPA GIS department. It is provided for reference only and is not intended to show map scale accuracy or all inclusive map features. The material on this map was compiled using the most current data available, but the data is dynamic and accuracy cannot be guaranteed.
*Data Sources: UC Davis, USFS, City of S. Lake Tahoe, El Dorado County, Placer County, and State of Nevada.

Attachment E - Land Bank Process Summary

This attachment responds to questions regarding the land bank processes for tracking and restoring transferred coverage. In particular, the Working Group asked the Land Banks to explain how coverage transfers are tracked now and in the future and to describe the protections in place to ensure that restoration occurs and is effective.

Explanation from the California Tahoe Conservancy Land Bank

The California Tahoe Conservancy (CTC) Land Bank currently tracks land coverage transfers through Excel spreadsheets and records tabular information on the CTC's inventory of sending parcels and receiving parcels. In general, a land transaction includes a purchase and sale agreement and joint escrow instructions, payment for the rights, documentation letter (contains sending and receiving APNs and the amount of additional land coverage rights required for the project), and notice of transfer. In the future, CTC land bank data will be tracked in a centralized database and deed restrictions will be filed for coverage transactions.

CTC crews restore land to the specifications shown in item 6 of the Memorandum of Understanding (MOU, http://www.trpa.org/wp-content/uploads/CTC_Coverage_1988.pdf) between TRPA and CTC. The following protections ensure effective restoration:

- Larger restoration projects contain TRPA coverage/ marketable right verification.
- CTC photo documentation verifies before and after property conditions.
- One to two years after restoration, a Conservancy soil and plant restoration team performs a site visit. The team verifies that restoration has occurred. A parcel's soil and vegetation type are verified to ensure that rights are properly banked for future sale in the correct Bailey or Individual Parcel Evaluation System (IPES) category. Please note that the Conservancy's individual verification does not affect and certainly does not overrule the TRPA Bailey or IPES verification. It is used solely for the Land Bank.
- If the initial restoration has not been successful, the Lot Inspector/ Conservancy soil and plant restoration team advises the Conservancy Urban Land Management Program of any future erosion or vegetation issues. A secondary restoration project is then planned and implemented by the Conservancy.
- All Conservancy parcels are inspected biannually by their Urban Land Management Program's Lot Inspector. Any future restoration needs are noted and reported as detailed above.

Explanation from the State of Nevada Division of State Lands (NDSL), the Nevada Land Bank

The Nevada Land Bank currently tracks coverage transfers using Excel spreadsheets categorized by HRA and coverage class. Pertinent information such as coverage buyer, price paid per square foot, and the amount of coverage transferred are captured on these spreadsheets. There currently are no formal plans to change the internal tracking system mainly due to the small number of annual transactions that occur and since there is only one NDSL staff member that handles the Nevada Land Bank transactions. Annual reports are provided to TRPA that document all of the coverage transfers, acquisitions, and retirements over the previous fiscal year. Since the adoption of the 2012 Regional Plan Update, the Nevada Land Bank populates the Lead Agency Reporting Form with information related to coverage retirement and acquisitions. In addition, the Nevada Land Bank facilitates transfers of coverage owned by the Incline Village General Improvement District under an inter-local contract. These transfers take place specifically in the Incline HRA and those transfers are tracked using Excel spreadsheets as well.

Attachment F – Coverage Demand Analysis

This attachment responds to Working Group requests to provide information on areas where the demand for transferred coverage is greater. This attachment includes a brief narrative summary from each land bank, as well as a summary of a coverage demand analysis from the RPU EIS, which sought to identify HRAs that would be more likely to receive transferred coverage without HRA restrictions. In addition to the information below, each land bank will address this topic through a short presentation at the next Working Group meeting.

Response from the California Tahoe Conservancy Land Bank
The California Tahoe Conservancy (CTC) Land Bank has high demand for coverage in the largest areas of Tahoe City, Upper Truckee, and South Stateline. Based on supply and demand, the greatest need is Emerald Bay and McKinney Bay due to moderate demand and very low inventories in the CTC land bank.

