





Department of Environmental Conservation







DRINKING WATER SOURCE PROTECTION PLAN

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Implementation Team

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Drinking Water Source Protection Program (DWSP2)

Going from Assessment → Protection





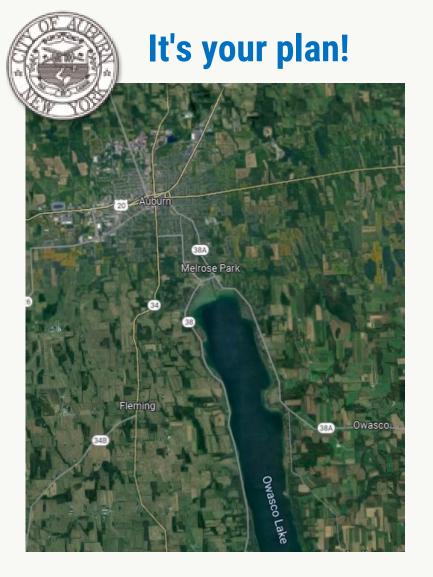
A plan to preserve water quality that is currently good.











DWSP2 will complement existing water quality initiatives like:

- Owasco Lake Watershed Nine Element Plan
- Owasco Lake Watershed Rules & Regulations
- City of Auburn initiative to secure Total Maximum Daily Load (TMDL)
- NYS DEC Owasco Lake Harmful Algal Bloom (HAB) Action Plan

1. Stakeholder Group

- 1.1 Form a Stakeholder Group
- 1.2 Establish Goals and Formulate a Vision

2. Drinking Water Source Assessment

- 2.1 Develop an Overview of the Water System
- 2.2 Prepare a Drinking Water Source Protection Map
- 2.3 Create a Potential Contaminant Source Inventory

3. Protection and Implementation Strategies

- 3.1 Identify Protection and Management Methods
- 3.2 Develop an Implementation Timeline

4. Progression and Maintenance





COMMUNITY ADVISORY GROUP

Seth Jensen City of Auburn Municipal Utilities

John West City of Auburn Municipal Utilities

Timothy O'Brien City of Auburn Municipal Utilities

Jimmy Giannettino City of Auburn City Council

Adam Effler Owasco Lake Watershed Management Council

Stephen Lynch Cayuga County Planning & Economic Development

Michele Wunderlich Cayuga County Planning & Economic Development

Ed Wagner Town of Owasco Supervisor

Eileen O'Connor Cayuga County Department of Health

Douglas Barnes Tompkins County Department of Health

Consulting team led by LaBella Associates with Behan Planning and Design and other team members

VISION

Move Owasco lake into a healthier state to maintain clean drinking water with minimal treatment needed for the current and future residents and customers of the City of Auburn.

A series of supportive goals were also developed.

1. Stakeholder Group

- 1.1 Form a Stakeholder Group ✓
- 1.2 Establish Goals and Formulate a Vision ✓

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MAPS





SOURCE AREAS

All land and land uses in the watersheds and subwatersheds of Owasco Lake.

CRITICAL AREAS

Land along Owasco Lake shoreline & tributary buffers, including:

- Developed residential and commercial land
- Open space and agricultural areas
- Roads

1. Stakeholder Group

- 1.1 Form a Stakeholder Group ✓
- 1.2 Establish Goals and Formulate a Vision

 ✓

2. Drinking Water Source Assessment

- 2.1 Develop an Overview of the Water System ✓
- 2.2 Prepare a Drinking Water Source Protection Map ✓
- 2.3 Create a Potential Contaminant Source Inventory ✓

3. Protection and Implementation Strategies

- 3.1 Identify Protection and Management Methods
- 3.2 Develop an Implementation Timeline

