



# Are They, Really?

Special Thanks  
Rob Vilee, Executive Director  
Plainfield Area Regional  
Sewerage Authority  
And His Team



Water

Soil

Plants

# Should They Be? Flushed?

Presented by:  
Rick Allen, CEO, GSD, MSU



Water

Soil

Plants

# Are You a Folder or a Scruncher?

The Wacky World of Negotiating Flushability



# Overview

◆ Water

◆ Soil

◆ Plants

- ◆ What is the definition of a Flushable?
- ◆ What problems are we seeing?
- ◆ What do they cost?
- ◆ Best Management Practices?
- ◆ How can they be managed?
- ◆ What is your role?



[en.wikipedia.org/wiki/Fatberg](http://en.wikipedia.org/wiki/Fatberg)

A **fatberg** is a congealed lump of fat, sanitary items, wet wipes, and similar items found in sewer systems, which do not break down like toilet paper.





# 11 Ton Fat Berg in Queensland



22k

4K in NY



Only  
The three p's  
Pee, Poop and Toilet Paper



# National Association of Clean Water Agencies





# Okay to Flush?

## ◆ Water

## ◆ Soil

## ◆ Plants

- ◆ Here are the reasons toilet paper is okay to flush:
- ◆ It rapidly loses strength when it gets wet.
- ◆ It often breaks into pieces during the flushing action of a toilet.
- ◆ It continues to break into pieces or fibers in the conditions normally anticipated in a typical wastewater collection system.
- ◆ It does not require the force of a mechanical device to break it into pieces.
- ◆ It has short fiber lengths that are unlikely to re-rope or entangle with other materials.
- ◆ It does not cause problems in sewers, septic systems, or treatment facilities.
- ◆ It is biodegradable and will not reduce the quality of biosolids.

