



Lake/Pond Management Plans

Mike Adam, Senior Biologist

Lake Management Plans

- A document that guides your lake management decisions.
- Encourages partnerships between concerned citizens, special interest groups, and resource management agencies.
- Identifies the concerns regarding the lake.
- Sets **realistic** goals, objectives and actions.
- Identifies needed funds and personnel.
- Fluid – can be changed over time as lake issues or management techniques change.



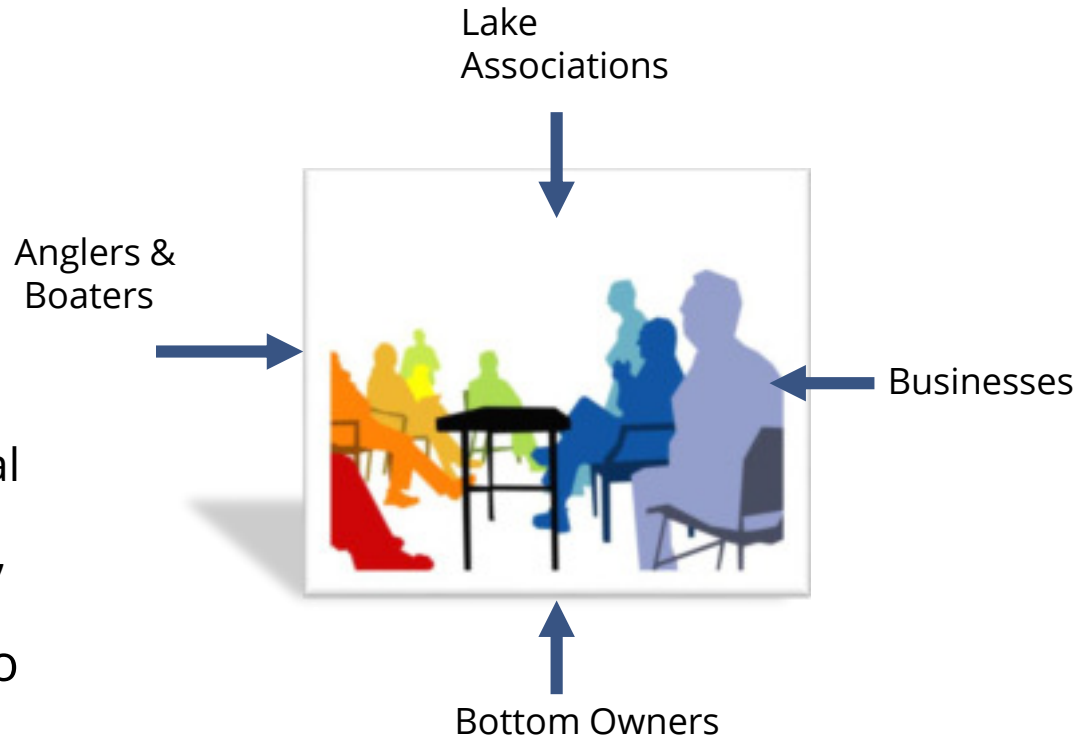
7 Steps for Adaptive Lake Management Planning

1. Identify Stakeholders
2. Gather Information & Identify Concerns
3. Develop Goals, Actions, Objectives
4. Evaluate Solutions & Alternatives
5. Take Action
6. Monitor & Evaluate
7. Re-assess & Modify



1. Identify Stakeholders

- Identify all stakeholders
 - Broad community support
- Identify Communication Pathways
 - Examples: Open Public Meetings, Workshops, Social Media, News Releases, Questionnaires, Newsletter, Website, Emails
- Identify groups/individuals who can provide support
 - Volunteers, Government Entities, Consultants, etc.
- Establish a Lake Planning Committee



2. Gather Information & Identify Concerns

- Purpose of this step is to learn as much as possible about the lake.
- Identify gaps or missing data.
- Use all information available to identify problems and concerns regarding your lake.
- Nominal Group Technique