4. Progression and Maintenance





CITY OF AUBURN

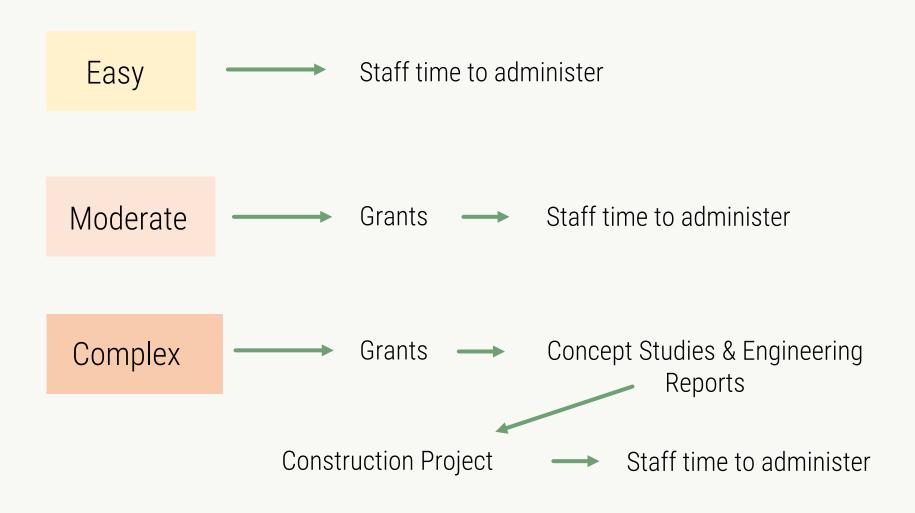
Category	Priority for Auburn's drinking water	Priority Issue	Geography	Targeted Potential Contaminant Source(s)	Objective Addressed	Protection Method and/or Management Method	Ease to Implement	Potential Cost	Potential Funding Sources (among others)	Project Leader and Partnerships Needed	Implementation Timing
	Moderate	Developed land within critical areas (lakeshore and stream buffers)	Critical area	Fertilizer, pesticides, herbicides, sediment, oils and metals	Reduce fertilizer, pesticides, herbicides, sediment, oils and metals in surface water	Advance a collection of property management awareness initiatives including fertilizer, pesticide and herbicide management and meaures to reduce erosion and sedimentation from fire roads, driveways and ditches, including setbacks from streams (education programs including City awareness campaign with water bills, partner with Cornell Cooperative Extension and nonprofits for delivery of educational program for schools, demonstration projects, community incentive projects).	Moderate	Time and staff to administer (\$5- 15k/year/municipality)	Municipalities, other: NYS EFC Green Innovation Grant Program, National Fish and Wildlife Foundation/Wildlife Habitat Council Five Star and Urban Waters Restoration Grant Program	Lead - Owasco Lake Watershed Management Council, Partners - Owasco Watershed Lake Association, City, Municipalities, Cornell Cooperative Extension	Year 1 and on-going
Commercial &	Low	Development in the	Critical area &	Nutrients, chemicals, sediment and	Decrease potential for more	Develop and adopt a source water protection overlay ordinance in each municipality.	Moderate	Time and staff (around \$15-30k including legal review, SEQR and adoption per municipality)	Future grants supporting DWSP2 initiatives	Partners - County Planning	Years 2 - 5
residential areas	Low	watershed	source area	pathogens	nutrients and runoff	Permanently protect sensitive land along tributaries through consevation easements and similar measures.	Moderate	Acquisition & easements costs per appraisal/program	NYS DEC Water Quality Improvement Project (WQIP) Program, USDA NRCS Healthy Forests Reserve Program	Lead - Municipalities, Partners - landowners, County Planning, Owasco Lake Watershed Management Council	Years 3 - 5
	Low	Sentic systems	Critical area &	Nutrients and pathogens	Limit nutrient and pathogen	Incentivized voluntary upgrades to septic systems that do not meet current standards in all critical areas. Reduce the percentage of homeowner in-kind required. Incentivize installation of nutrient removal technology in critical areas.	Moderate	Approx. \$20,000 per upgrade	NYS EFC Septic System Replacement Program	Lead - Cayuga, Tompkins, Onondaga County Departments of Health, Partners - Municipalities	On-going
	Low Septic systems		source area	Chemicals and pharmaceuticals		Track trends in emerging contaminants from septic systems and wastewater treatment plants.	Moderate	High level study to address NYS DOH regs (\$30k), implementation TBD	Future grants supporting DWSP2 initiatives	Lead - Municipalities, Partners - County Planning, Owasco Lake Watershed Management Council	Years 5 - 10