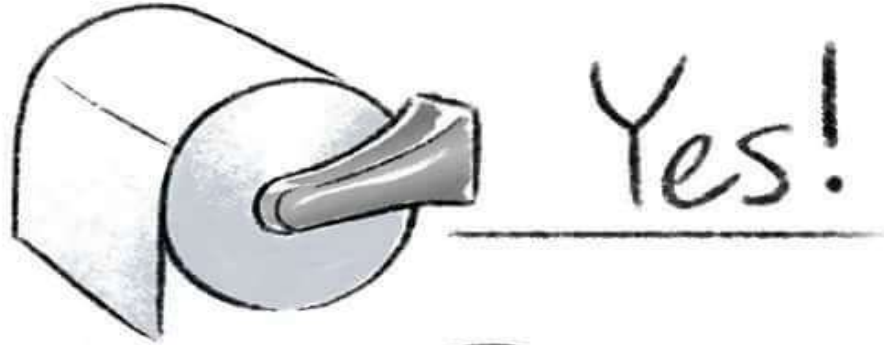


# Proper Toilet Paper Display?

Water

Soil

Plants





# The Patent

Water

Soil

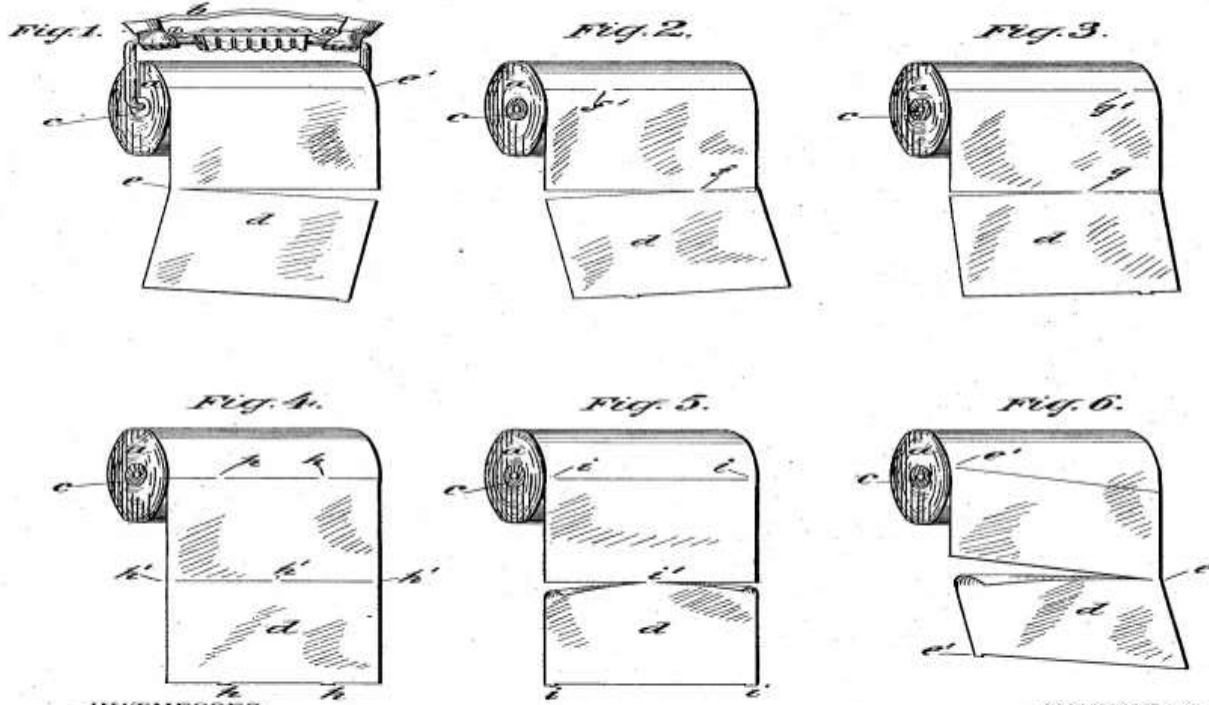
Plants

(No Model.)

S. WHEELER.  
WRAPPING OR TOILET PAPER ROLL.

No. 459,516.

Patented Sept. 15, 1891.



WITNESSES:  
*[Signature]*  
*[Signature]*

INVENTOR:  
*S. Wheeler.*

THE BURNS PRESS CO., PHOTO-LITHO., WASHINGTON, D. C.