LAKE COUNTY, IL
2016 AMES PIT SUMMARY REPORT
LAKE COUNTY HEALTH DEPARTMENT
BIOLOGICAL SERVICES



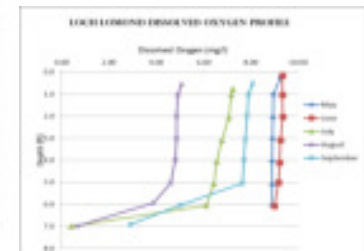
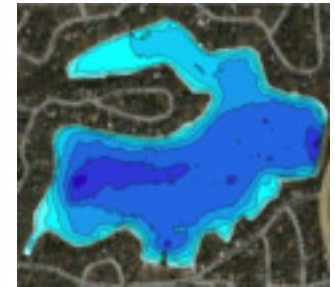
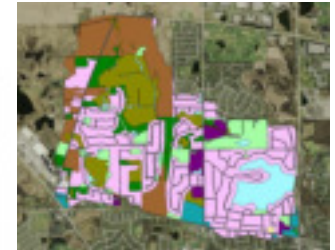
Ames Pit, 2016

Ames Pit is a shallow, brown pit lake located in Van Patten Woods Forest Preserve in northern Lake County. It is located entirely within U.S. Forest property and is used by the public for fishing and wildlife. Ames Pit originates from the Des Plaines River but can receive overflow from the Des Plaines River during flooding.

In 2016, the Lake County Health Department, Ecological Services (LCHD-ES) monitored Ames Pit as part of routine water quality sampling. Two water samples were collected once a month from May through September. Ames Pit was thermally stratified from May through September and water chemistry can be significantly different between the epilimnion (near upper layer) and hypolimnion (cool bottom layer) within the lake. Since it was stratified, two water samples were collected at the deepest point in the lake (Appendix A), three feet below the surface and 1 foot above the bottom to represent the epilimnion and hypolimnion. Samples were analyzed for nutrients, solid concentrations and other physical parameters. Additionally, an aquatic plant survey was conducted in July (2016) and a shoreline assessment survey was conducted in October (2016). This report summarizes the water quality sampling results, aquatic plant survey, and shoreline survey conducted on Ames Pit by the LCHD-ES for 2016.

Transfer with owner	
LAKE BOARD	1
WATERSHED	1
LANDING	4
WATER CLARITY	1
FLAP	1
TID	1
PERFORMANCE	1
HYPOXIC ZONE	1
TRIBUTARY DRAIN	1
FOUL OUTFLOW	1
DEBRIS/DETONATION	1
QUALITY & P	1
CONSTRUCTION	1
CONCRETE	1
LAKE AREA	1
SHORELINE	1
SHORELINE BUFFER	1
AGRICULTURE	1
WET	1
PLANT MANAGEMENT	1
LAKE MANAGEMENT	1
SHORELINE BUFFER	1
RECONSTRUCTION	1

ECOLOGICAL SERVICES WATER QUALITY SPECIALISTS
 Alan Herold Ecological Services Gary Mahoney
 aherold@lchdcounty.gov 847.477.6000 gmahoney@lchdcounty.gov



Gathering Information & Data

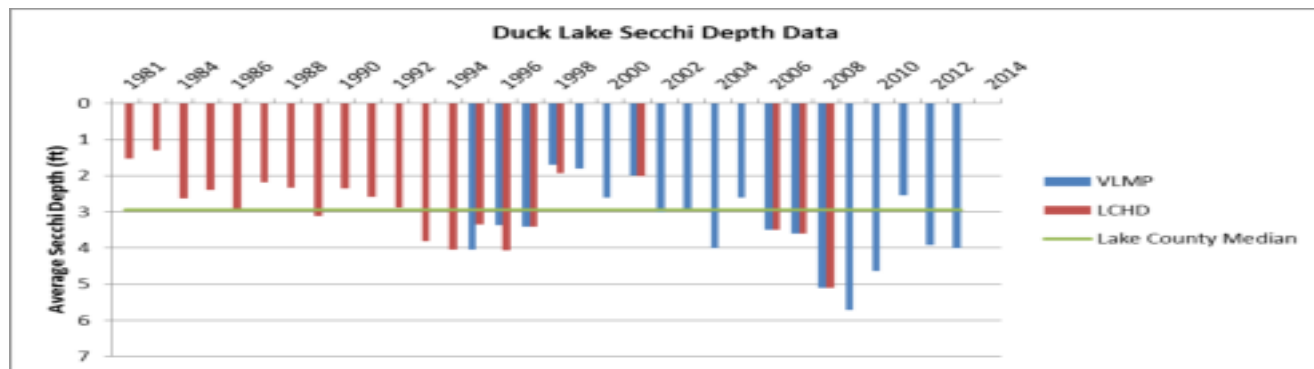
The Lake Planning Committee needs to collect the following:

