TOWER LAKES
A "Silt Saga"
"HOA that Roared"
Lake County Municipal Advisory Commission(revised 3 x)

Revised /Updated for ILMA

February 18 , 2015

Intro

- Tom Kubala
  - Intl Business Development
  - 25+ years developing trade and import/export programs
    - Europe
    - APMEA
    - Latin America
- Rich Bahr
  - ERP/MES
  - 10 Years Highly Regulated Mfg. under FDA +
    - Drug
    - Biotech
    - Food
  - ***Zero in Watershed***…Probably 55 before I knew, we all live…

When we started 3 years ago…

Before we start in…

Comments and experiences are “historical”

We want you to know this is about progress we made and future look.

No watershed component/ community/ project is Apples to Apples

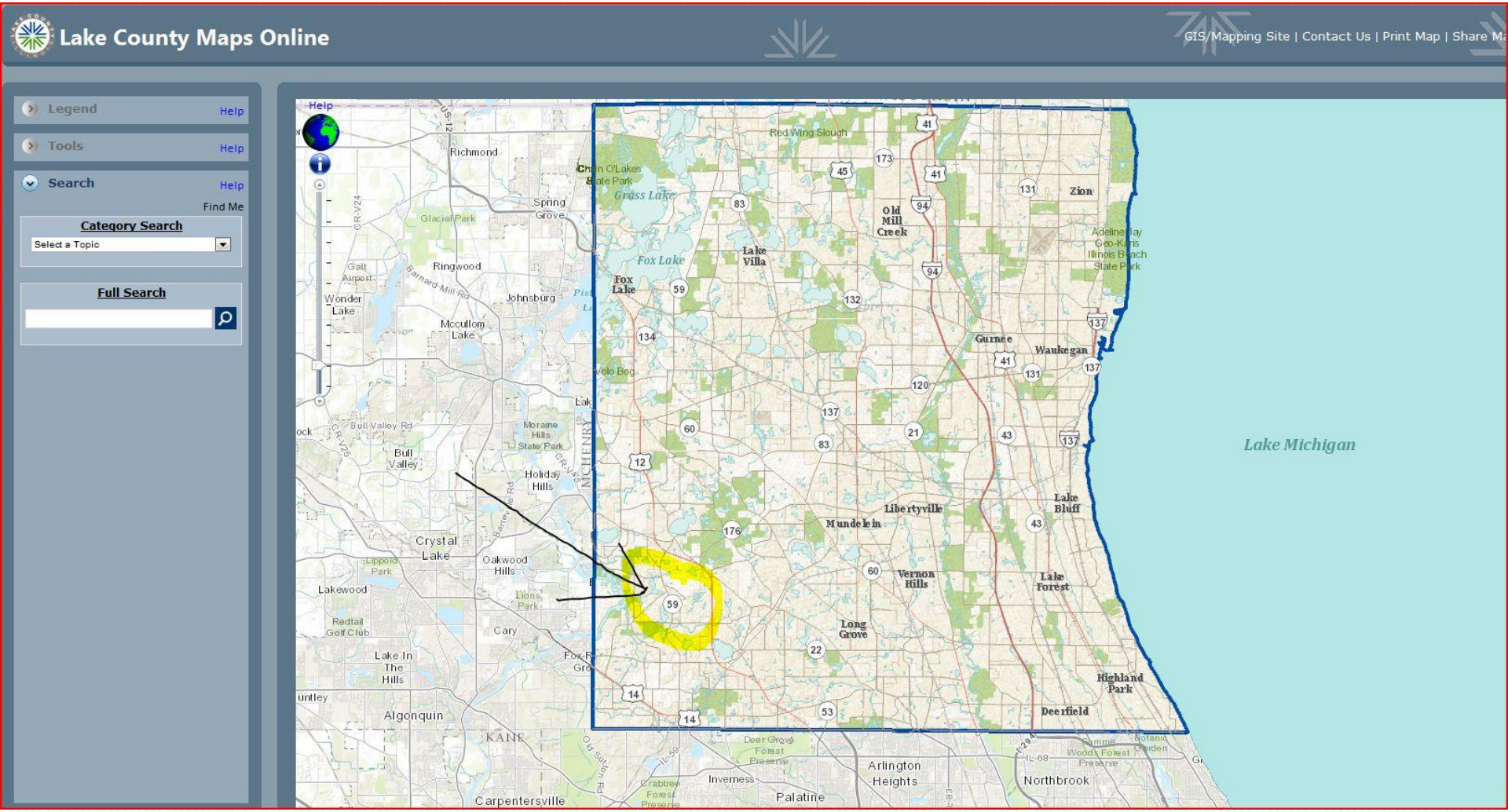
Some Tower Lakes Background

Where we are Geographical/Regulatory.