# What should happen in the system

◆ Water

◆ Soil

◆ Plants

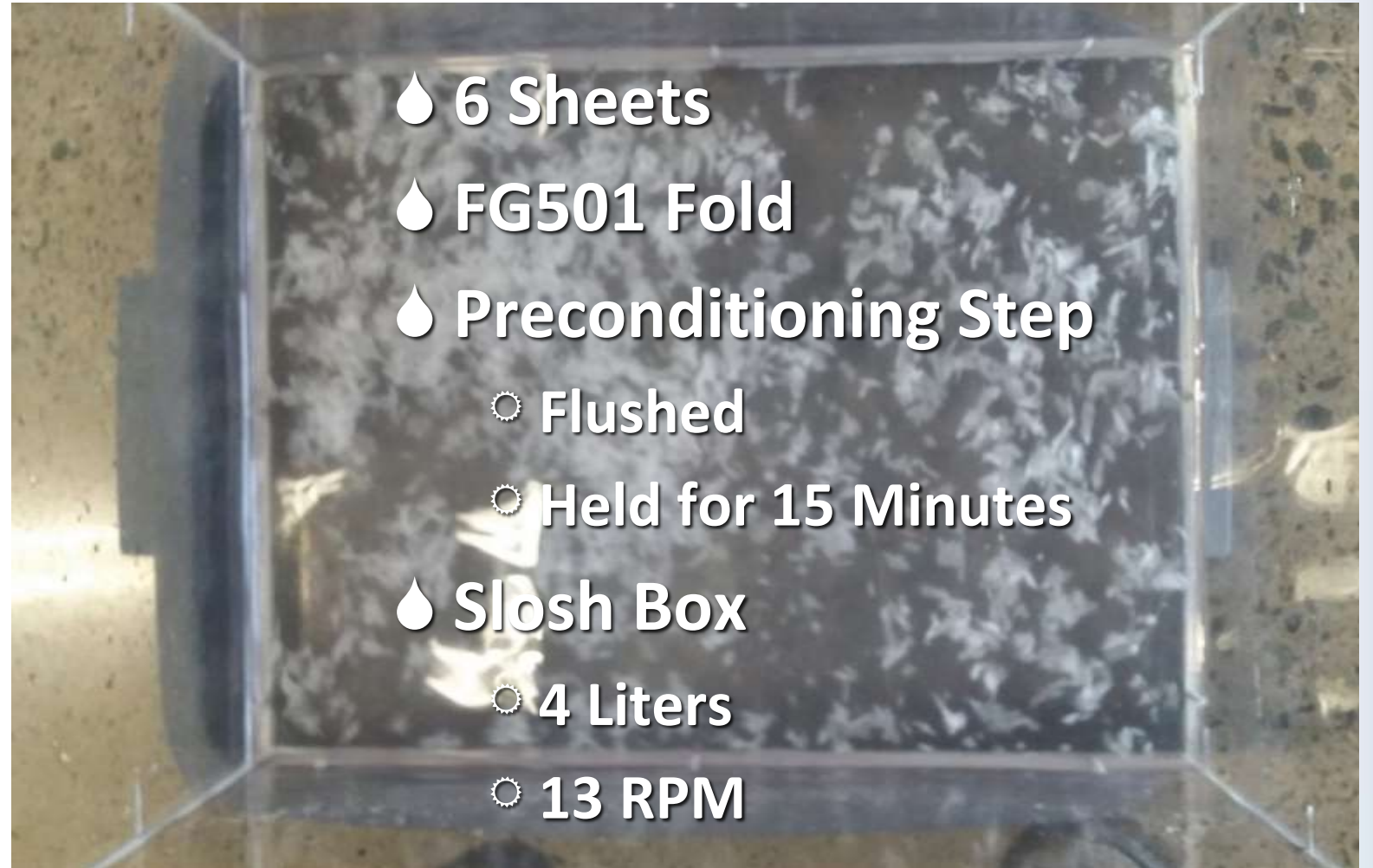
15 Minutes

Held in the

Slosh Box

City of Spokane  
Video

[Will It Flush? Video -  
YouTube](#)