- Maps and historical documents about the lake and traditional uses
- Aerial photos
- Bathymetric maps
- State and local regulations and ordinances
- Technical information/research on topics of concern
 - WQ, aquatic plants, fish, wildlife
- Watershed map and land use characteristics
- Social and demographic trends

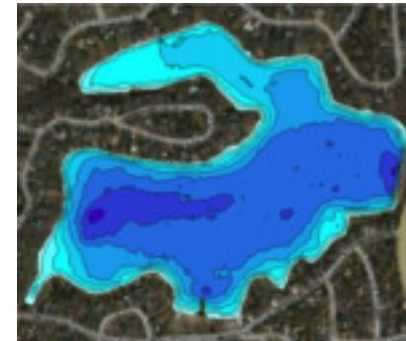
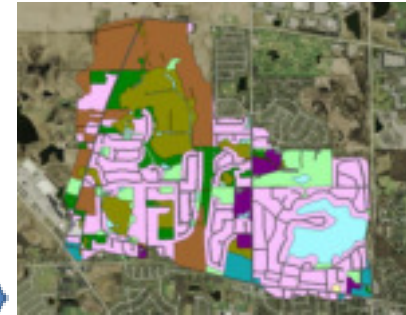
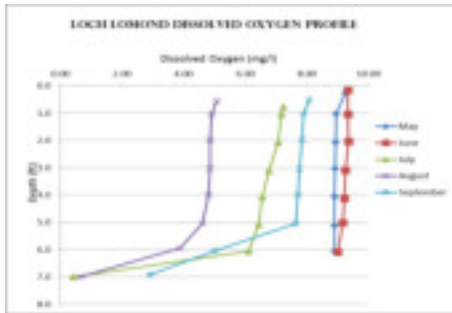


Volunteer Lake Monitoring Program - VLMP

- Water Clarity (Secchi Disk transparency)
- Water Chemistry
- Dissolved Oxygen / Temperature Profiles
- Online Database