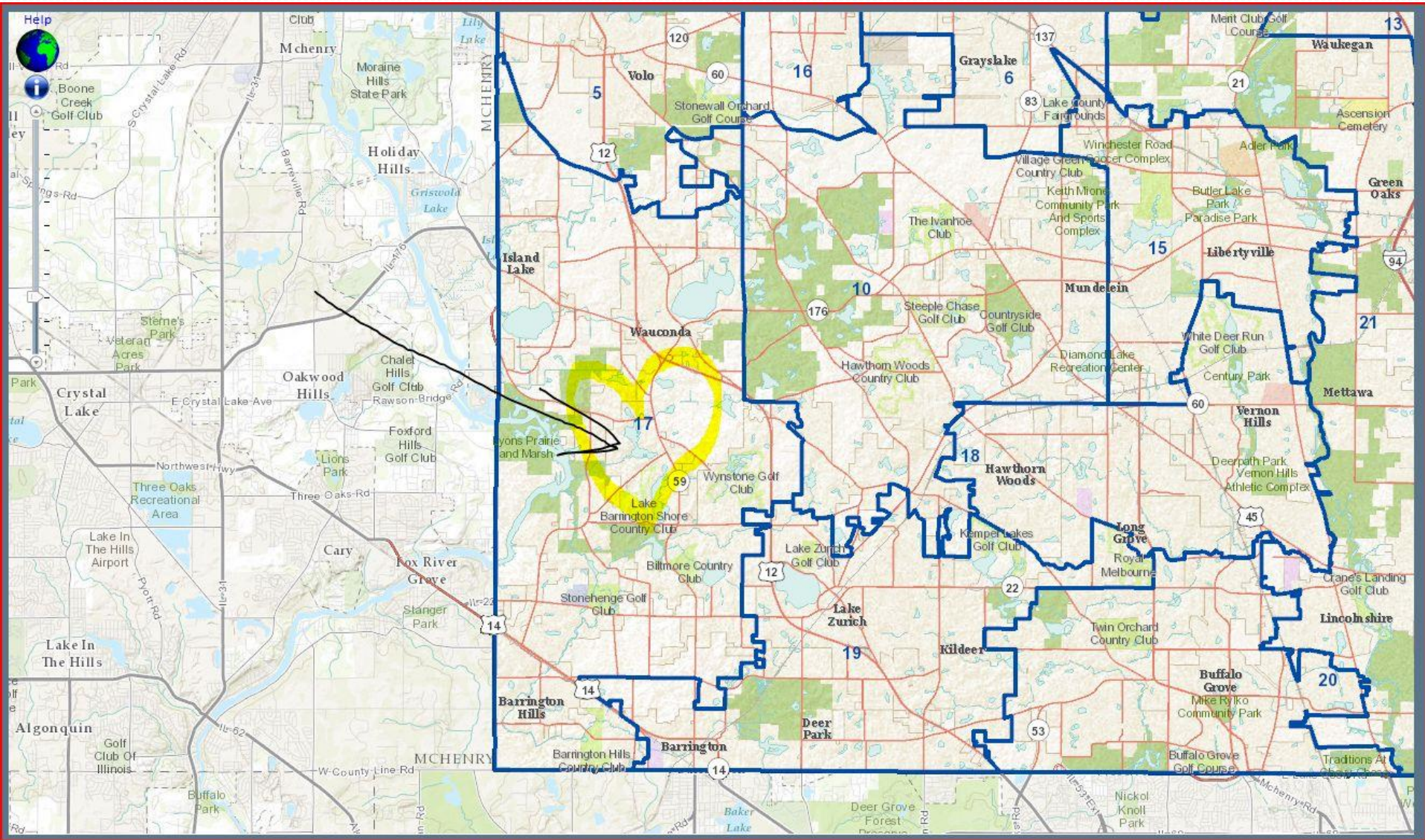
What we our striving for … &

What our “Orange” looks like?

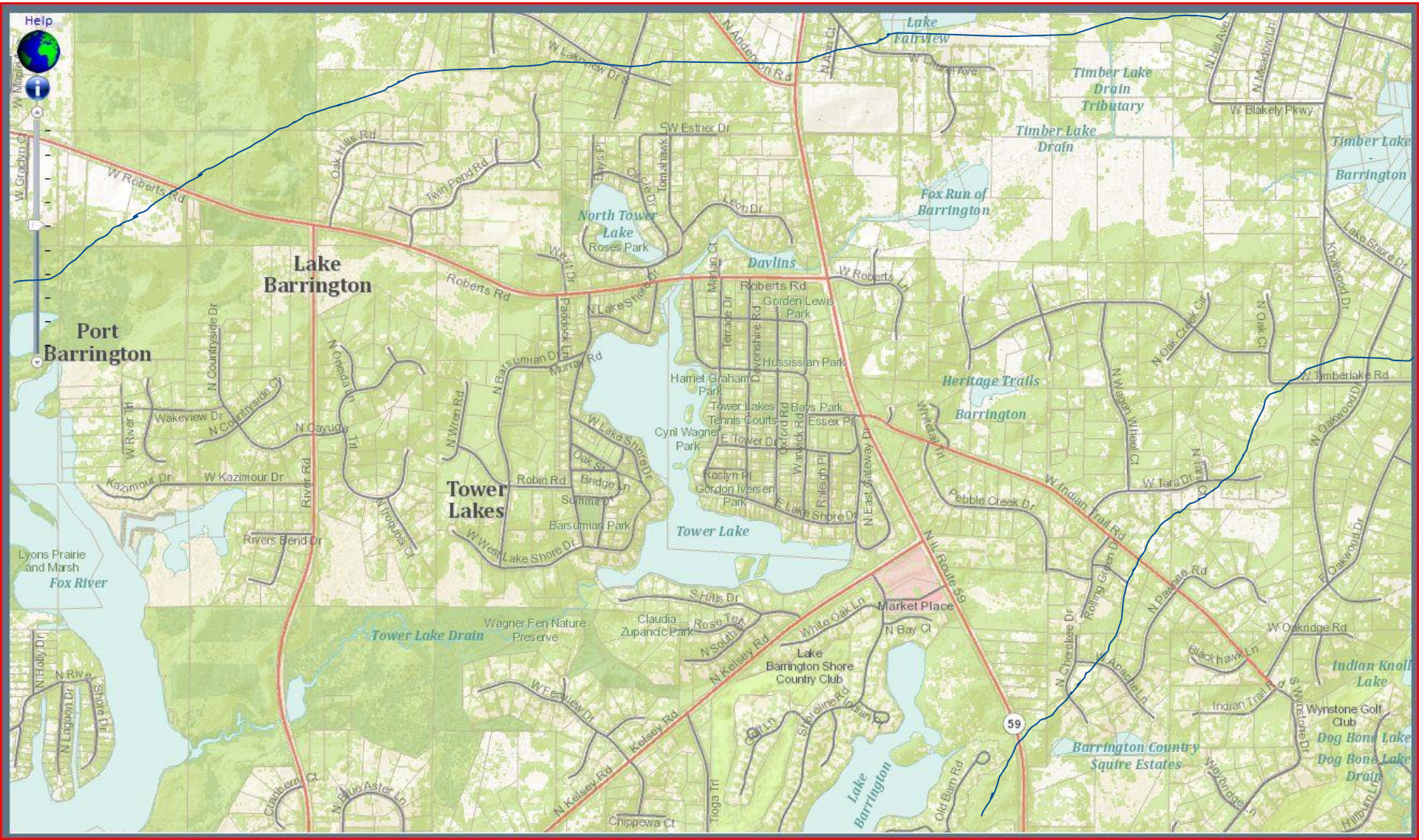
Where is Tower Lakes?



Where is Tower Lakes?



Where is Tower Lakes?

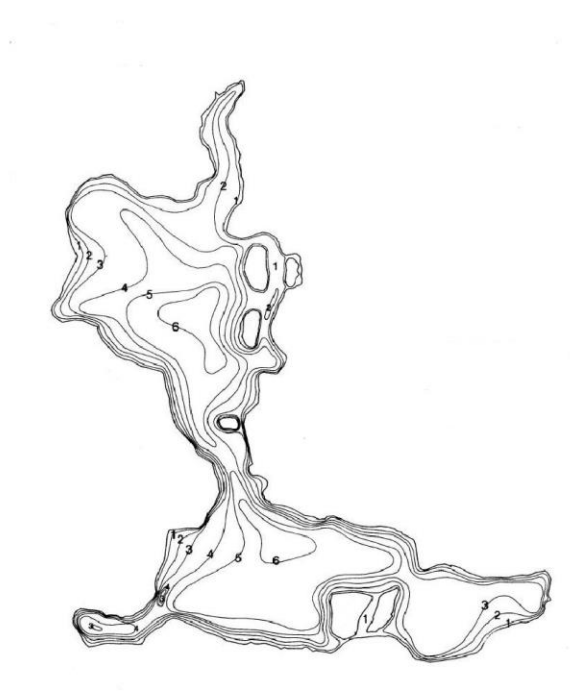


The Community

- 1300 Souls (Village) – Hands-on oriented, Volunteers
  - TLIA 360 homes (of which 69 are lake/waterfront)
    - Association Owns lake and most of shoreline ~10' .
  - Village 439 total homes (3 other small HOAs)
- Smart, Talented, Nature Lovers - Green – Watershed Aware

The Lake

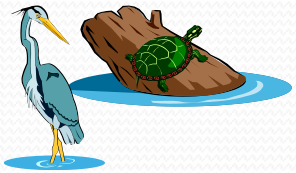
- Acreage - 76 Acres of Lakes and Waterways
- Shorelines - 4.6 miles
- Depth – Average 3.5', deepest 8'(depends on level at dam)
- Six small islands
- Shallow & Sensitive to nutrient load.