Rotations Per Minute



# To Prevent the Dreaded Poke Through

◆ Water

◆ Soil

◆ Plants

Re-enforced with nylon fibers  
And other non-degradable  
materials





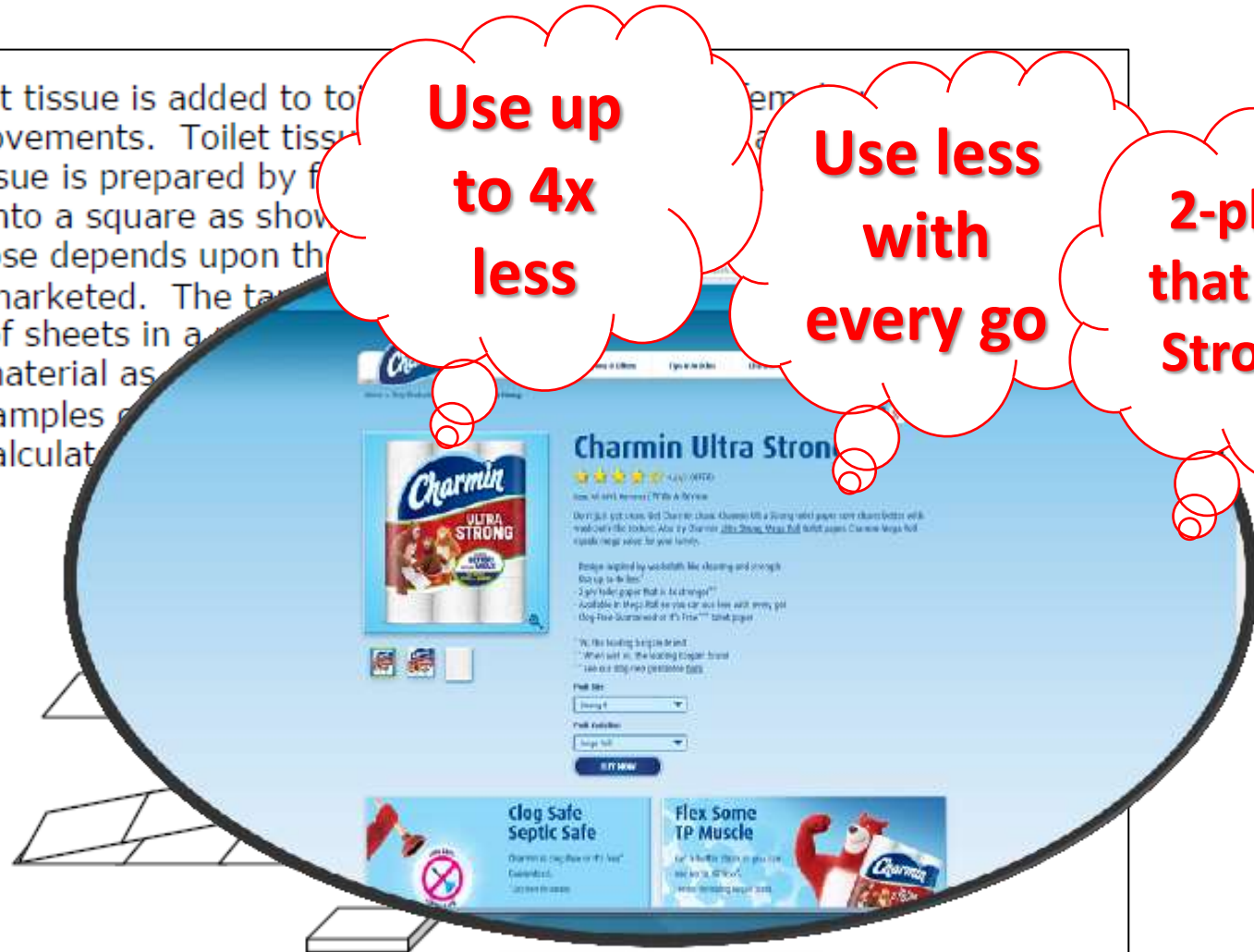
# How Flushable is that TP

Water

Soil

Plants

- Toilet Tissue:** Toilet tissue is added to toilet events and bowel movements. Toilet tissue unit dose of toilet tissue is prepared by folding sheets (typically 6) into a square as shown. The number of sheets in a unit dose depends upon the test product will be marketed. The target is 3g. Hence, the number of sheets in a unit dose is close to 3g of total material as shown. Triplicate unit dose samples are analyzed using standard deviation calculation.



Folding of toilet tissue into an "unit dose"



# How Flushable is that TP

## Water

## Soil

## Plants

Bath Tissue 1				Bath Tissue 2			
Time to First Break	No flush only	Flush wait 15mins	Flush wait 30 mins	Time to First Break	No flush only	Flush wait 15mins	Flush wait 30 mins
	Flowing pipe. 10", 50% full, 1ft/sec. R~18800	5	3		2	Flowing pipe. 10", 50% full, 1ft/sec. R~18800	5
Slosh Box 13rpm, 4l	15	2	6	Slosh Box 13rpm, 4l	21	21	15
Slosh Box 20rpm, 4l	5	2	1	Slosh Box 20rpm, 4l	5	4	1
Slosh Box 26rpm, 9l	4	1	1	Slosh Box 26rpm, 9l	3	2	3
Time to 1" pieces				Time to 1" pieces			
Time to 1" pieces	No flush only	Flush wait 15mins	Flush wait 30 mins	Time to 1" pieces	No flush only	Flush wait 15mins	Flush wait 30 mins
	Flowing pipe. 10", 50% full, 1ft/sec. R~18800	55	55		42	Flowing pipe. 10", 50% full, 1ft/sec. R~18800	64
Slosh Box 13rpm, 4l	89	72	79	Slosh Box 13rpm, 4l	141	147	130
Slosh Box 20rpm, 4l	31	23	21	Slosh Box 20rpm, 4l	41	38	38
Slosh Box 26rpm, 9l	58	42	41	Slosh Box 26rpm, 9l	63	60	49

