

# Bringing brine to the front lines

Phil Gaebler

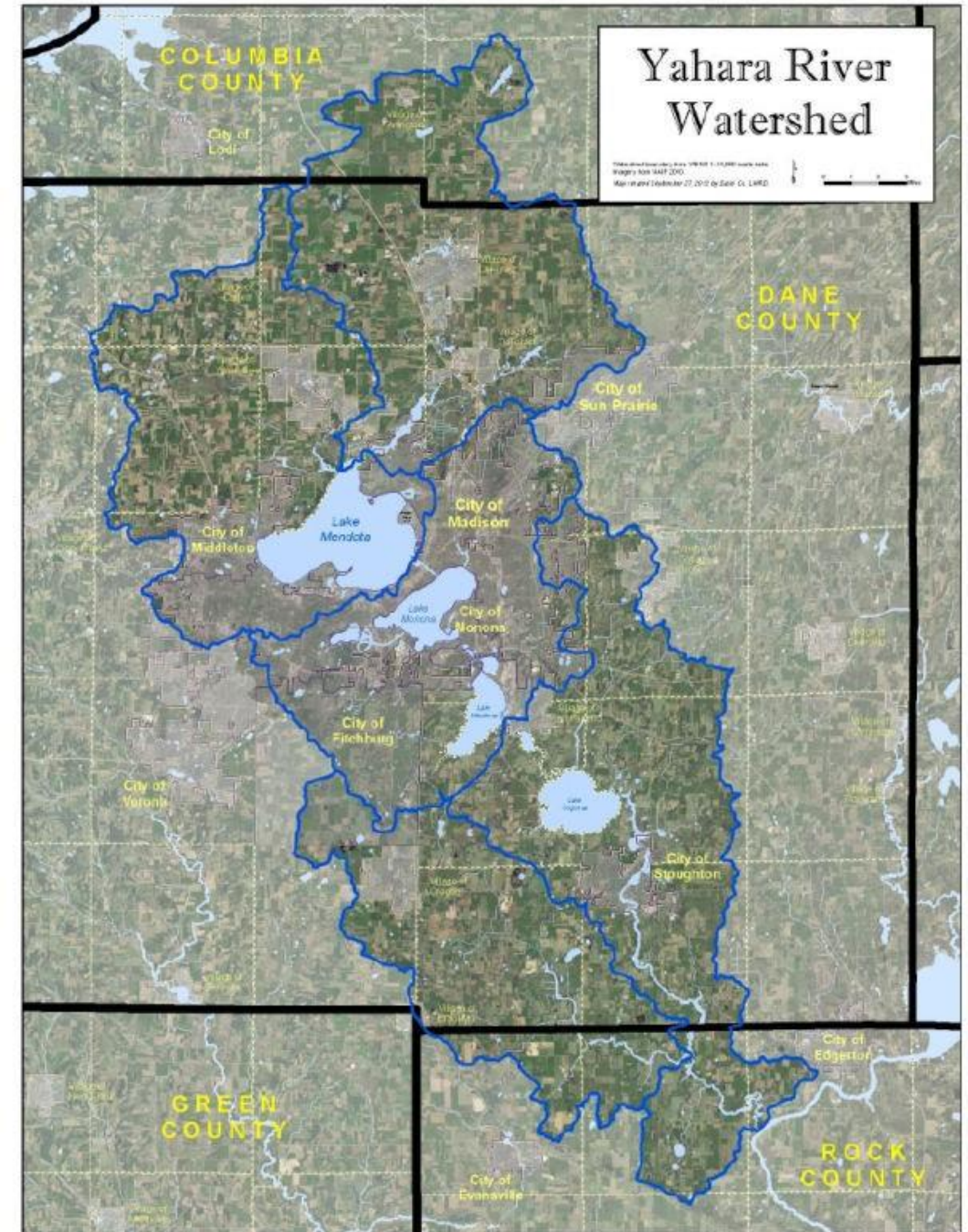
City of Madison Engineering Department

# Outline

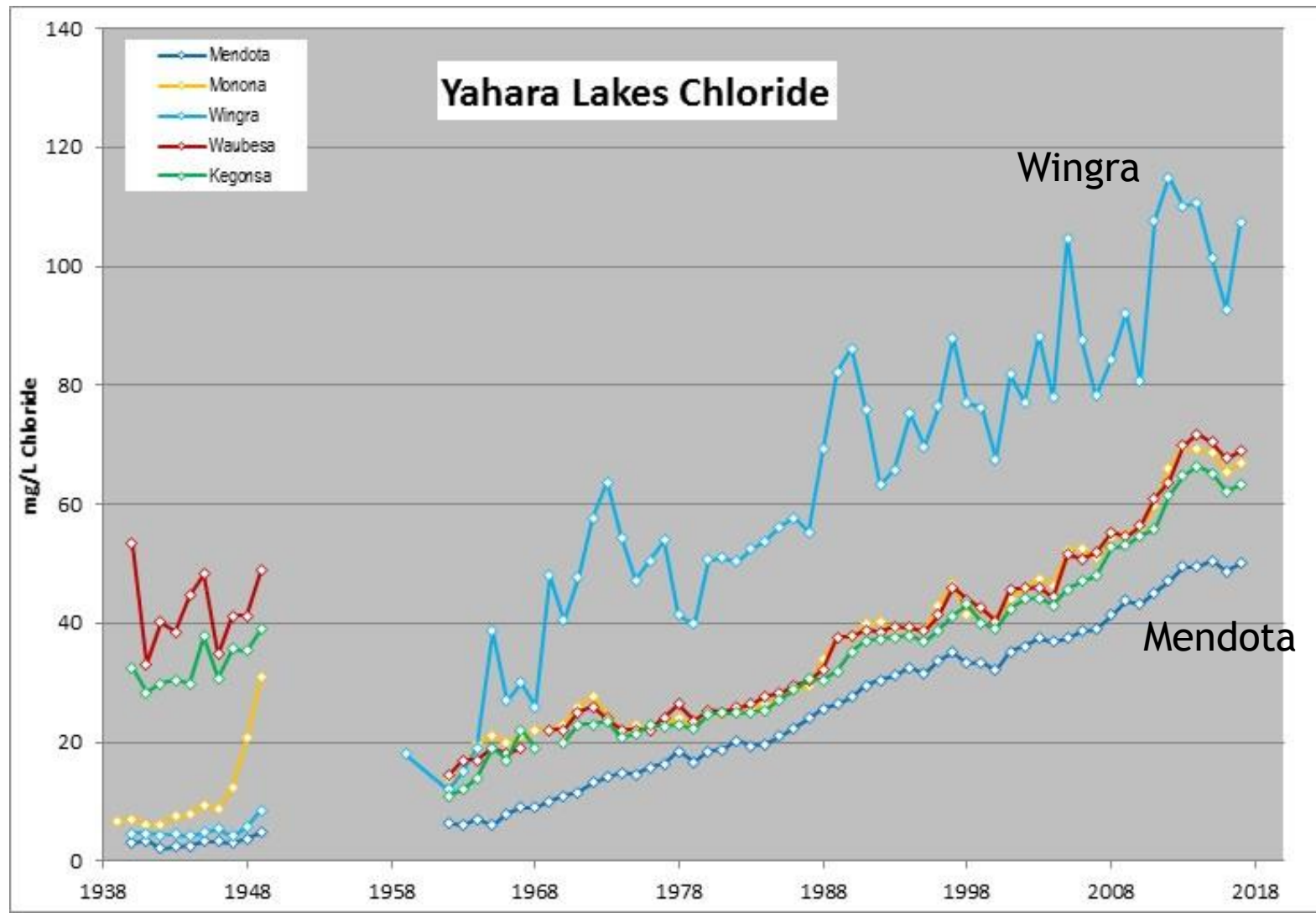
- ▶ The need for *Madison's* salt reduction efforts
- ▶ Brine production at the City
- ▶ Brine sales
- ▶ Bringing brine to your *Municipality*

# Background on Madison's Chloride Situation

- ▶ Chloride use is impacting:
  - ▶ Surface water
    - ▶ Lakes and rivers
  - ▶ Ground water
    - ▶ Drinking water supply
  - ▶ Permits
    - ▶ Madison Metropolitan Sewerage District
    - ▶ Municipal Separate Storm Sewer System Permit
    - ▶ Total Maximum Daily Load requirements
      - ▶ No TMDL yet