	High	Reduce nutrient and sediment entering Dutch Hollow, Sucker & Veness Brooks & other northern area draining directly into	ont entering follow, Sucker as Brooks & Northern end orthern area of critical and		Nutrients, chemicals and sediment transporting into the lake	Expand nutrient management planning, whole farm planning and implementation of best management practices (such as Agricultural Environmental Mgmt (AEM) programs and biofertilizers) tailored to the farm in partnership with farmland owners and operators. Expand collaboration with Soil & Water Conservation Districts and other specialists and build capacity train staff who create partnerships with farmland owners and operators and implement best management practices.	Moderate	Time and staff to administer (\$100k +/year), per nutrient plan budget (\$28-\$30/acre to develop a plan through the AEM program).	NYS Soil and Water Conservation Committee Agricultural Nonpoint Source	Lead - Farmland owners, County Soil & Water Conservation Districts, Cornell Cooperative Extension, Partner - Municipalities	Northern subwatersheds - Years 1 - 5, Southern subwatersheds - Years 2 - 6
		the lake (HUC 12 of Owasco Lake and Dutch Hollow Brook)	source area			Permanently protect sensitive land along tributaries through consevation easements and similar measures.	Moderate	Acquisition & easements costs per appraisal/program	USDA NRCS Agricultural Conservation Easement Program	Lead - Municipalities, Partner - Landowners, County Planning Departments, Owasco Lake Watershed Management Council	Northern subwatersheds - Years 1 - 5, Southern subwatersheds - Years 2 - 6
Agriculture	Moderate	Reduce nutrient and sediment entering at		and		Increase vegetated buffers, riparian buffers on tributaries and increase use of cover crops and tillage management though cooperative projects with landowners/farm operators and tailored to the farm.	Moderate	Acquisition & easements costs per appraisal/program	NYS DAWNYS Soil and Water Conservation Committee Source Water Buffer Program	Lead - Municipalities, Partner - Landowners, County Planning, Owasco Lake Watershed Management Council	Northern subwatersheds - Years 1 - 5, Southern subwatersheds - Years 2 - 6
	Woderdie	the Owasco Inlet				Develop and adopt a source water protection overlay ordinance in each municipality.	Moderate	Time and staff (around \$15-30k including legal review, SEQR and adoption per municipality)	Future grants supporting DWSP2 initiatives	Lead - Municipal governments, Partners - County Planning	Northern subwatersheds - Years 1 - 5, Southern subwatersheds - Years 2 - 6
	Moderate	CAFOs, manure lagoon or conveyance failure	Critical area & source area	Potential nutrients, pathogens, antibiotics, hormones, chemicals, sulfates	Reduce sediment transporting and nutrient, pathogen, and chemical loading into the lake	Expand collaboration with Soil & Water Conservation Districts to implement Agricultural Environmental Mgmt (AEM) programs and related best management practices in partnership with farmland owners and operators. Implement fail safe measures such as high level alarms, pump controller with failure alert.	Easy	Time and staff to administer (less than \$5k/year)	NYS Soil and Water Conservation Committee Agricultural Nonpoint Source	Lead - Municipalities, Partner - County Soil & Water Conservation Districts	Years 2 - 5
Planning &	High	To ensure the overall environmental health	Critical area &	All	To make best use of planning efforts and regulatory tools available	Implement, when finalized, Owasco Lake Watershed Nine Element Plan.	Moderate	Variable, many recommendations	Variable, many recommendations	Variable, many recommendations	Immediate
Regulations	T ligit	of the water source	source area			Implement, when finalized, Owasco Lake Watershed Rules & Regulations.	Moderate	Variable, many recommendations	Variable, many recommendations	Variable, many recommendations	Immediate