Lake Committee

Goals & Impacts

Fishery &
Nature Preserve



Sun

IMPACT

WATER QUALITY

Swimming &
Water Sports

USE

USE

Invasive WEEDS

ALGAES

IMPACT

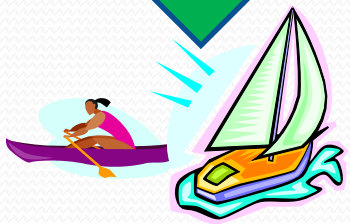
IMPACT

DEPTH

USE

SILT

Rain =
Watershed &
Road Run-off



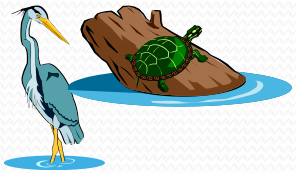
Boating

Nutrients,
Phosphates
& Trash

Lake Committee

Goals & Impacts

Fishery &
Nature Preserve



Sun

IMPACT

WATER QUALITY

USE

Invasive WEEDS

USE

ALGAES

IMPACT

DEPTH

USE

SILT

IMPACT

Swimming &
Water Sports

Rain =
Watershed &
Road Run-off

Boating

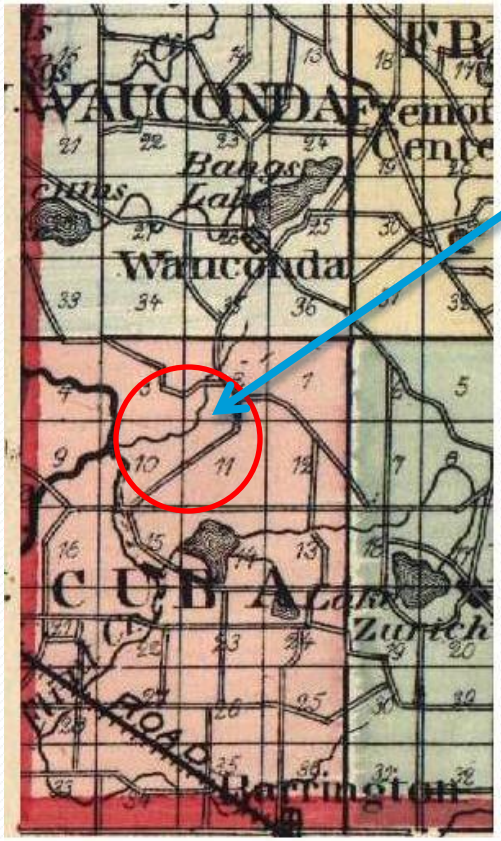
Nutrients,
Phosphates
& Trash

History and Lake Issues

We need to discuss an Invisible problem with our most Visible asset.