- Proposed ED4 WW slosh set up highlighted in RED
- 9l , 26rpm Slosh providing closest comparison based on 2



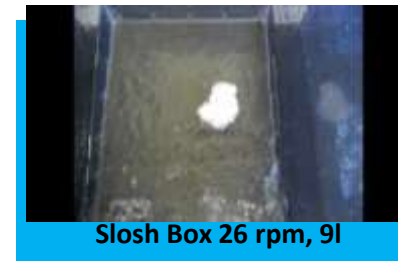
SMPT - 10", 50% full, 1ft/sec



Slosh Box 13rpm, 4l



Slosh Box 20 rpm, 4l



Slosh Box 26 rpm, 9l

**Statistics are used much like a drunk uses a lamppost: for support, not illumination. Vin Scully**

Slide Courtesy of Kimberly Clark



# Characteristics for wipes – products labeled as “flushable”

## ◆ Water

## ◆ Soil

## ◆ Plants

Potential characteristics for wipes and any other product labeled “flushable” include the following:

- Like toilet paper, the product loses strength rapidly when flushed.
- The product breaks into pieces in a short period of time under conditions anticipated in a normal wastewater collection or septic system and without the aid of a mechanical device, such as a pump or grinder.
  - The pieces that the product breaks into should be one inch or less in any dimension, since pieces this size typically do not cause problems for pumps and other equipment.
  - The optimum time period for breaking down is still being determined, but it is clear that it needs to be less than 60 minutes since a wipe could reach a pump in that period of time. Some toilets may only be 10 minutes or less from the pump or septic system. Additional work is needed to determine if a shorter time period is required for typical collection systems.
- The product is made of 100% biodegradable fibers, to prevent microscopic or larger pieces from appearing in effluent or biosolids.
- The product is not buoyant.



# Cost of this Modern Miracle?

Water

Soil

Plants

Cost of cleaning Flushables

Denver

Reports spending \$100,000 per year to Haul off Wipes from collection system

New York

Has spent \$18 million in past 5 Years on wipe-related equipment problems

## Wickenburg



Hospitals, Nursing Homes,  
Medical facilities, Day Care  
Manufacturing  
Industry  
Residential





# How Can You Control This Problem?

Water

Soil

Plants

Education

Who do you educate?

Students

Employees

How do you enlighten them?

Tours

Haul a Load to their front door.