PROTECTION & IMPLEMENTATION METHODS, CONTINUED

CITY OF AUBURN

Category	Priority	Priority Issue	Geography	Targeted Potential Contaminant Source(s)	Objective Addressed	Protection Method and/or Management Method	Ease to Implement	Potential Cost	Potential Funding Sources (among others)	Project Leader and Partnerships Needed	Implementation Timing	
	Moderate	Roadside ditches	Critical area	Nutrients and sediment	Reduce the amount of nutrients and sediment running into critical source water area	Identify priority subwatersheds/erosion-prone corridors near water intake. Stabilize and implement green infrastructure in ditches. Develop options to reduce peak flows and related erosion and sedimentation with enhanced stormwater management designs.	Moderate	Time and staff to administer a stormwater management plan (\$50-100k), Install cost TBD (\$ million), maintenance (~\$30k/year)	NYS EFC Green Innovation Grant Program, NYS DEC Non- Agricultural Nonpoint Source Planning Grant Program	Lead - Municipalities and Cayuga County Soil & Water, Partner- Owasco Watershed Lake Association, County Highway	On-going	
							Moderate	Time and staff to administer, cost of signage materials (less than \$10k/year)			Year 2 and on-going	
Transportation - Roads, ditches & culverts	Low	Deicing chemicals	Critical area & source area	Salt (sodium chloride)	Reduce the amount of salt in critical and source water area	Create expanded partnership with state/county agencies, watershed communities and private partners for a holistic program to reduce saft usage, including BMPs like proper storage facilities (covered/concrete), cost-effective alternatives (anti-icing salt brine applications prior to storms), more efficient plows and post-storm assessments.	Complex	Convert roadside drainage over time to discourage ground water recharge of salty road runoff (\$ millions over time)	US EPA Urban Waters Small Grants Program, NYS EFC Green Innovation Grant Program	Lead - Municipal Highway Departments and engineers. Partners - NYS DOT, County Department of Public Works, watershed communities and private partners	Years 5 - 10	
							Complex	Upgrades of salting equipment to reduce salt (apply brine, etc) (+\$1 million)	NYS DEC WQIP Program - Other Projects		Years 3 - 5	
							Moderate	Partnership with state/county agencies on BMP training			Year 2 and on-going	
	Low	Accidental releases from highway corridors such as chemical/hazardous cargo	Critical area	Chemicals/petroluem products, milk, manure	Heightened awareness from emergency responders to spills in source water area	Explore potential enhanced preparedness for spill response with local/county/state responders, including amended Hazard Mitigation Plan and annual reminders for the location of critical source water areas.	Easy	Time and staff to create awareness/training plan (\$10k), and implement (\$2k annually)	DHSES Hazardous Materials Emergency Preparedness (HMEP) Grant Program	Lead - Municipalities, Partners - Cayuga County Emergency Management Office, Auburn Fire Department HazMat Team, NYS DEC, County and local responders	Year 1 and on-going	
	High	More frequent & intense storms creating increased runoff	Critical area & source area	Nutrients and sediment	Reduce surge of nutrients and sediments into lake, enhance groundwater recharge.	Prioritize vulnerable subwatershed areas and collaborate with landowners to develop a targeted plan which may include riparian, forested and vegetated buffers, storm water retention areas and other best management practices like conservation easements.	Moderate	Acquisition & easements costs per appraisal/program	NYS DEC Climate Smart Communities Grant Program, NYS DEC Trees for Tribs	Lead - Municipalities, Partner - Landowners, County Planning, Owasco Lake Watershed Management Council	Years 2 - 6	
						Maximize shading for all tributaries using riparian buffers and tree planting programs.	Moderate	Variable per project cost (~\$5 - 50k), Recommended watershed wide budget ~\$500k/year	NYS DEC Trees for Tribs	Lead - Municipalities, Partner - County Soil & Water Conservation Districts	Years 3 - 5	
	Moderate	Increase in lake temperature due to climate change	Critical area	Harmful algal blooms (HABs) stimulant and some invasive species need warmer temperatures to survive	Manage temperature to prevent increased potential for HAB proliferation	Maximize groundwater recharge across watersheds to increase percentage of water entering streams and lake as earth-cooled springs and baseflow (retention ponds, pools, basins).	Moderate	\$50 - 80k for feasibility/design study, \$250k/year for implementation projects	NYS DEC Climate Smart Communities Grant Program, NYS EFC Green Innovation Grant, NYS EFC Integrated Solutions Construction Grant Program, WQIP	Lead - Municipalities, Partner - Landowners, County Planning, Owasco Lake Watershed Management Council	Years 3 - 5	
Trends and future threats				iomporatures to survive		Explore innovative strategies (such as in lake shading structures) over water intake pipe to cool the water.	Complex	Concept study (\$30k), Implementation TBD	NYSERDA Clean Energy Communities Program	Lead - City of Auburn, Partner - NYSERDA	Year 2 (study)	
						Investigate the benefits and costs of moving the municipal water intake to a deeper/cooler location, after studing the efficacy and water quality parameters of an extension.	Moderate	Investigative study (\$50-150k), Capital cost of moving intake (cost estimate TBD)	NYS EFC Water Infrastructure Improvement Act, NYS EFC Integrated Solutions Construction Grant Program	Lead - City of Auburn	Year 1	
	Moderate	Invasive species	Critical area	Nutrients (eutrophication), threats to biodiversity, erosion and sediment	Reduce invasive species in critical areas	Continue prevention, monitoring and appropriate treatment of invasive species and support expanded lake/watershed stewardship activities.	Moderate	City time and staff to monitor \$0/year, Add a seasonal lake steward (\$10k), treatment TBD (ongoing by others)	NYS DEC Invasive Species Grant Program, Finger Lakes Lake Ontario Watershed Protection Alliance	Lead - NYS DEC, Partners - Finger Lakes Partnership for Regional Invasive Species Management, Cayuga County Planning Department, Owasco Lake Watershed Management Council, Municipalities	On-going	
	Low	Emerging contaminants	Critical area & source area	Unknown	Finding and addressing emerging contaminants	Determine recommended additional testing protocols with intermunicipal collaboration to identify potential future threats. Respond appropriately with mitigation activities, thru septic systems and wastewater treatment plants.	Moderate	Time and staff to administer (less than \$5k/year)		Lead - Municipalities, Partner - Owasco Lake Watershed Management Council	Years 5 -10	

IMPLEMENTATION STEPS



PROTECTION & IMPLEMENTATION METHODS - EXAMPLE

Category	Priority for Auburn's drinking water	Priority Issue	Geography	Targeted Potential Contaminant Source(s)	Objective Addressed	Protection Method and/or Management Method
Trends and future threats	Moderate	Invasive species	Critical area	Nutrients (eutrophication), threats to biodiversity, erosion and sediment	Reduce invasive species in critical areas	Continue prevention, monitoring and appropriate treatment of invasive species and support expanded lake/watershed stewardship activities.