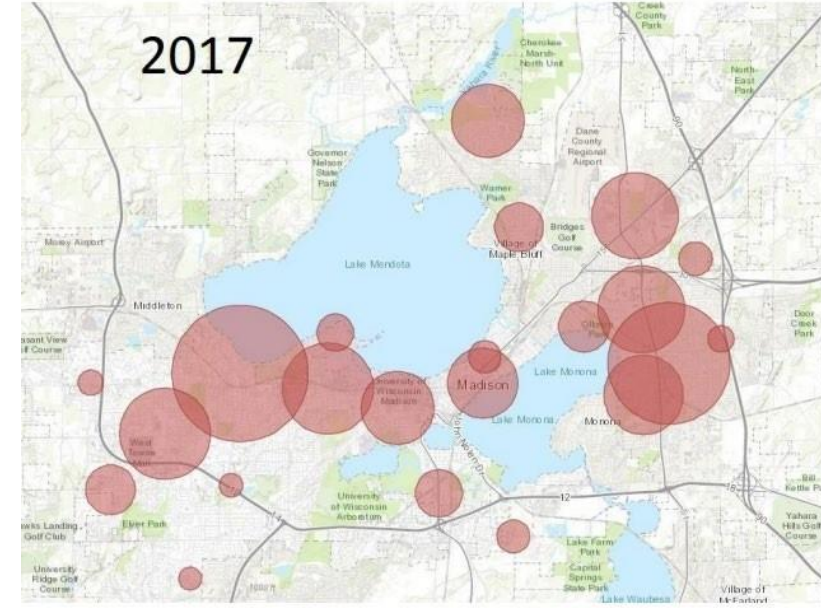
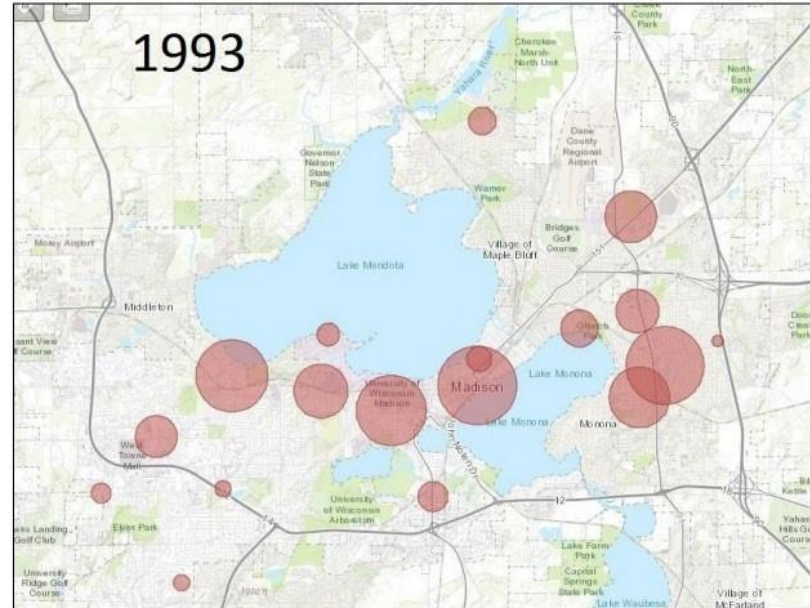
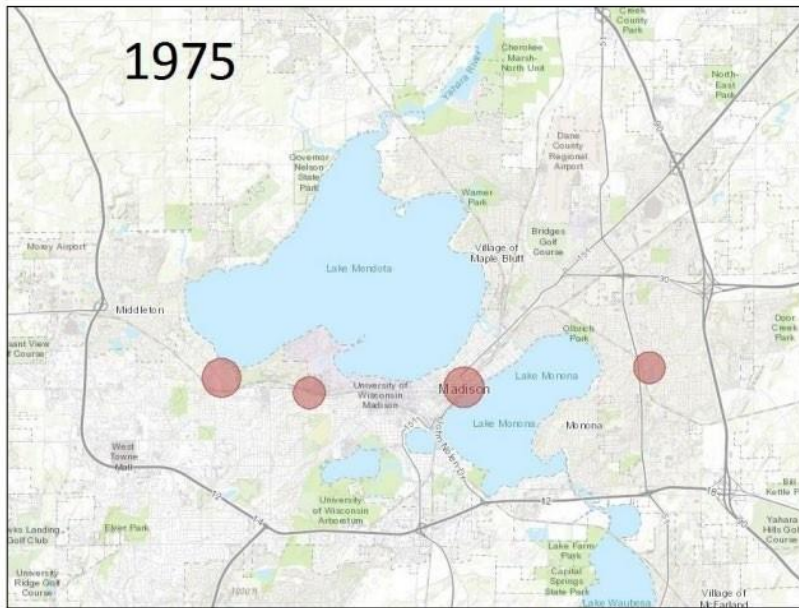