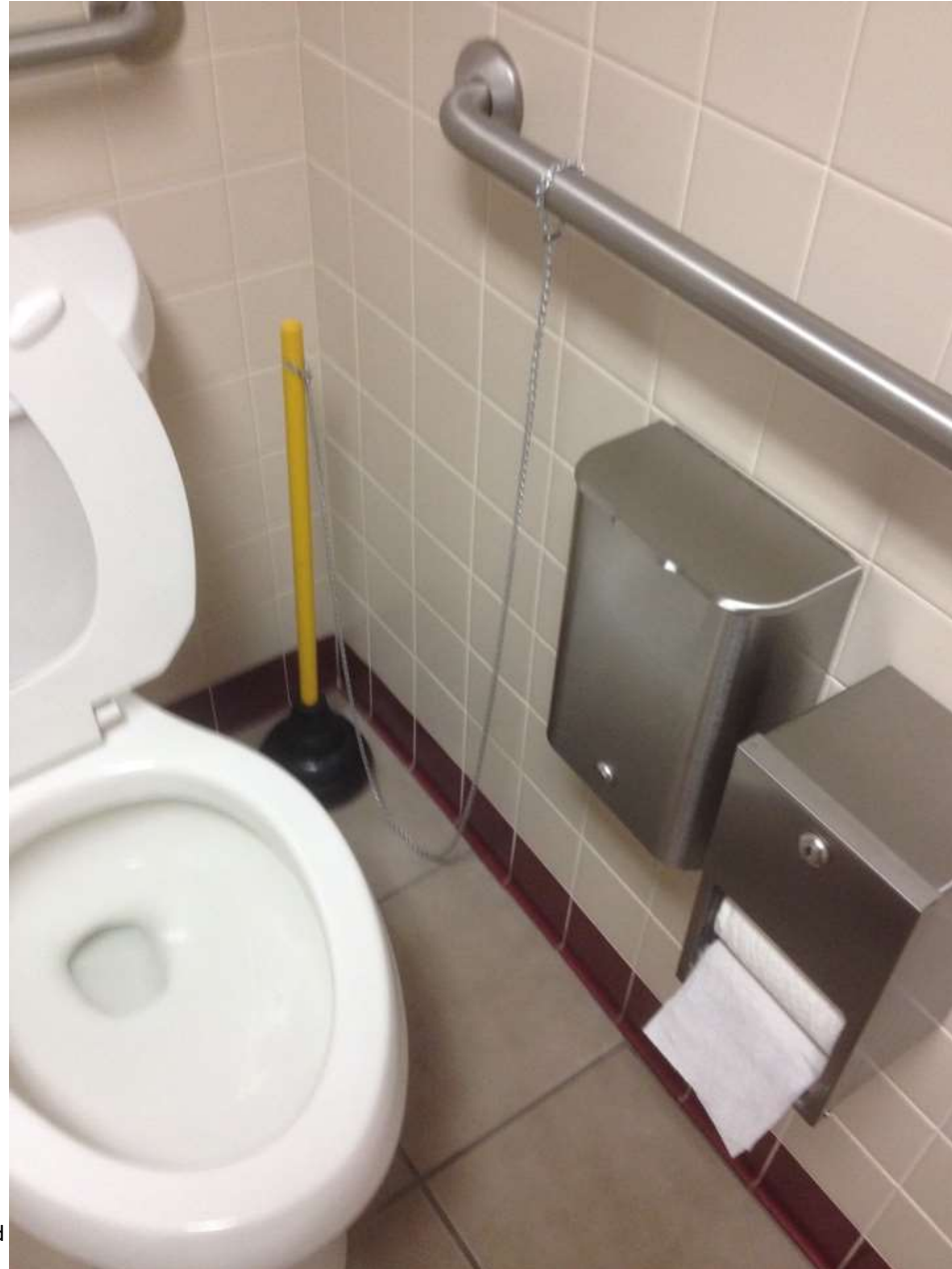


# Handling NON-Flushables Option #1

Water

Soil

Plants





# Another Option

Water

Soil

Plants







# Educate Your Communities: Keep Fatberg's out of our sewers

💧 Water

🌱 Soil

🌿 Plants







Water

Soil

Plants







Change from flushable to  
**DO NOT FLUSH**



# New Products Being Added

◆ Water

◆ Soil

◆ Plants

# Shittens





# And for your little dog. too

💧 Water

🌱 Soil

🌿 Plants





# Where Can You Buy Them?

◆ Water

◆ Soil

◆ Plants

Ebay  
Amazon  
ON Line Direct



# Other Countries:

Do Not Flush Toilet Paper Use the  
Trash Can  
or  
Use the Bidet

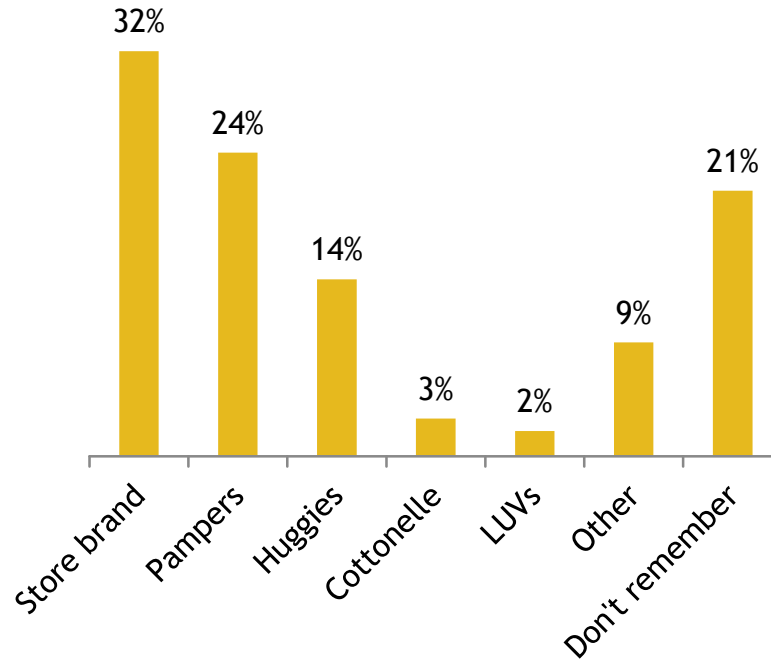




Manufacturers  
Report  
As High As  
\$600 Million per Year  
In Revenue

# Baby Wipe Purchasing and Usage

Store brand baby wipes are the most often purchased by these respondents, followed by Pampers. One in five don't know what brand of baby wipes they purchase.