Ease to Implement	Potential Cost	Potential Funding Sources (among others)	Project Leader and Partnerships Needed	Implementation Timing
Moderate	City time and staff to monitor \$0/year, Add a seasonal lake steward (\$10k), treatment TBD (ongoing by others)	NYS DEC Invasive Species Grant Program, Finger Lakes Lake Ontario Watershed Protection Alliance	Lakes Partnership for Regional Invasive Species Management, Cayuga County Planning Department, Owasco Lake Watershed Management	On-going

1. Stakeholder Group

- 1.1 Form a Stakeholder Group ✓
- 1.2 Establish Goals and Formulate a Vision ✓

2. Drinking Water Source Assessment

- 2.1 Develop an Overview of the Water System ✓
- 2.2 Prepare a Drinking Water Source Protection Map ✓
- 2.3 Create a Potential Contaminant Source Inventory ✓

3. Protection and Implementation Strategies

- 3.1 Identify Protection and Management Methods ✓
- 3.2 Develop an Implementation Timeline ✓

4. Progression and Maintenance





RECOMMENDED CITY OF AUBURN PLAN MANAGEMENT TEAM

Seth Jensen, City of Auburn Municipal Utilities

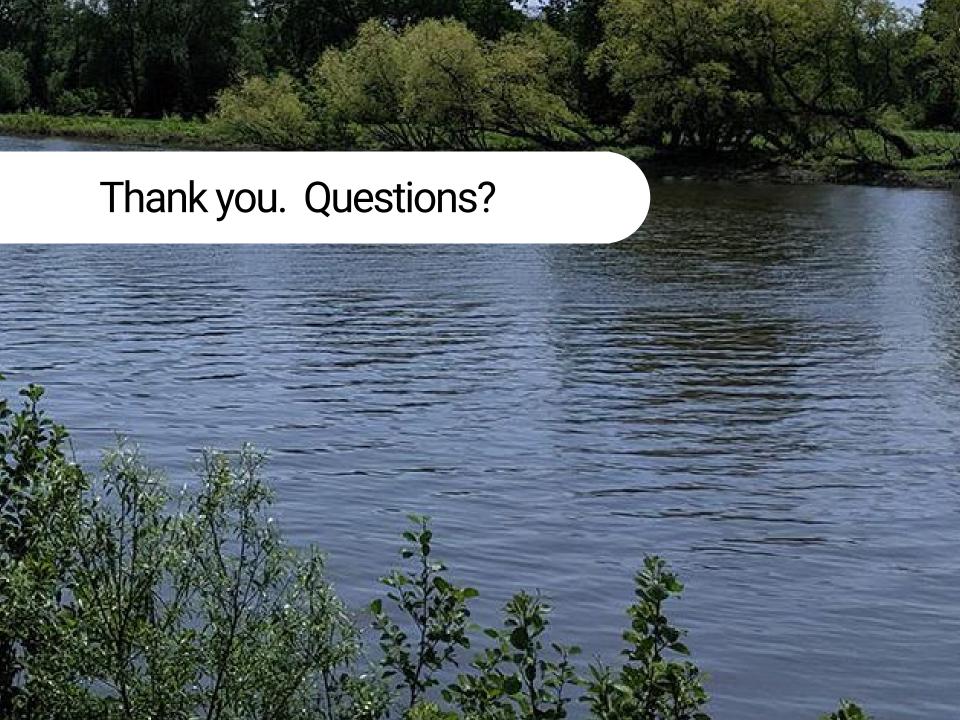
City planner TBA, City of Auburn

Adam Effler, Owasco Lake Watershed Management Council

Councilor Giannettino, City of Auburn liaison, as needed

NEXT STEPS

- Review the input from this meeting and prepare a full draft plan.
- Next Advisory Committee meeting for feedback on draft plan.
 - Review of plan by State for completeness only.
 - Final plan approved and recommended to City by Advisory Committee.
- City Council is asked to endorse the plan.
- Plan is then ready to be implemented by Plan Management Team. Approved plans are more eligible for funding assistance.