# Chloride Levels: Yahara Lakes

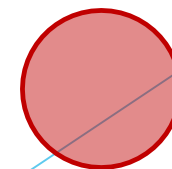




# Chloride in Madison Wells



The larger the dot the more chloride in wells



# Chloride Reduction Goals

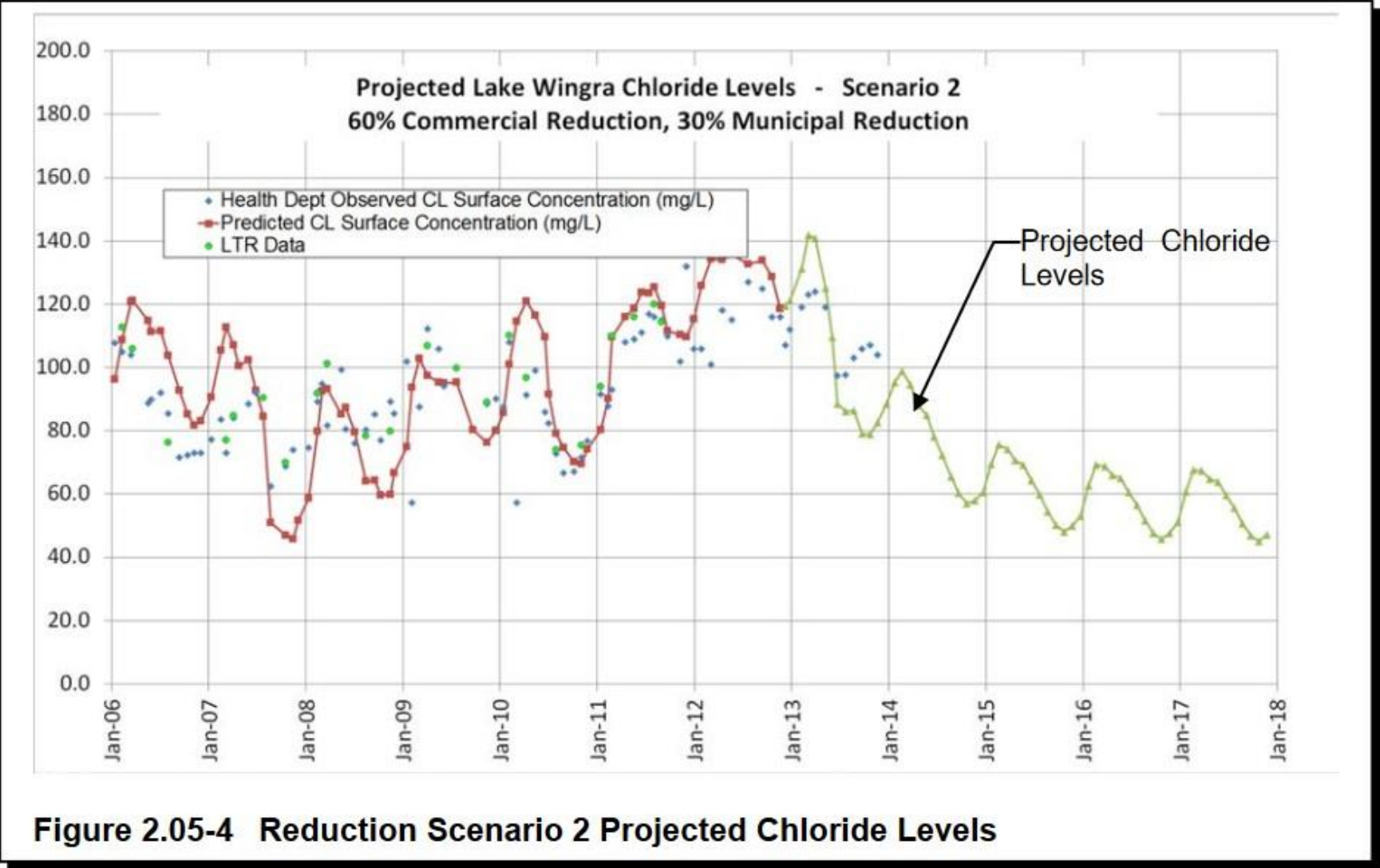


Figure 2.05-4 Reduction Scenario 2 Projected Chloride Levels

# Madison Response To Chloride Issue

- ▶ Madison started a certification program in 2017
  - ▶ City is to Lead by example and showcase lessons learned
- ▶ Wisconsin Saltwise
  - ▶ Continue being active in organization
- ▶ UW- Madison
  - ▶ WRM Chloride plan

# Individual Certification

- ▶ Open book exam
- ▶ Certification is good for 5 years
- ▶ 70% needed to pass the exam