A Little Lake History

Mud Creek 1875

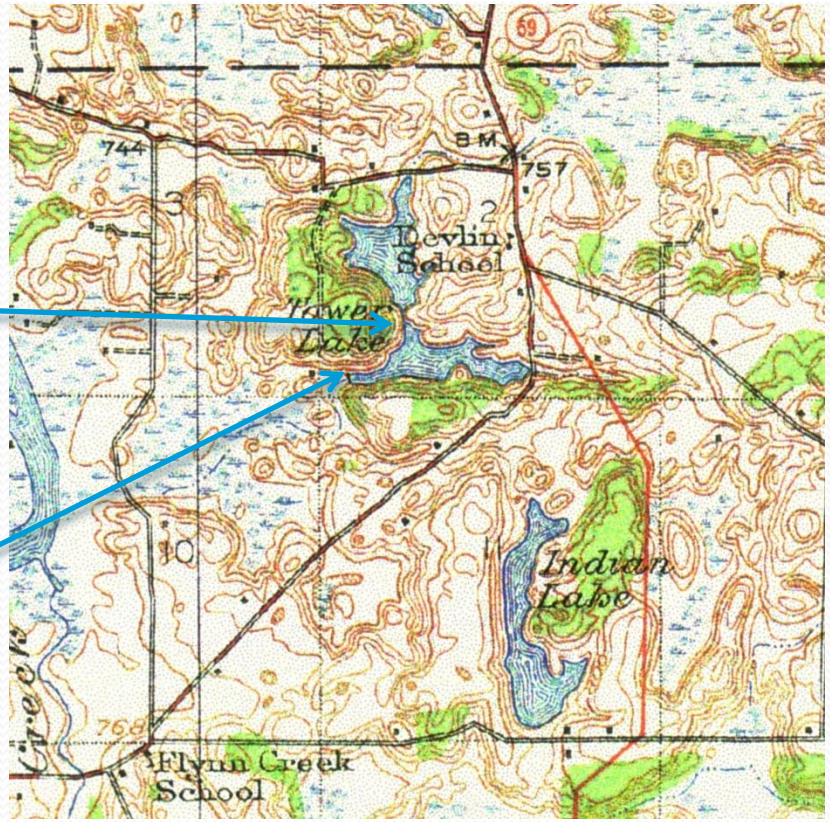


Creek

Original Dam

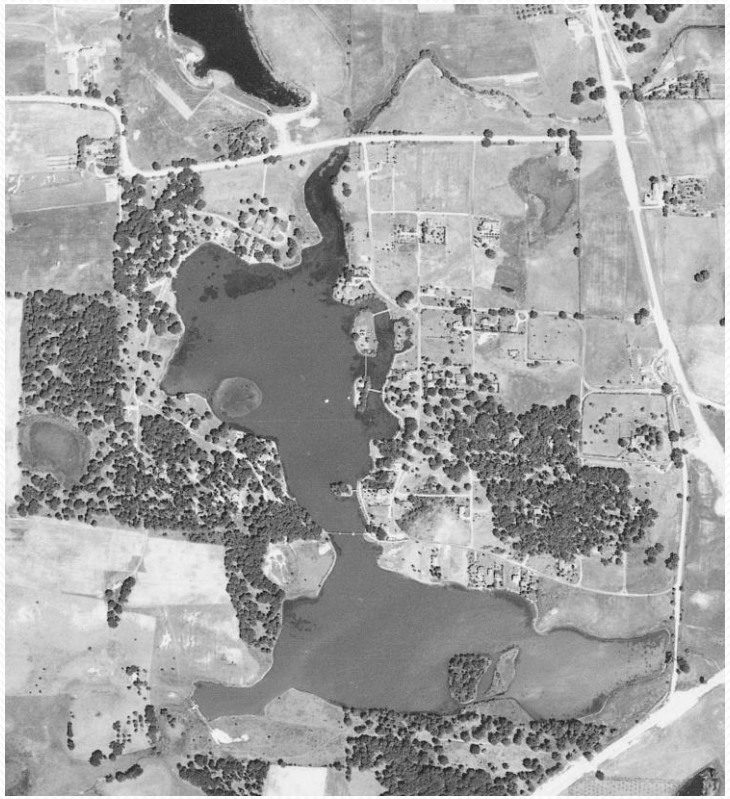
Current Dam

To Tower Lakes 1924-26



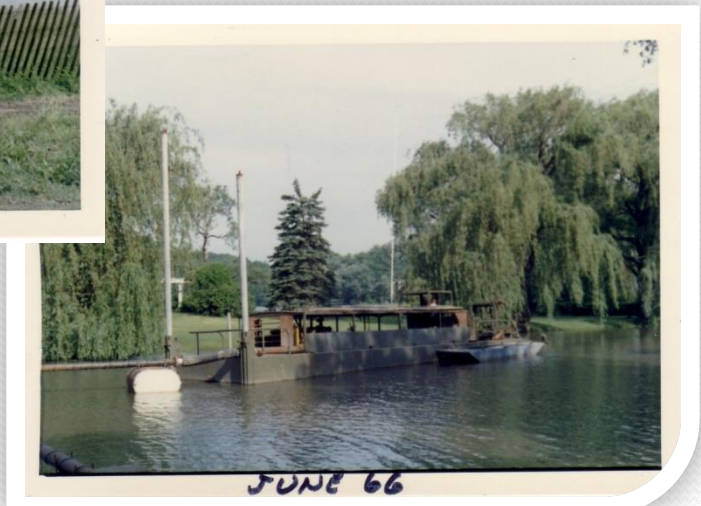
Roads, Roofs, **Trees** and Lawns
Things have changed

Then 1939



And Now 2011

We Have A History as CARETAKERS of this Lake! 1966-68



Last two Maintenance projects

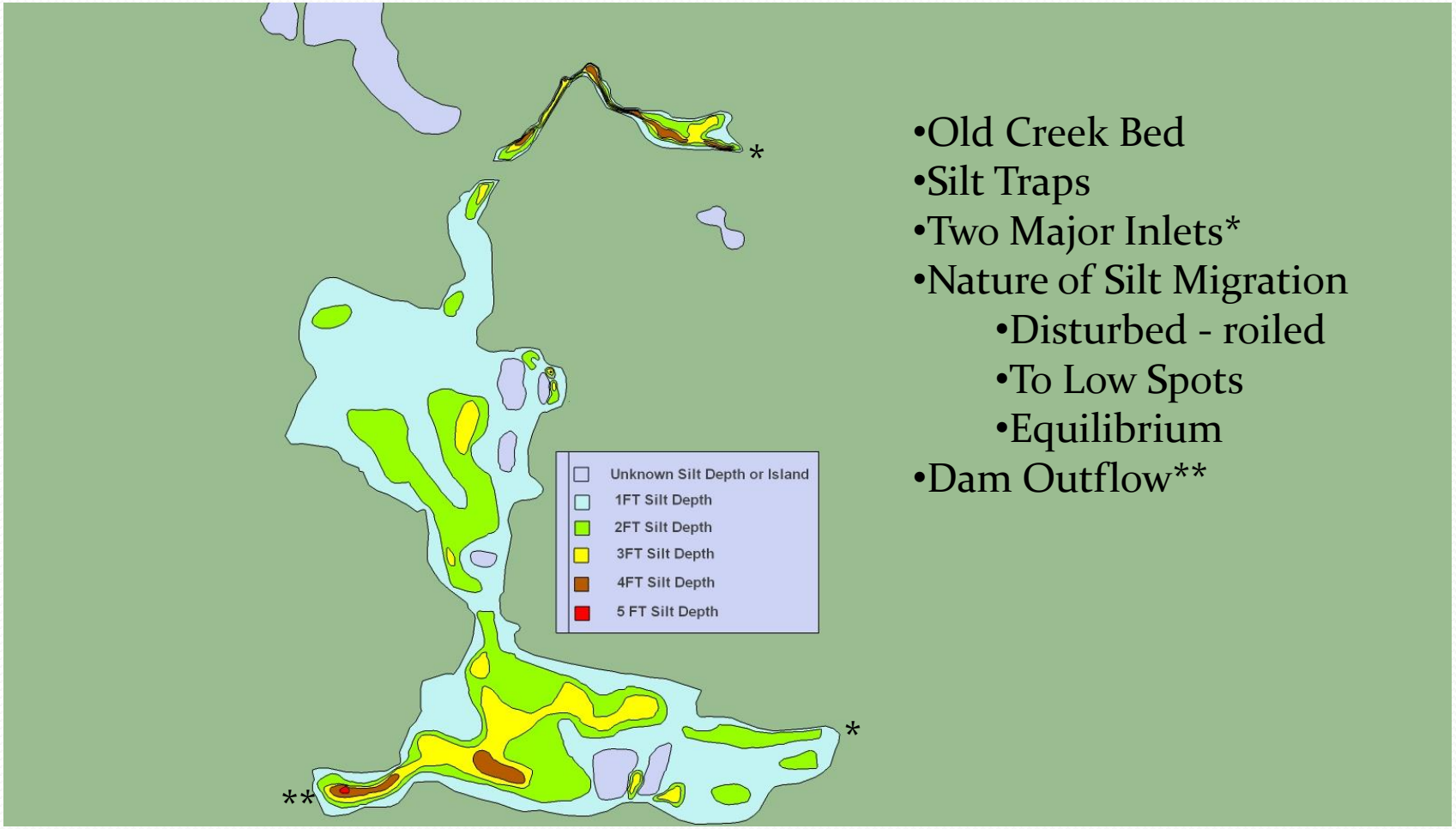
1965-68 Dredge

- Build Silt Traps
- 168 Households
- $31,500
- $219,000 In Today's Dollar
- ~ $1,300 per home
- This type of project much more expensive today.