Response from the State of Nevada Division of State Lands (NDSL), the Nevada Land Bank
Historically the highest area of demand for coverage transfer requests from the Nevada Land Bank has been the Cave Rock HRA. Two purchases of potential base coverage were completed in 2000 and 2002, and in both cases the coverage was retired toward our obligation in the Cave Rock HRA. Opportunities to purchase coverage or participate in restoration projects in this HRA did not materialize for a number of years. However, in the fall of 2013, the Nevada Land Bank completed an acquisition of restored, low capability coverage. A large portion of coverage associated with this acquisition was retired and 12,989 square feet of this coverage has been made available for transfer. The coverage is currently advertised, along with the rest of our inventory, on the TDR Exchange tab on the TRPA website (http://www.trpa.org/permitting/transfer-development-rights/tdr-marketplace/). NDSL has received queries from people seeking CFA and TAU (commodities that the Nevada Land Bank presently does not offer). Currently the South Stateline HRA has the highest coverage retirement obligation (approximately 83,000 square feet) on the Nevada side of the Tahoe Region.

RPU EIS Coverage Demand Analysis
The following coverage demand analysis is excerpted from the RPU EIS, Vol. 1 beginning at page H-11:

To assist in evaluating potential changes in the distribution of coverage resulting from the proposed changes to transfer provisions, TRPA evaluated data on factors that can provide an indication of the degree to which HRAs would send or receive greater amounts of coverage Region-wide: (1) land values, (2) existing market price of coverage, and (3) inventory of coverage available for transfer in each HRA. These factors were considered in aggregate to estimate the likelihood that each HRA would be a net sender or receiver of coverage transfers without HRA transfer restrictions.

Land Values: HRAs with higher land values would be more likely to receive coverage from HRAs with lower land values because coverage is a commodity associated with individual parcels of land. It would be more economically feasible to purchase land and transfer its coverage where land values are lower. The values for land value were derived from US Census data and current MLS real estate listings. Land value rankings for each HRA were created by obtaining the average and median values, determining the deviation between the average and median, and then setting an interval around the median equal to that deviation. Anything higher than the established interval was ranked "High," anything within the interval was ranked "Average," and anything below the interval was ranked "Low."

Existing Market Price of Coverage: The existing market price of coverage in each HRA is affected by the demand for coverage in the HRA and the supply of coverage in that HRA available for transfer. A high market price for coverage would indicate that the HRA has a high demand for transferred coverage and/or a limited supply of coverage available for transfer, which would make that HRA more likely to receive coverage transferred from other HRAs. The existing market price of coverage was based on a recent regional appraisal of coverage costs (Barnett 2010). Market price rankings were created by obtaining the average and median values, determining the deviation between the average and median, and then setting an interval around the median equal to that deviation. Market prices higher than the established interval were ranked "High," prices within the interval were ranked "Average," and prices below the interval were ranked "Low." Table 15 summarizes the market price of coverage for each HRA.

Table 15: Market Price and Acquisition and Restoration Costs in Each HRA.

HRA	Market Price Potential High Capability[1]	Market Price Potential Low Capability[1]	Market Price Existing[2]	Cost to Acquire Potential[2]	Cost to Acquire and Restore Existing[2]
Incline, NV	$22.00	$33.50	$22.00	$40.00	$40.00
Marlette, NV	$12.00	$12.00	-	-	-
Cave Rock, NV	$25.00	$25.00	$30.00	$45.00	-
South Stateline, NV	$15.00	$15.00	$15.00	$35.00	$55.00
South Stateline, CA	$5.00	$25.00	$6.50	$17.50	$35.00
Upper Truckee River, CA	$6.50	$25.00	$8.50	$20.00	$20.00
Emerald Bay, CA	$8.00	$30.00	$8.00	$50.00	-
McKinney Bay, CA	$7.25	$20.00	$7.50	$50.00	-
Tahoe City, CA	$10.00	$10.00	$10.00	$35.00	$45.00
Agate bay, CA	$10.00	$10.00	$30.00	$30.00	$20.00
Agate bay, NV	$18.00	$18.00	$25.50	$85.00	-

[1]Where the same market price is shown for high and low capability lands, insufficient data was available to distinguish price variations based on land capability.
[2] Limited data was available and it showed high variance. The appraisal incorporated previous analysis and market knowledge including comparison to land bank asking price and related sales activity.