# City of Madison Street Dept. Less Granular and More Liquid

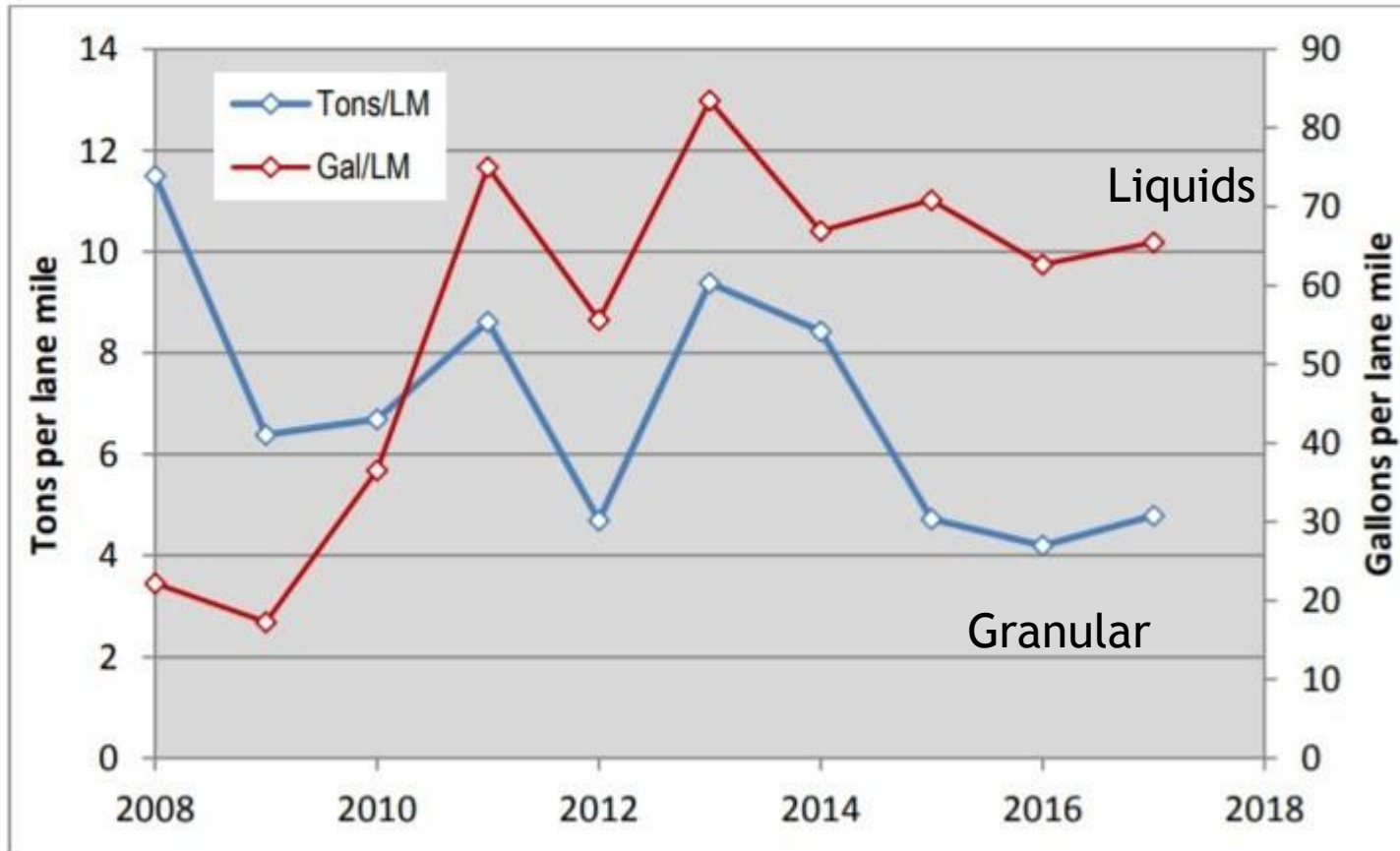


Figure 1: Comparison of gallons of brine and total tons of salt used per lane mile since 2007-2008..

# Wisconsin Saltwise

- Promotes good practices
- Clearing house for information
- Share ideas and unify messaging

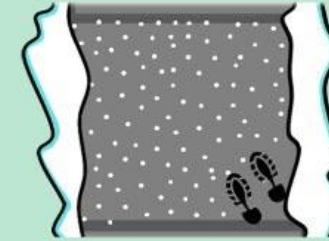
[www.wisaltwise.com](http://www.wisaltwise.com)

## 1. Shovel



Clear walkways and other areas before the snow turns to ice. The more snow you remove manually, the less salt you will have to use and the more effective it will be.

## 2. Scatter



If you apply salt to pavement, aim for a pattern like this, leaving space between salt grains. A coffee mug full of salt is enough to treat a 20-foot driveway or 10 sidewalk squares. A hand spreader can help create this pattern.