1992-1995

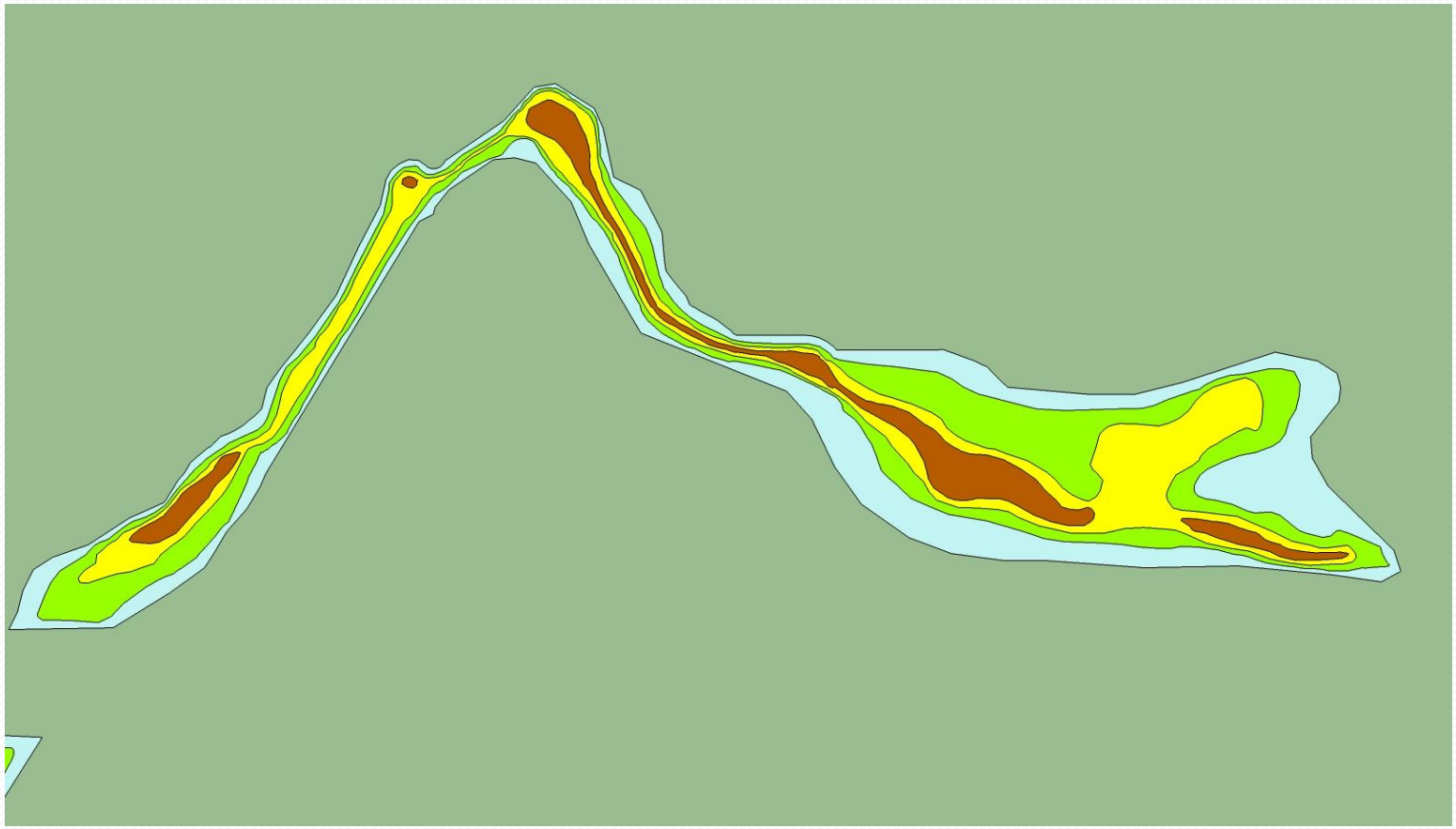
- Rip Rap Shore & Silt Traps
- 320 +Households
- ~$98,000 addl 61K budgeted
- $142,281 In Today's Dollars

Silt Depths from 2005 Survey



- Old Creek Bed
- Silt Traps
- Two Major Inlets*
- Nature of Silt Migration
  - Disturbed - roiled
  - To Low Spots
  - Equilibrium
- Dam Outflow**

Davlin Pond Silt Depth 2005



Area Perspective

Other local Communities

Area Lake Comparisons

- Lakes Researched and Associations Consulted
  - Timber Lake, Honey Lake, Lake Barrington and Lake Louise
- Major Concerns
  - Lake Depth
  - Lake Area
  - Density of surrounding Housing
  - Lake Management Type
  - The way they plan and fund maintenance

Lake	Type	Size	Depth	Source	Management/Budget	Issues/Tactics
Tower Lakes	Mud Bottom	66 acres	2-3 Avg. 6-8 ft Max	• Inlet into Davlin's Pond (E of 59, Timber Lake • Retention Pond by Marketplace • Stormwater	• TLIA Volunteer Lake Committee • 360 homes, 74 lakefront (83 with North Lake) • % of TLIA dues - $15,000/yr	• Sediment/Silt Buildup • Unwanted Vegetation • Managed Chemical Treatments
Timber Lake	Mud Bottom	32 acres	7-8 ft, Max of 14-15 ft.	• 3 creek inlets (one includes hwy 12 run off • Stormwater	• Volunteer Lake Committee • 186 homes, 38 lakefront • % of annual dues - $15,000/yr	• Sediment/Silt Buildup • Unwanted vegetation • Lower water level in winter to compact silt/muck – up to 3 ft. • No chemical treatments
Honey Lake	Glacial	66 acres	8-9 ft, max of 18-20 ft.	• 2 small creeks, via wetlands • Stormwater	• Biltmore CC – 50+% of shore • 30-40 homeowners • Funding – by the Country Club	• Natural vegetation – CC side • No chemicals • Lower water level to compact silt/muck • Some weed harvesting
Lake Barrington	Mud Bottom	100 acres	10-12 ft, max of 15 ft.	• Small creek, east of 59, via LBS forest preserve • Stormwater	• Private Company • 13 condo associs, each with lake committee member • $2,5-3.0 mm annual budget	• Planting of lilies on shoreline • Chemical treatment for algae blooms • Occasional weed harvesting
Lake Louise	Mud Bottom	40 acres	4-6 feet	• Flint Creek – Baker Lake upstream • Stormwater	• Volunteer Lake Committee • 411 homes, 75 lakefront • Annual dues • Special Lake management fund ($800-900,000)	• 1-3 feet of sediment • Actively looking at dredging/removal • Floodplain

The Problem

We learned a new word -

Lake Eutrophication

- {characterized by an abundant accumulation of nutrients that support a dense growth of algae and other organisms, the decay of which depletes the shallow waters of oxygen in summer.} dictionary.com
- A process in all lakes and ponds
- Sediment(Nutrient,Silt…) accumulation
- More Problematic in Shallower Bodies – TL…

Easier Definition

- What
  - Flo'd in
  - Fell in
  - Gro'd in & Died or….
- FFG&D (we thought you needed another acronym!)
  - Stick this in your WDO, CWA and notify all MS4s
  - In our conclusions/observations we'll mention prevention vs. cure aspect.

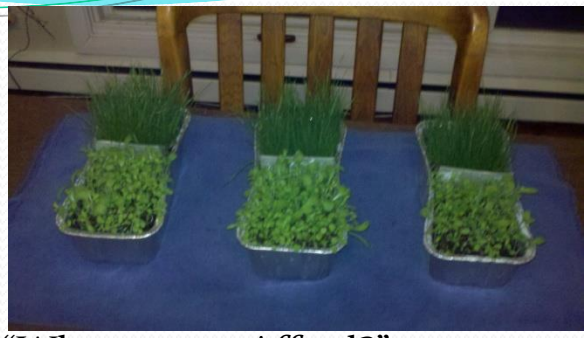
Why are we dredging?

- Simple Objective STEWARDSHIP!
- “Lake Maintenance” (a cure for what wasn’t prevented.)
- … doing nothing was not an option.

Our Process and PLan

Overall Timeline 2010 to present

Process



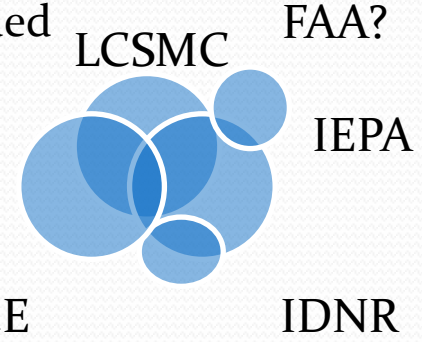
- **Step One** – Research/ Self education ("What can be done?" "What can we Afford?" "What regulations apply?" Where can we put "Spoils?")
  - Measuring Silt and current conditions
  - Sampling
  - growth test and lab analysis of silt for in place remediation.
- **Step Two**– Reach out to Community Orgs and seek advice
- **Step Three** - Talk to "Experts" and Vendors
- **Step Four** - Scale potential project - $$s and Volume
  - Shoot for $425,000 over 5yrs. and factor backward.
  - Break our efforts into phased Approach
    - start with main Inflow and Silt Trap Davlin's Pond.