City of Aub	urn DWSP2	Table 3.1 Identify	y Protection	and Management	: & Table 3.2 Implemer	ntation Methods					
Category	Priority for Auburn's drinking water	Priority Issue	Geography	Targeted Potential Contaminant Source(s)	Objective Addressed	Protection Method and/or Management Method	Ease to Implement	Potential Cost	Potential Funding Sources (among others)	Project Leader and Partnerships Needed	Implementation Timing
	Moderate	Developed land within critical areas (lakeshore and stream buffers)	Critical area	Fertilizer, pesticides, herbicides, sediment, oils and metals	Reduce fertilizer, pesticides, herbicides, sediment, oils and metals in surface water	Advance a collection of property management awareness initiatives including fertilizer, pesticide and herbicide management and meaures to reduce erosion and sedimentation from fire roads, driveways and ditches, including setbacks from streams (education programs including City awareness campaign with water bills, partner with Cornell Cooperative Extension and nonprofits for delivery of educational program for schools, demonstration projects, community incentive projects).	Moderate	Time and staff to administer (\$5- 15k/year/municipality)	Municipalities, other: NYS EFC Green Innovation Grant Program, National Fish and Wildlife Foundation/Wildlife Habitat Council Five Star and Urban Waters Restoration Grant Program	Lead - Owasco Lake Watershed Management Council, Partners - Owasco Watershed Lake Association, City, Municipalities, Cornell Cooperative Extension	Year 1 and on-going
Commercial &	Low	Development in the	Critical area &	Nutrients, chemicals,	Decrease potential for more	Develop and adopt a source water protection overlay ordinance in each municipality.	Moderate	Time and staff (around \$15-30k including legal review, SEQR and adoption per municipality)	Future grants supporting DWSP2 initiatives	Lead - Municipal government, Partners - County Planning	Years 2 - 5
residential areas	Low	watershed	source area	sediment and pathogens	nutrients and runoff	Permanently protect sensitive land along tributaries through consevation easements and similar measures.	Moderate	Acquisition & easements costs per appraisal/program	NYS DEC Water Quality Improvement Project (WQIP) Program, USDA NRCS Healthy Forests Reserve Program	Lead - Municipalities, Partners - landowners, County Planning, Owasco Lake Watershed Management Council	Years 3 - 5
	Low	Septic systems	Critical area &	Nutrients and pathogens	Limit nutrient and pathogen transfer into the lake	Incentivized voluntary upgrades to septic systems that do not meet current standards in all critical areas. Reduce the percentage of homeowner in-kind required. Incentivize installation of nutrient removal technology in critical areas.	Moderate	Approx. \$20,000 per upgrade	NYS EFC Septic System Replacement Program	Lead - Cayuga, Tompkins, Onondaga County Departments of Health, Partners - Municipalities	On-going
		, ,	source area	Chemicals and pharmaceuticals		Track trends in emerging contaminants from septic systems and wastewater treatment plants.	Moderate	High level study to address NYS DOH regs (\$30k), implementation TBD	Future grants supporting DWSP2 initiatives	Lead - Municipalities, Partners - County Planning, Owasco Lake Watershed Management Council	Years 5 - 10
	High	Reduce nutrient and sediment entering Dutch Hollow, Sucker & Veness Brooks & other northern area draining directly into	Northern end of critical and			Expand nutrient management planning, whole farm planning and implementation of best management practices (such as Agricultural Environmental Mgmt (AEM) programs and biofertilizers) tailored to the farm in partnership with farmland owners and operators. Expand collaboration with Soil & Water Conservation Districts and other specialists and build capacity to train staff who create partnerships with farmland owners and operators and implement best management practices.	Moderate	Time and staff to administer (\$100k +/year), per nutrient plan budget (\$28-\$30/acre to develop a plan through the AEM program).	NYS Soil and Water Conservation Committee Agricultural Nonpoint Source	Lead - Farmland owners, County Soil & Water Conservation Districts, Cornell Cooperative Extension, Partner - Municipalities	Northern subwatersheds - Years 1 - 5, Southern subwatersheds - Years 2 - 6
		the lake (HUC 12 of Owasco Lake and Dutch Hollow Brook)	source area	Nutrients, chemicals and sediment	Reduce nutrient loading, chemical and sediment transporting into the lake	Permanently protect sensitive land along tributaries through consevation easements and similar measures.	Moderate	Acquisition & easements costs per appraisal/program	USDA NRCS Agricultural Conservation Easement Program	Lead - Municipalities, Partner - Landowners, County Planning Departments, Owasco Lake Watershed Management Council	Northern subwatersheds - Years 1 - 5, Southern subwatersheds - Years 2 - 6
Agriculture	Moderate	Reduce nutrient and sediment entering at	Southern end of critical and		. ,	Increase vegetated buffers, riparian buffers on tributaries and increase use of cover crops and tillage management though cooperative projects with landowners/farm operators and tailored to the farm.	Moderate	Acquisition & easements costs per appraisal/program	NYS DAM/NYS Soil and Water Conservation Committee Source Water Buffer Program	Lead - Municipalities, Partner - Landowners, County Planning, Owasco Lake Watershed Management Council	Northern subwatersheds - Years 1 - 5, Southern subwatersheds - Years 2 - 6
		the Owasco Inlet	source area			Develop and adopt a source water protection overlay ordinance in each municipality.	Moderate	Time and staff (around \$15-30k including legal review, SEQR and adoption per municipality)	Future grants supporting DWSP2 initiatives	Lead - Municipal governments, Partners - County Planning	Years 1 and on-going Years 2 - 5 Years 3 - 5 On-going Years 5 - 10 Northern subwatersheds - Years 1 - 5, Southern subwatersheds - Years 2 - 6 Northern subwatersheds - Years 1 - 5, Southern subwatersheds - Years 2 - 6 Northern subwatersheds - Years 2 - 6
	Moderate	CAFOs, manure lagoon or conveyance failure	Critical area & source area	Potential nutrients, pathogens, antibiotics, hormones, chemicals, sulfates	Reduce sediment transporting and nutrient, pathogen, and chemical loading into the lake	Expand collaboration with Soil & Water Conservation Districts to implement Agricultural Environmental Mgmt (AEM) programs and related best management practices in partnership with farmland owners and operators. Implement fail safe measures such as high level alarms, pump controller with failure alert.	Easy	Time and staff to administer (less than \$5k/year)	NYS Soil and Water Conservation Committee Agricultural Nonpoint Source	Lead - Municipalities, Partner - County Soil & Water Conservation Districts	Years 2 - 5
Planning &	High	To ensure the overall environmental health	Critical area &	All	To make best use of planning efforts and	Implement, when finalized, Owasco Lake Watershed Nine Element Plan.	Moderate	Variable, many recommendations	Variable, many recommendations	Variable, many recommendations	Immediate
Regulations		of the water source	source area		regulatory tools available	Implement, when finalized, Owasco Lake Watershed Rules & Regulations.	Moderate	Variable, many recommendations	Variable, many recommendations	Variable, many recommendations	Immediate