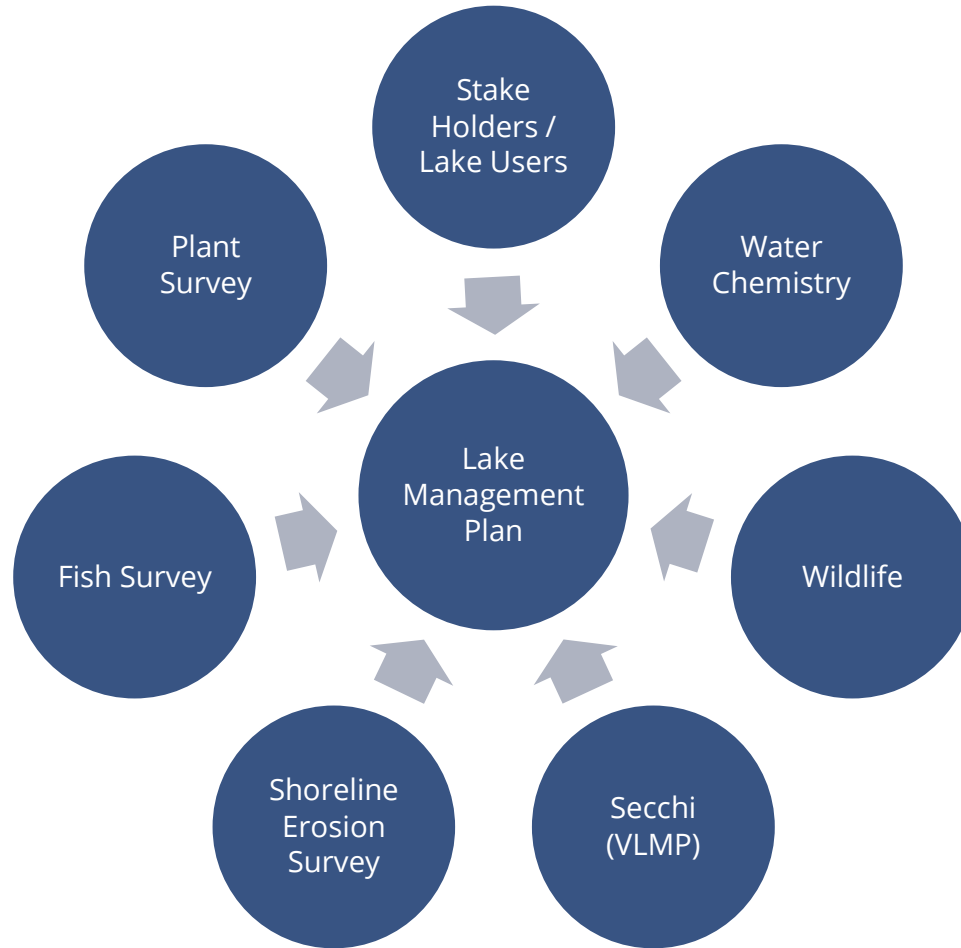


Technical Reports



2015	Epilimnion	ALK	TKN	NH ₃ -N	NO ₃ -N	TP	SRP	Cl	TDS	TSS	TS	TVS	SECCHI	COND	pH	DO
DATE	DEPTH															
13-May	3	174	0.94	<0.1	0.071	0.081	0.011	154	477	3.8	510	76	3.80	0.8550	8.13	8.92
17-Jun	3	181	1.40	<0.1	<0.05	0.114	0.022	152	475	10.0	538	133	3.00	0.8500	8.54	9.25
15-Jul	3	172	1.45	<0.1	<0.05	0.200	0.075	131	434	13.0	474	98	2.78	0.7680	8.49	6.78
12-Aug	3	169	1.86	<0.1	<0.05	0.305	0.168	111	398	15.0	446	97	1.60	0.6970	8.45	4.86
16-Sep	3	172	2.05	<0.1	<0.05	0.278	0.131	120	398	13.0	463	111	2.50	0.6980	8.51	7.76
Average		174	1.54	<0.1	0.071 ^k	0.196	0.081	134	436	11.0	486	103	2.74	0.7736	8.42	7.51

Valuable Data



3. Develop Vision, Goals, Objectives & Actions

- **Vision:** Your vision communicates what your group believes are the ideal conditions for your community “the dream”.
- **Goals:** General statement about what the group hopes to accomplish over the long term.
- **Objectives** identify specific measurable results to aim for towards each goal.
- **Actions** describe specific ways the group will reach it’s objectives.
- Successful plans have clearly defined goals and objectives that are ATTAINABLE.



3. Vision, Goals, Objectives, & Actions

Overall Vision: *“Our vision for the Fox River watershed in Illinois is to balance all the uses and demands on our natural resources while preserving and enhancing a healthy environment.” [Fox River Ecosystem Partnership]*

Separate goals by lake issues with objectives and specific actions.



➔ **Goal 8: Preserve the quiet nature and safety of Adams, Bear, and Thomas Lake users while allowing for recreational opportunities.**

➔ **Objectives 8.1: Provide recreational opportunities to enjoy Adams, Bear, and Thomas Lakes while minimizing conflicts between users and protecting lake water quality and habitat.**

➔

Action	Lead person/group	Start/end dates	Resources
Post slow-no-wake signs at the boat landings on each lake that also list the state statute			Town of Stockton

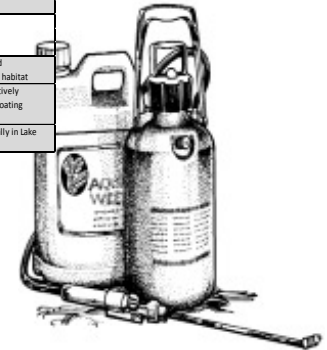
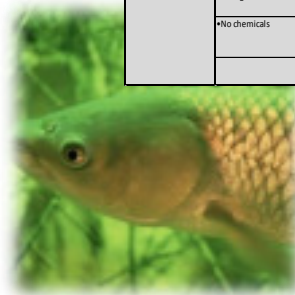


4. Evaluate Solutions & Alternatives

- Many management options available.
- Assess based on feasibility for your lake (money, time, lake user needs, technical feasibility).
- Use Management Option Tables to help guide you!