- **Step Five** – PRESENT(sell) TO THE COMMUNITY put to Special Assessment Vote.
  - Problem Statement Brochure
  - Town Hall Meeting October 2011 – Presentation
- **Step 6** - Select Vendor
  - RFP
  - Interviews/Site visits…
- **Step 7** – Schedule Start Date! Oops! Not so much…

When you actually have funding and viable project – Things change….

Our Further Learnings for Neophytes

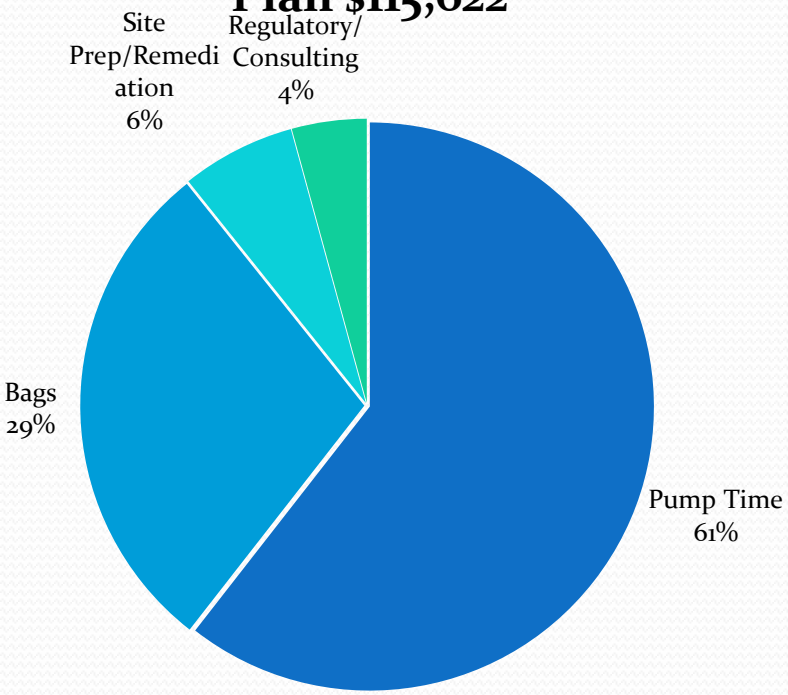
- Despite Research and reading regulations(terminology) - **We do need permits**
  - Construction? Development?
  - Waste water?
  - Navigable Waterways?
  - As Built?(as many definitions/interpretations as sources!)
- Web Searches of regulatory sites??? Not much help.
  - Dredging (Hydraulic)
  - Silt(muck) Removal
  - De-watering
  - …. ?
- Silt Removal Budget and "Soft Costs" a different kind of EROSION.(pie chart)
- Permitting Processes "the Alphabet Soup" a Venn Diagram needed
- SE/SC Measures , DECI,