## 3. Switch



When the pavement temperature is below 15 degrees, salt won't work. Switch to a different ice melter (like a blend) that works at a lower temperature, or use sand for traction.

## 4. Love the

### Lines



Stripes on roads before a storm are anti-icing. They show that your professional maintenance crew is concerned about safety and is saving money, time and protecting our environment!

### CORRECT



### INCORRECT



## 5. Salt Wise

### All Year



Water softener salt ends up in local freshwater bodies. If your household softener uses more than 1 bag of salt per month, have a professional tune it up or replace it with a high-efficiency model.

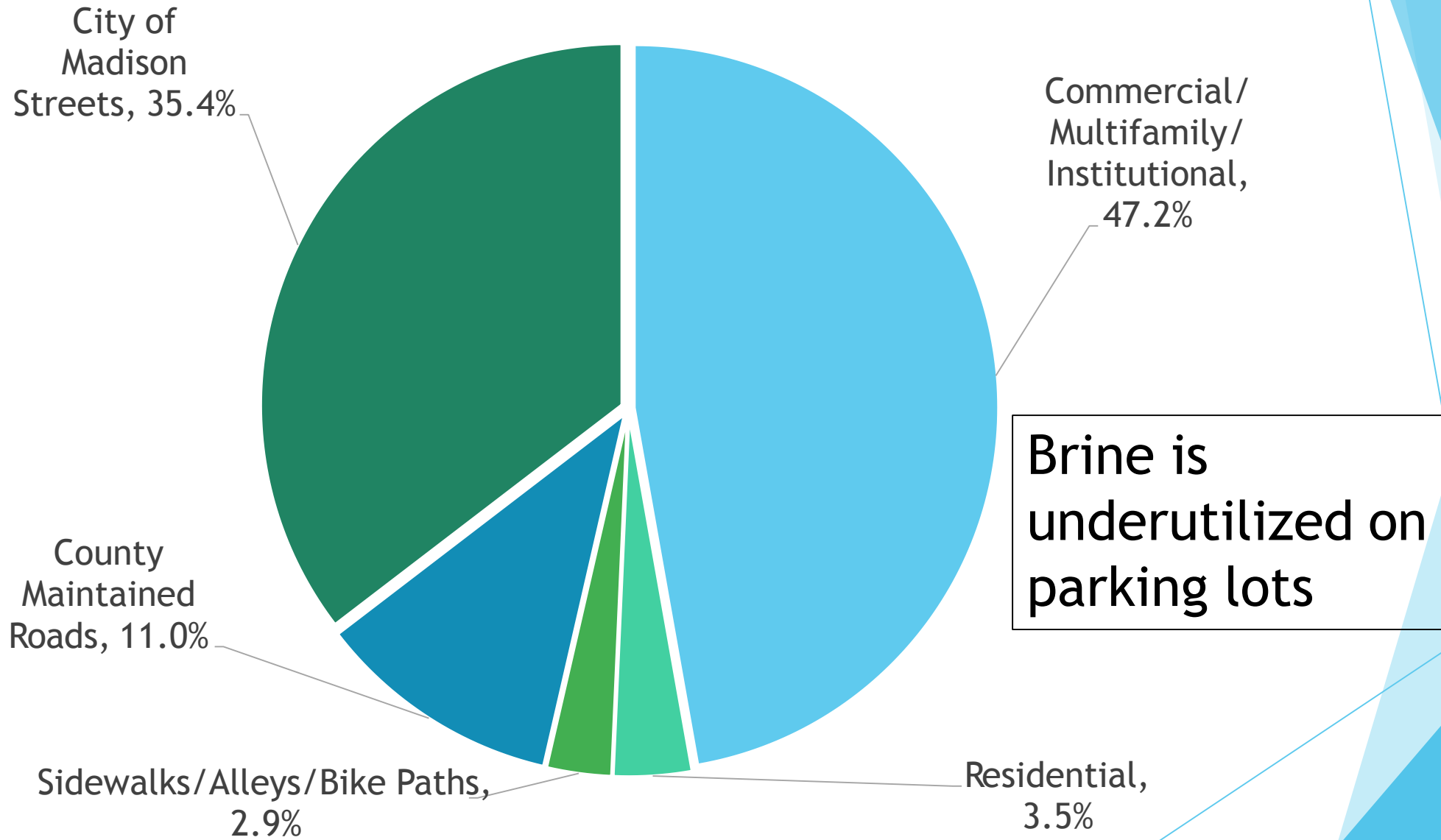
Efforts were underway but still too many parking lots like this