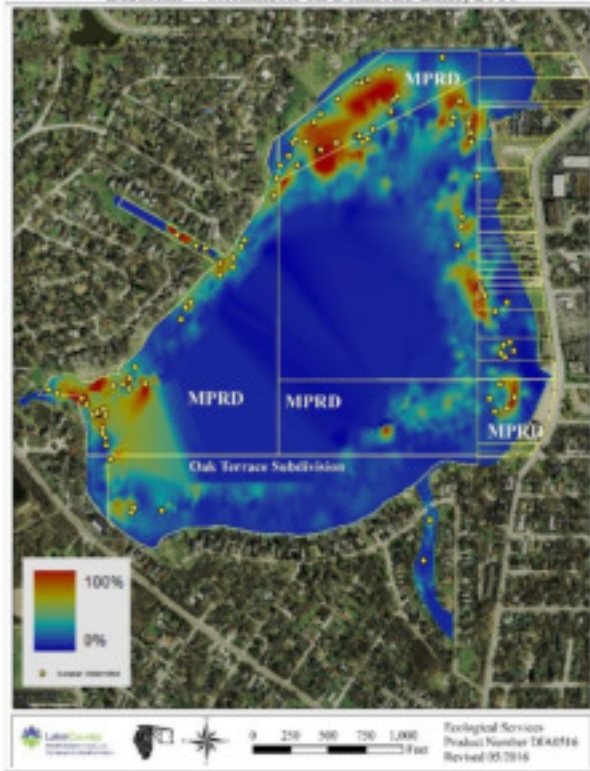


Lake Management Issue - Aquatic Plants			
Option	Pros	Cons	Notes/Costs
No Action	•No change in current strategy	•Plants may continue to expand cause water quality issue, fish kills or recreational issues.	
Aquatic Herbicides	•Relatively inexpensive •Selectivity is possible •Seasonal control can be accomplished •Improved recreation	•Possibility for overtreatment •Chemical resistance over time •Increased algae •Depending on the chemical, use restrictions may be needed for a short time.	
Mechanical Harvesting	•No recreation restrictions •No chemicals	•Disposal of plants •Costs for maintaining equipment •Off season storage •Labor costs •Non-selective	•New harvesters can cost > \$100,000
Hand Removal	•Inexpensive •Selectivity is possible	•Limited areas can be harvested •Labor intensive •Disposal of plants	
Water Milfoil Weevil	•Biological control •No chemicals	•Expensive •Results are sporadic and often cyclical •Weevil population can be affected by garfish predation	•Weevils need overwintering habitat •May be negatively impacted by boating activities •Found naturally in Lake County lakes



Management Options: Aquatic Plants

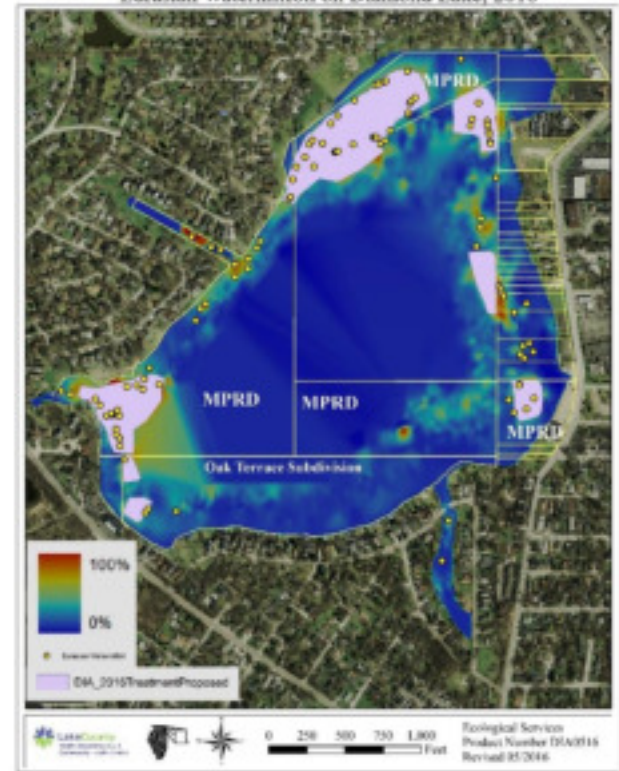
Proposed Herbicide Treatment (17 acres) of Eurasian Watermilfoil on Diamond Lake, 2016



- Identify Bottom Ownership
- Work with different HOA or bottom owners to create a joint treatment plan it saves money and prevents over treatment



Proposed Herbicide Treatment (17 acres) of Eurasian Watermilfoil on Diamond Lake, 2016