Impact of regulatory requirements

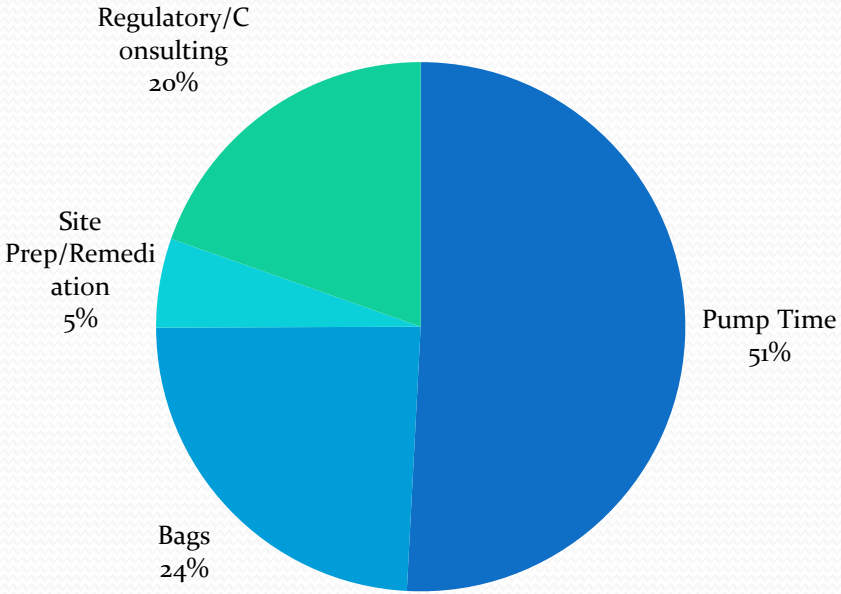
Initial Budget

TL Phase 1 Initial Expense Plan $115,622



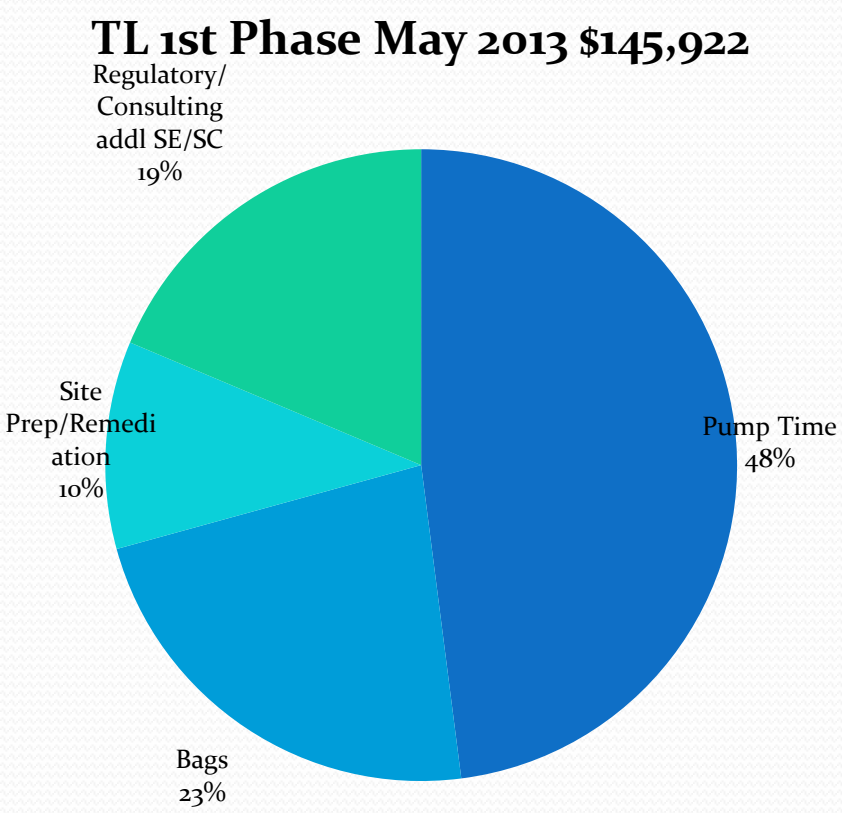
After Sept 2012 LCSM Letter

TL 1st phase Expenses $137,700 Sept 2012

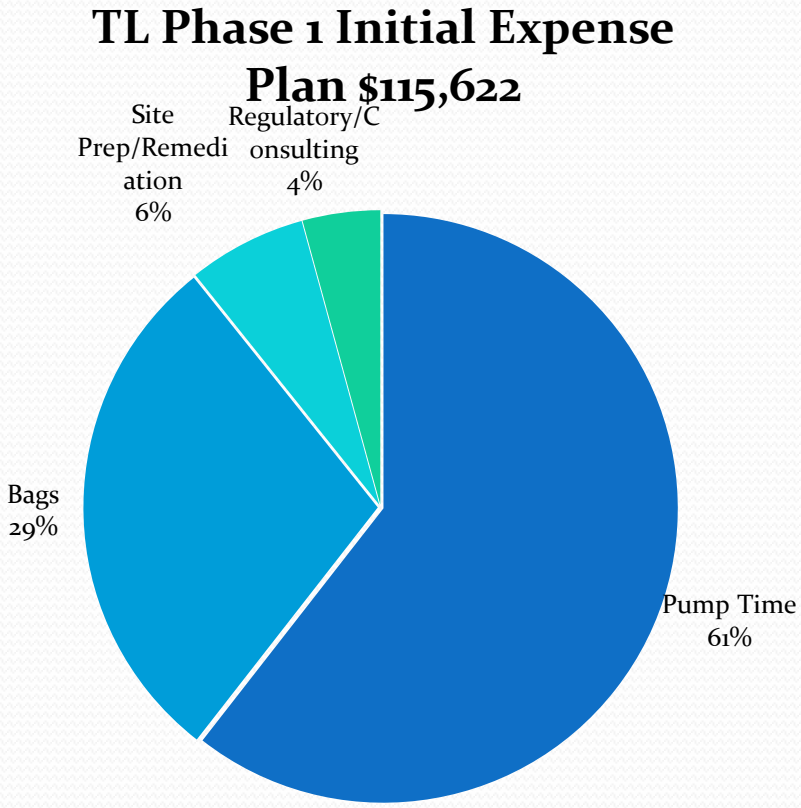


Impact of regulatory requirements

As of May 2013

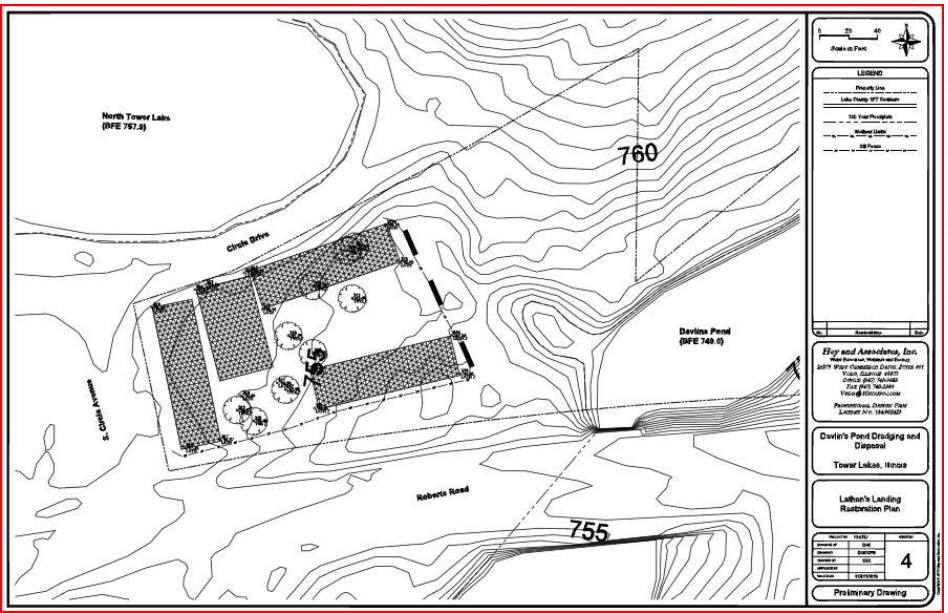


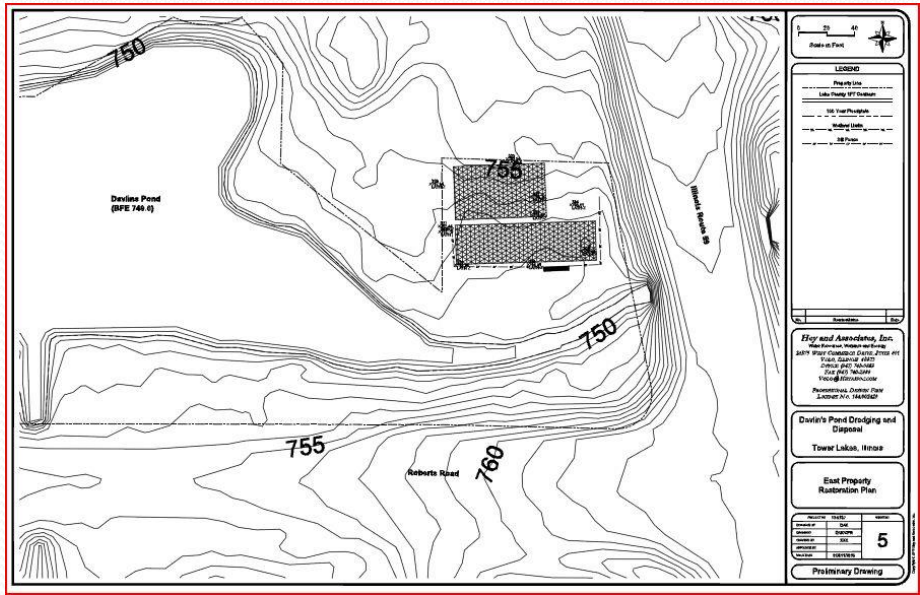
Initial Budget



Our Progress with LCSM help

- Permits obtained
- Permit submission costs reduced
  - Less Engineering(elev.) required for bag sites plan





Permit progress to date

- LCSWM Permit obtained – Dec 11 meeting helped
  - Permit submission costs reduced
  - Less Engineering required for bag sites
- US ACE Permit obtained
- Still waiting on IEPA permit
  - Return water question
- Nearly 2 years later….
- We still can not get started….(now phase 1 complete)

Protocols for IEPA?

Dave Kraft of Hey & Assocs. Making it up as we go!

Conclusions

- Everything ordinance-wise is (laudably) about – “an ounce of prevention is worth a pound of Cure.”
- But what about FFGD (Flo’d, Fell, Gro’d n DIED)?
- Suggest “Erosion Reversal” Credits
- Update Agency websites with links and “Primer” for Neophytes.
- We want to be a Lake Maintenance success story – like the “Little Engine that Could” NOT a cautionary tale about pitfalls of attempting GOOD Stewardship!