Photo Credit: David Thompson



# Wingra Watershed Salt Sources





In certification trainings we heard there is a need for a brine supplier.

- ▶ At the time Madison did not have a supplier for the private sector.
- ▶ Smaller municipalities had trouble justifying equipment purchases
- ▶ Private sector companies primarily purchased pretreated salt or made their own brine.

A few e-mails and conversations later...

# City of Madison Brine For Sale

For 2018/2019, the minimum charge will be \$25.00 per fill: 50 gallons of brine

Additional brine will cost \$0.30/gallon.

Contact : John Blotz - Streets West Shop

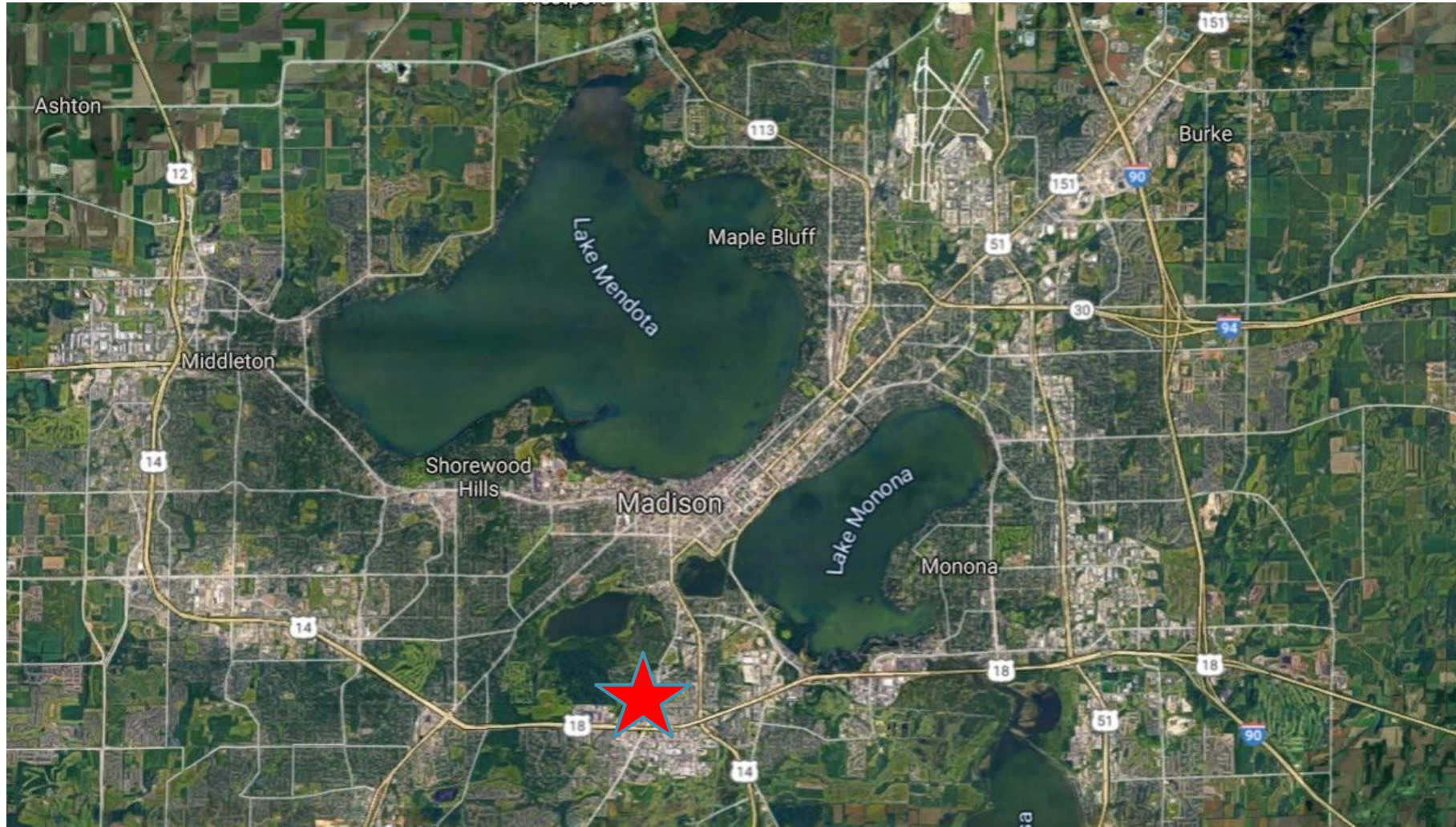
(608) 267-4956

[jblotz@cityofmadison.com](mailto:jblotz@cityofmadison.com)

We can only fill vented tanks equipped with a 1-1/2" male, cam & groove or camlock style coupling.