Management Options: Fish

Fish and Aquatic Plants

- Healthy plants = Healthy fish
- Cover and Protection (Too much aquatic plants can create a stunted population of pan-fish)
- Set aside areas for aquatic plants
- Properly designed and installed Aerators - if needed



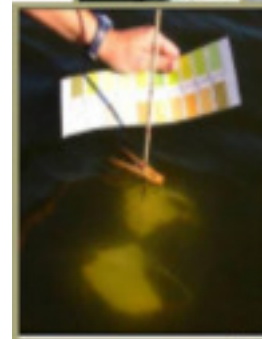
5. Take Action

- Write your plan.
- Create a timeline.
- Begin on your action steps.



6. Monitor & Evaluate

- Develop a mechanism for tracking activities and monitoring successes and obstacles.
- Monitoring process may require collecting data
 - Water Quality
 - Plant Surveys
 - Community Surveys
- Project documentation critical!
 - Detailed records of activities, expenses, time and labor.



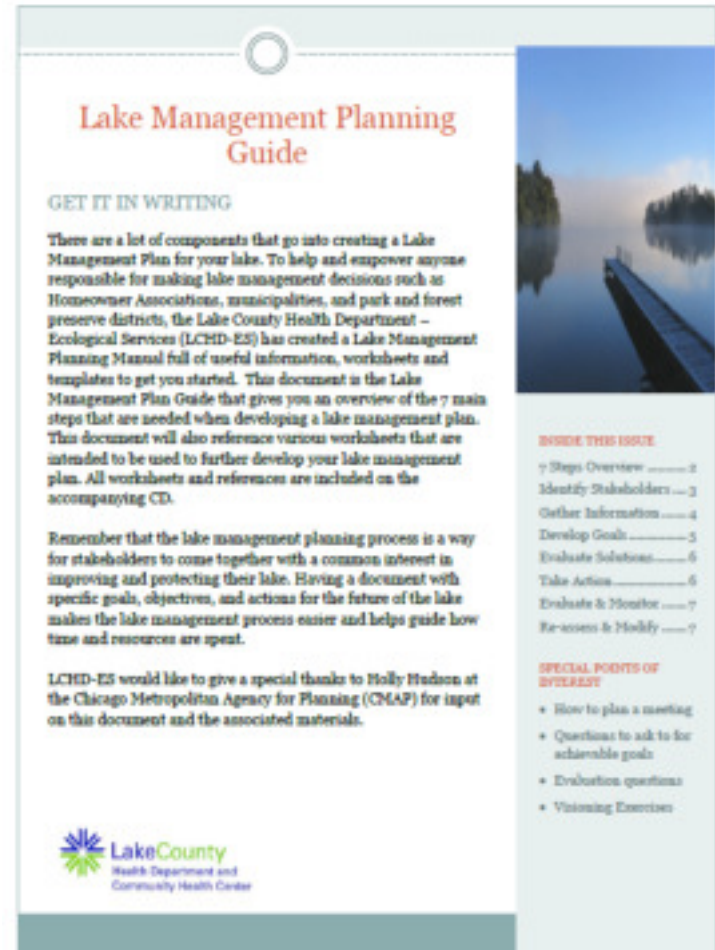
7. Re-assess & Modify

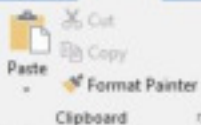
- Lake Management Plans are fluid and can change.
- Lakes change over time
- Needs may change over time.
- New management options may be needed or become available



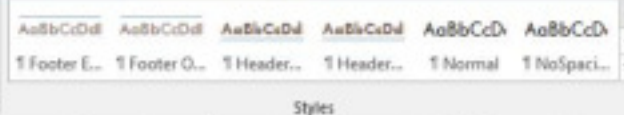
Resources - Documents

- Lake Management Plan Guide Overview
 - 7 Steps
- Lake Management Plan Template
- Lake Management Option Tables
- Goal Worksheet & Goal Examples

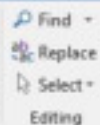




Paragraph



Styles



Editing

TYPE TITLE HERE



[Pick the date]

[Type the document subtitle]

[Type the abstract of the document here. The abstract is typically a short summary of the contents of the document. Type the abstract of the document here. The abstract is typically a short summary of the contents of the document.]