City of Aubur	n DWSP2 T	able 3.1 Identify F	Protection an	d Management & Table	3.2 Implementation M	ethods					
Category	Priority	Priority Issue	Geography	Targeted Potential Contaminant Source(s)	Objective Addressed	Protection Method and/or Management Method	Ease to Implement	Potential Cost	Potential Funding Sources (among others)	Project Leader and Partnerships Needed	Implementation Timing
	Moderate	Roadside ditches	Critical area	Nutrients and sediment	Reduce the amount of nutrients and sediment running into critical source water area	Identify priority subwatersheds/erosion-prone corridors near water intake. Stabilize and implement green infrastructure in ditches. Develop options to reduce peak flows and related erosion and sedimentation with enhanced stormwater management designs.	Moderate	Time and staff to administer a stormwater management plan (\$50-100k), Install cost TBD (\$ million), maintenance (~\$30k/year)	NYS EFC Green Innovation Grant Program, NYS DEC Non- Agricultural Nonpoint Source Planning Grant Program	Lead - Municipalities and Cayuga County Soil & Water, Partner- Owasco Watershed Lake Association, County Highway	On-going
							Moderate	Time and staff to administer, cost of signage materials (less than \$10k/year)			Year 2 and on-going
Transportation - Roads, ditches 8 culverts	Low	Deicing chemicals	Critical area & source area	Salt (sodium chloride)	Reduce the amount of salt in critical and source water area	Create expanded partnership with state/county agencies, watershed communities and private partners for a holistic program to reduce salt usage, including BMPs like proper storage facilities (covered/concrete), cost-effective alternatives (anti-icing salt brine applications prior to storms), more efficient plows and post-storm assessments.	Complex	Convert roadside drainage over time to discourage ground water recharge of salty road runoff (\$ millions over time)	US EPA Urban Waters Small Grants Program, NYS EFC Green Innovation Grant Program	Lead - Municipal Highway Departments and engineers. Partners - NYS DOT, County Department of Public Works, watershed communities and private partners	Years 5 - 10
							Complex	Upgrades of salting equipment to reduce salt (apply brine, etc) (+\$1 million)	NYS DEC WQIP Program - Other Projects		Years 5 - 10 Years 3 - 5 Year 2 and on-going Year 1 and on-going Years 2 - 6 Years 3 - 5
							Moderate	Partnership with state/county agencies on BMP training			Year 2 and on-going
	Low	Accidental releases from highway corridors such as chemical/hazardous cargo	Critical area	Chemicals/petroluem products, milk, manure	Heightened awareness from emergency responders to spills in source water area	Explore potential enhanced preparedness for spill response with local/county/state responders, including amended Hazard Mitigation Plan and annual reminders for the location of critical source water areas.	Easy	Time and staff to create awareness/training plan (\$10k), and implement (\$2k annually)	DHSES Hazardous Materials Emergency Preparedness (HMEP) Grant Program	Lead - Municipalities, Partners - Cayuga County Emergency Management Office, Auburn Fire Department HazMat Team, NYS DEC, County and local responders	Year 1 and on-going
	High	More frequent & intense storms creating increased runoff	Critical area & source area	Nutrients and sediment	Reduce surge of nutrients and sediments into lake, enhance groundwater recharge.	Prioritize vulnerable subwatershed areas and collaborate with landowners to develop a targeted plan which may include riparian, forested and vegetated buffers, storm water retention areas and other best management practices like conservation easements.	Moderate	Acquisition & easements costs per appraisal/program	NYS DEC Climate Smart Communities Grant Program, NYS DEC Trees for Tribs	Lead - Municipalities, Partner - Landowners, County Planning, Owasco Lake Watershed Management Council	Years 2 - 6
						Maximize shading for all tributaries using riparian buffers and tree planting programs.	Moderate	Variable per project cost (~\$5 - 50k), Recommended watershed wide budget ~\$500k/year	NYS DEC Trees for Tribs	Lead - Municipalities, Partner - County Soil & Water Conservation Districts	Years 3 - 5
	Moderate	Increase in lake temperature due to climate change	Critical area	Harmful algal blooms (HABs) stimulant and some invasive species need warmer temperatures to survive	Manage temperature to prevent increased potential for HAB proliferation	Maximize groundwater recharge across watersheds to increase percentage of water entering streams and lake as earth-cooled springs and baseflow (retention ponds, pools, basins).	Moderate	\$50 - 80k for feasibility/design study, \$250k/year for implementation projects	NYS DEC Climate Smart Communities Grant Program, NYS EFC Green Innovation Grant, NYS EFC Integrated Solutions Construction Grant Program, WQIP	Lead - Municipalities, Partner - Landowners, County Planning, Owasco Lake Watershed Management Council	Years 3 - 5
Trends and future threats				temperatures to survive		Explore innovative strategies (such as in lake shading structures) over water intake pipe to cool the water.	Complex	Concept study (\$30k), Implementation TBD	NYSERDA Clean Energy Communities Program	Lead - City of Auburn, Partner - NYSERDA	Year 2 (study)
						Investigate the benefits and costs of moving the municipal water intake to a deeper/cooler location, after studing the efficacy and water quality parameters of an extension.	Moderate	Investigative study (\$50-150k), Capital cost of moving intake (cost estimate TBD)	NYS EFC Water Infrastructure Improvement Act, NYS EFC Integrated Solutions Construction Grant Program	Lead - City of Auburn	Year 1
	Moderate	Invasive species	Critical area	Nutrients (eutrophication), threats to biodiversity, erosion and sediment	Reduce invasive species in critical areas	Continue prevention, monitoring and appropriate treatment of invasive species and support expanded lake/watershed stewardship activities.	Moderate	City time and staff to monitor \$0/year, Add a seasonal lake steward (\$10k), treatment TBD (ongoing by others)	NYS DEC Invasive Species Grant Program, Finger Lakes Lake Ontario Watershed Protection Alliance	Lead - NYS DEC, Partners - Finger Lakes Partnership for Regional Invasive Species Management, Cayuga County Planning Department, Owasco Lake Watershed Management Council, Municipalities	
	Low	Emerging contaminants	Critical area & source area	Unknown	Finding and addressing emerging contaminants	Determine recommended additional testing protocols with intermunicipal collaboration to identify potential future threats. Respond appropriately with mitigation activities, thru septic systems and wastewater treatment plants.	Moderate	Time and staff to administer (less than \$5k/year)		Lead - Municipalities, Partner - Owasco Lake Watershed Management Council	Years 5 -10