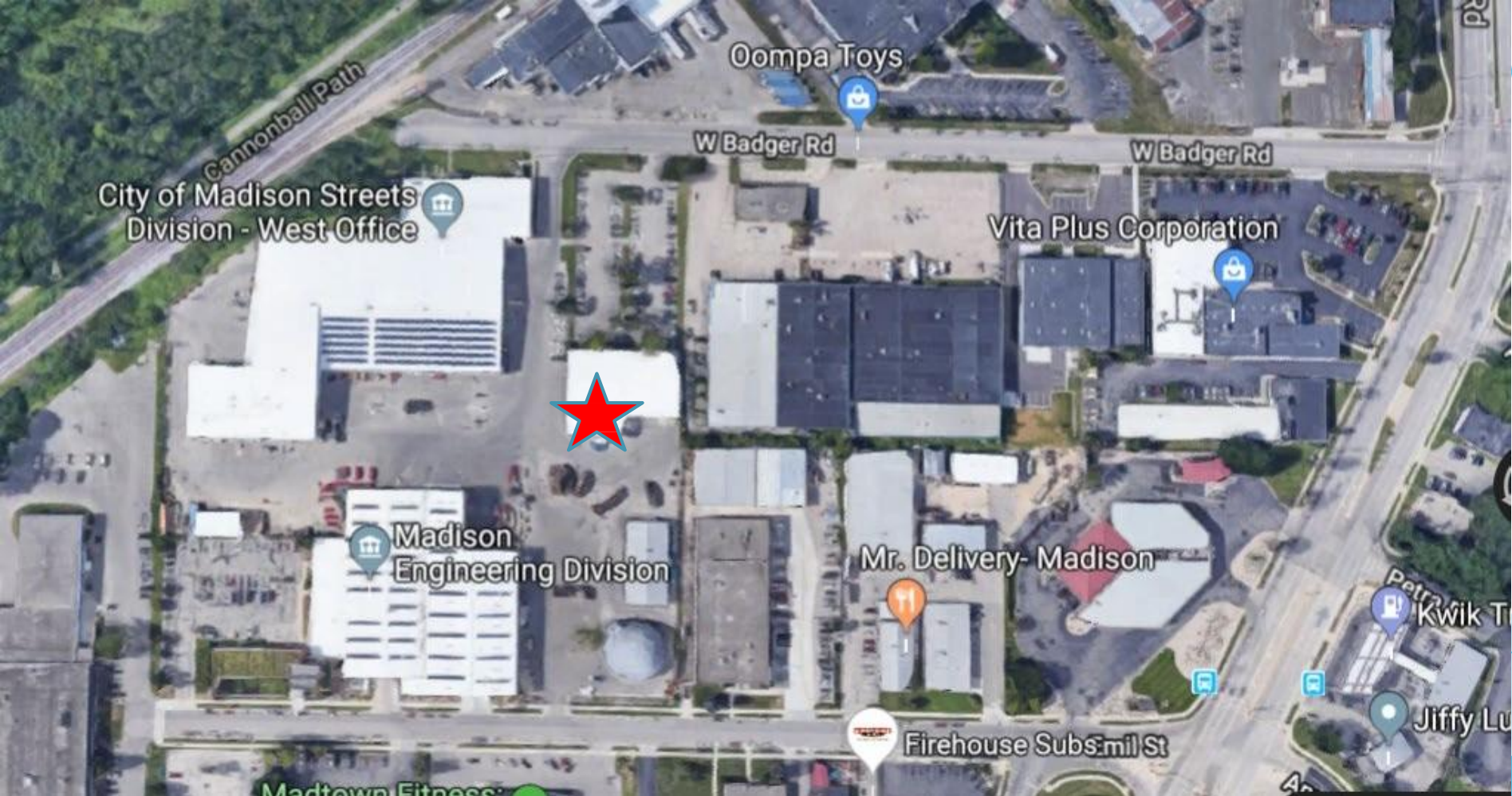


# Madison Brine Production





# Madison Brine Sales





# Madison equipment









# Keypad and Valve: Type in Code and Get Billed Later





The Brine rig does not need to be fancy

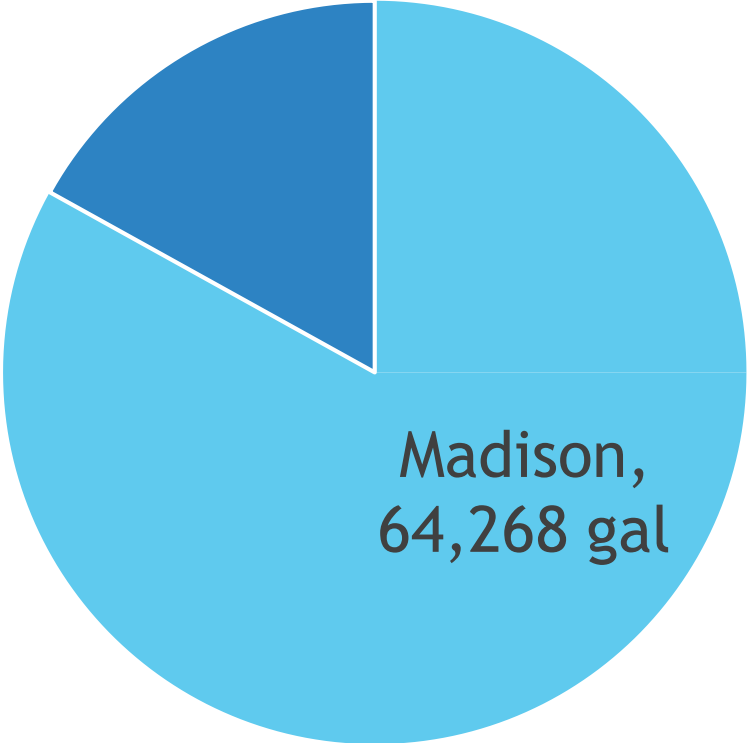


But fancy is ok too.



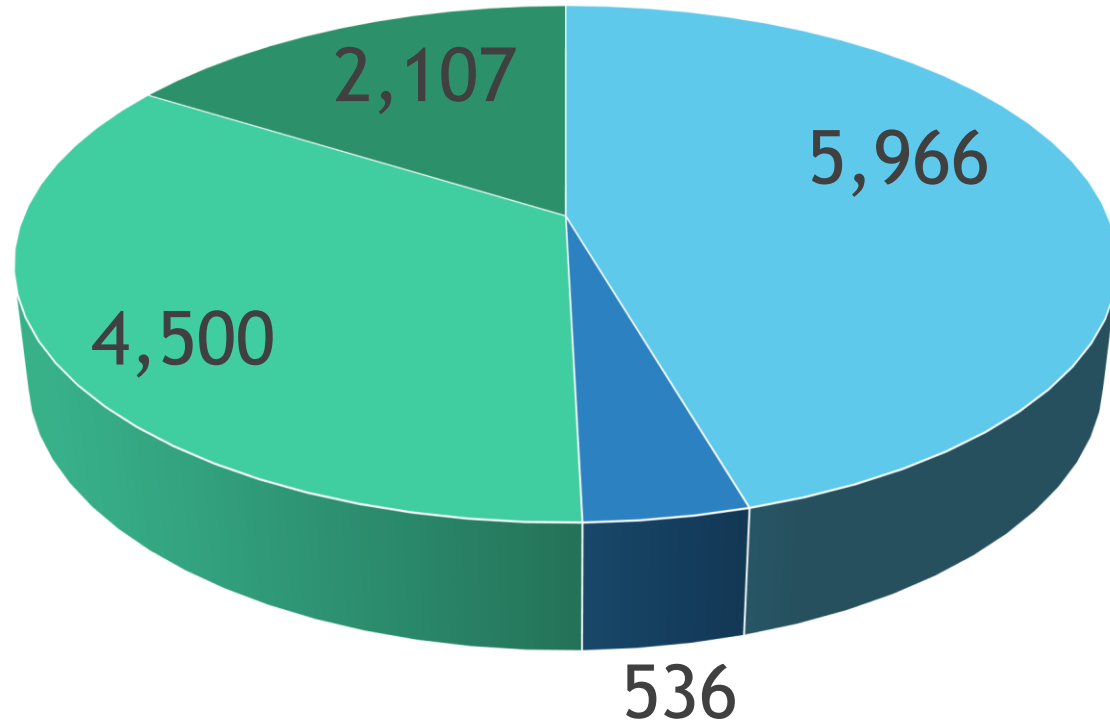
# Brine Consumption : Outside Sales vs City Use

Outside  
Sales,  
13,109 gal



Madison,  
64,268 gal

# 2018 Brine Sales 13,109 gallons



■ Company 1 ■ Company 2 ■ Municipality A ■ Company 4



# Bringing Brine Sales to your Municipality

- ▶ Automated system for truck filling a must
- ▶ Limit filling to normal business hours
- ▶ Require standards for equipment

# Bringing Brine Sales to your Municipality

- ▶ Start small with a pilot project
  - ▶ Build with grants and trainings
- ▶ Keep it simple
  - ▶ NaCl only to start
- ▶ Sample, Document, and Save Brine

# Contact Information

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