And Now The Rest Of the Story... (Apologies to Paul Harvey)

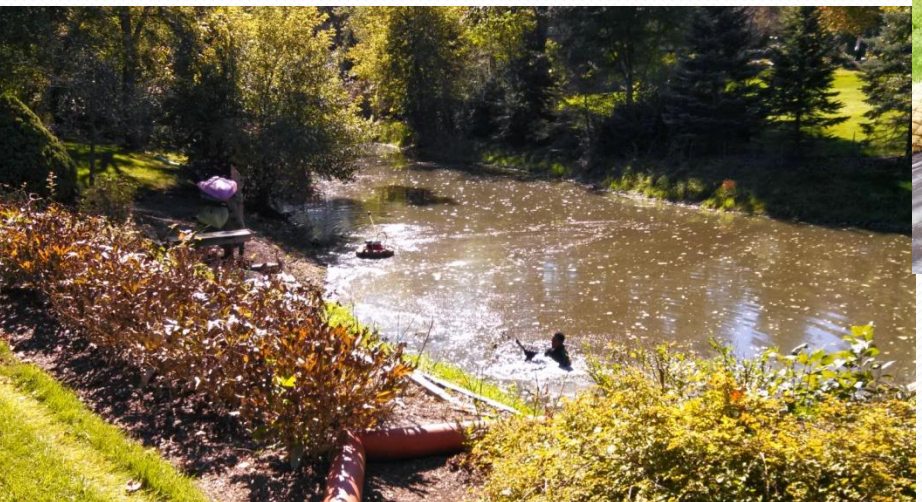
- LCSMC LISTENED! Weren't just Bureaucrats!
- All permits obtained & Some Costs Reduced (engineering – inspections)
- Site prep - tree clearing, ground leveling, Silt Fencing SE/SC…
- Project Lunched – USAV on Site July 15
- LC SMC Site Visit
- DECI Plan

- LCSMC Created General Permit #3 for dredging

Phase 1

- July 15 – Oct 26, 103 Days or 3 mos 11 days=55 pump Days
- ~ 6,000 Wet suspended Cubic Yds. Of Silt Removed
- 4 Bags 23,500 sq ft 2.5-3ft high – still dewatering.

Phase 1



Phase 1 – quality check

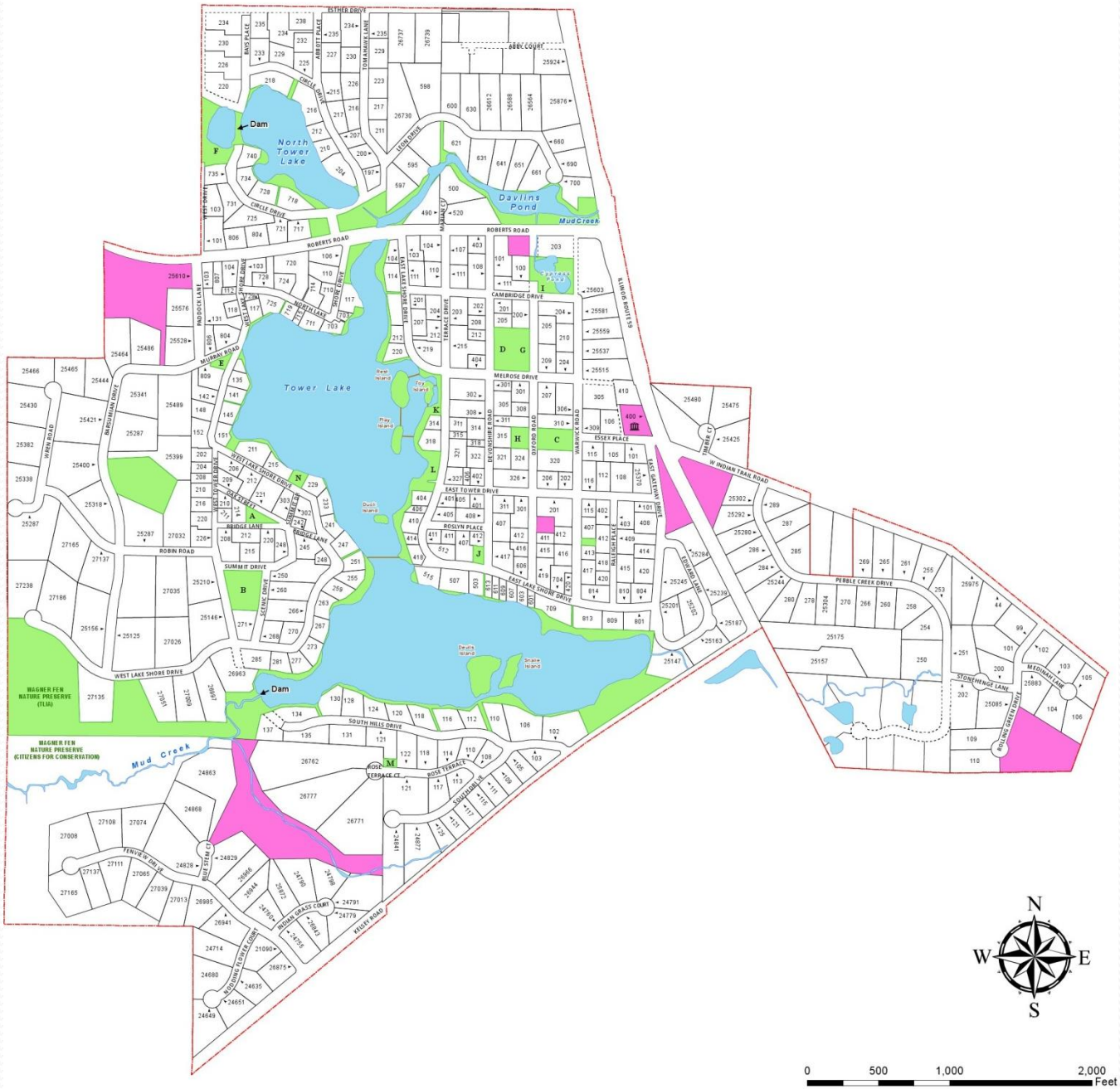
Before & After

Our most important Asset

- 2 more years of Projects
- Long term Maintenance Plan

- Oh Yeah…
- We were selected as LCSMC's "Community of the year!" 2013

Questions?


Tower Lakes
North Tower Lake
Tower Lake
Davlins Pond
Mud Creek
Dam
Dam
ESTHER DRIVE
ROBERTS ROAD
CAMBRIDGE DRIVE
MELROSE DRIVE
EAST TOWER DRIVE
ROSLYN PLACE
ESSEX PLACE
WARWICK ROAD
OXFORD ROAD
DEVONSHIRE ROAD
ILLINOIS SOUTH
W INDIAN TRAIL ROAD
PEBBLE CREEK DRIVE
MEDINAH LANE
STONEHENGE LANE
ROLLING GREEN DRIVE
MURRAY ROAD
PADDOCK LANE
WREN ROAD
BARCHMAN DRIVE
ROBIN ROAD
WEST LAKE SHORE DRIVE
EAST LAKE SHORE DRIVE
SUMMIT DRIVE
SCENIC DRIVE
BRIDGE LANE
SOUTH HILLS DRIVE
ROSE TERRACE CT
FENVIEW DRIVE
ROSE STEM CT
INDIAN GRASS COURT
GOLDENROD FLOWER COURT
KELSEY ROAD
WAGNER FEN NATURE PRESERVE (TLIA)
WAGNER FEN NATURE PRESERVE (CITIZENS FOR CONSERVATION)
Mud Creek
A
B
C
D
E
F
G
H
I
J
K
L
M
N
N
W
E
S
0
500
1,000
2,000
Feet