City of Auburn DWSP2 Vision & Goals

Vision Statement

Move Owasco lake into a healthier state to maintain clean drinking water with minimal treatment needed for the current and future residents and customers of the City of Auburn.

Goals

- 1. Increase watershed-wide community awareness on how their actions affect the watershed.
- 2. Protect the watershed through a plan with resiliency and a proactive management and infrastructure approach to climate change (thermal, rainfall patterns, other).
- 3. Consider efficacy of extending the City's intake pipe to access higher-quality lake source water.
- 4. Reduce nutrient loading and sediment transporting into the lake (building on the 9 Element Plan goals, etc.) since this is understood to reduce Harmful Algal Bloom (HAB) occurrences.
- 5. Consider the proposed Owasco Lake Watershed Rules & Regulations Update, 9 Element Plan, invasive species, and Harmful Algal Bloom Action Plan findings and recommendations to inform and compliment the DWSP2.
- 6. Plan for the future, by testing for pesticides and chemicals, finding and addressing emerging contaminants, monitoring invasive species, as well as any other measures needed to anticipate future threats.
- 7. Discover scalable cost structures, grant opportunities, and other strategies to address funding gaps for source protection.
- 8. Provide a host of lake ecosystem benefits for all communities surrounding Owasco lake by helping improve the lake quality.
- 9. Identify discrete protection strategies focused on water supply security for the City of Auburn.