Inventory of Available Coverage: A large inventory of coverage for sale indicates that the supply of coverage available for transfer is greater than the demand for coverage in the HRA, in which case the HRA would likely transfer more coverage to other HRAs than it would receive. Conversely, a low inventory of available coverage indicates that demand for coverage has kept up with the supply of available coverage and transfers of coverage into that HRA would be more likely. The estimate of coverage inventory was based on land bank inventories of coverage from 2011 (Table 16). Coverage inventory rankings were created by obtaining the average and median values, determining the deviation between the average and median, and then setting an interval around the median equal to that deviation. HRAs with inventories higher than the established interval were ranked "High," inventories within the interval were ranked "Average," and inventories below the interval were ranked "Low."

Table 16: Land Bank Inventory in 2011.

	Potential	Hard Coverage	Soft Coverage
South Stateline			
NV	0	311	15,548
CA	23,112	3,952	1,168
Upper Truckee	664,233	47,422	42,732
Emerald Bay	1,252	0	0
McKinney Bay	41,408	0	0
Tahoe City	48,314	0	0
Agate Bay			
CA	28,198	0	0
NV	0	3,500	0
Cave Rock	0	0	0
Incline	205,955	0	37,430
Marlette	0	0	0

Likelihood of Net Sending or Receiving**:** The likelihood that each HRA would be a net sender or receiver of transferred coverage was estimated by assigning numerical values to each ranking of land values, market price, and inventory. Values of 1 were assigned to rankings that indicate the HRA would not be a net receiving area (i.e., low real estate values or market price, or high inventory). Values of 2 were assigned to all "Average" rankings. Values of 3 were assigned to rankings that indicate an HRA would be more likely to be a net receiving area (i.e., high land values or market price, or low inventory). Two HRAs had no inventory of coverage available for transfer. Since this is a strong indicator that those HRAs would not be net sending areas, they were assigned a value of 4 for the inventory of coverage. For each HRA, the values were averaged for real estate values, market price, and inventory to determine the likelihood that an HRA would be a net receiving area. HRAs with an average score of 1–2 were considered to have a low likelihood of being a net receiving area. Average scores of 2–2.5 indicated that the HRA had an average likelihood of being a net receiving area and an equal likelihood of being a net sending area. HRAs with an average score of 2.5 or greater were considered to have a high likelihood of being a net receiving area. Table 17 shows the rankings for land values, market price, and inventory for each HRA, as well as the aggregate likelihood that each HRA would be a net coverage receiving area without existing transfer restrictions.

While the market forces summarized in Table 17 provide an indication of the potential distribution of coverage transfers, many other factors would affect the actual distribution of coverage transfers. Variations within each HRA with respect to land value could influence transfers. Coverage transfers are allowed only under specific circumstances, and the amount of land within each HRA where transfers would be allowed was not addressed here. As such, this estimate provides a reasonable indication of transfer patterns, but does not predict the exact future distribution of coverage.

Table 17: Relative Likelihood of Transfer within Each HRA

HRA	Land Values	Market Price	Inventory	Receiving Likelihood
Incline, NV	High	High	High	*Average*
Marlette, NV	High	Average	None	*High*
Cave Rock, NV	High	High	None	*High*
South Stateline, NV	Low	Average	Average	*Low*
South Stateline, CA	Low	Low	Average	*Low*
Upper Truckee River, CA	Low	Average	Average	*Low*
Emerald Bay, CA	Average	Average	Low	*Average*
McKinney Bay, CA	Average	Low	Average	*Low*
Tahoe City, CA	High	Low	Low	*Average*
Agate Bay, CA	Average	Low	Average	*Low*
Agate Bay, NV	Average	High	Low	*High*