Baby wipes are most often purchased in the baby section of the store. Slightly less than half use baby wipes for baby care, as they are also used for personal hygiene, general cleaning and adult incontinence.

Q7. What brand of baby wipes do you purchase most often?  
Q8. And in what area of the store do you purchase these baby 30  
wipes? Q9. How are baby wipes used in your home? n=66

Where Purchased	
Baby section	73%
Toilet paper section	8%
Feminine hygiene section	3%
Other	9%
Don't know	9%

How Used	
Baby or toddler care	47%
Personal hygiene	39%
General cleaning	14%
Adult incontinence care	12%

**53% are off-label uses**

# Baby Wipe Disposal

Baby wipes users in this area are most frequently disposing of their baby wipes in the trash. While seven in ten never flush a baby wipe, almost a third flush them at least occasionally.

• **30 % flush them occasionally**  
 • **10% most of the time**

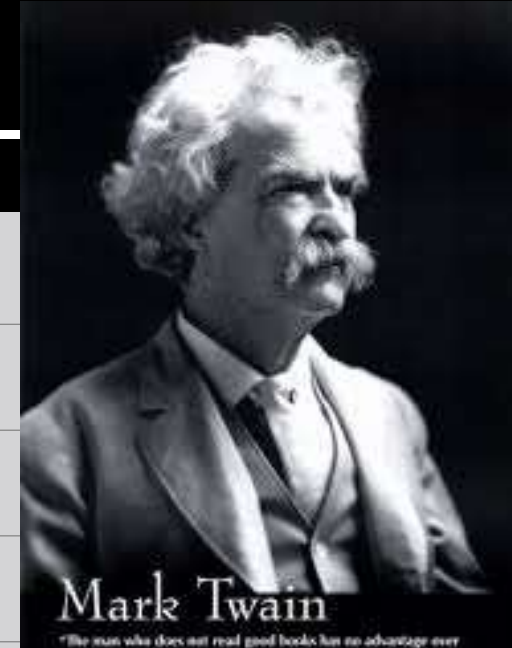
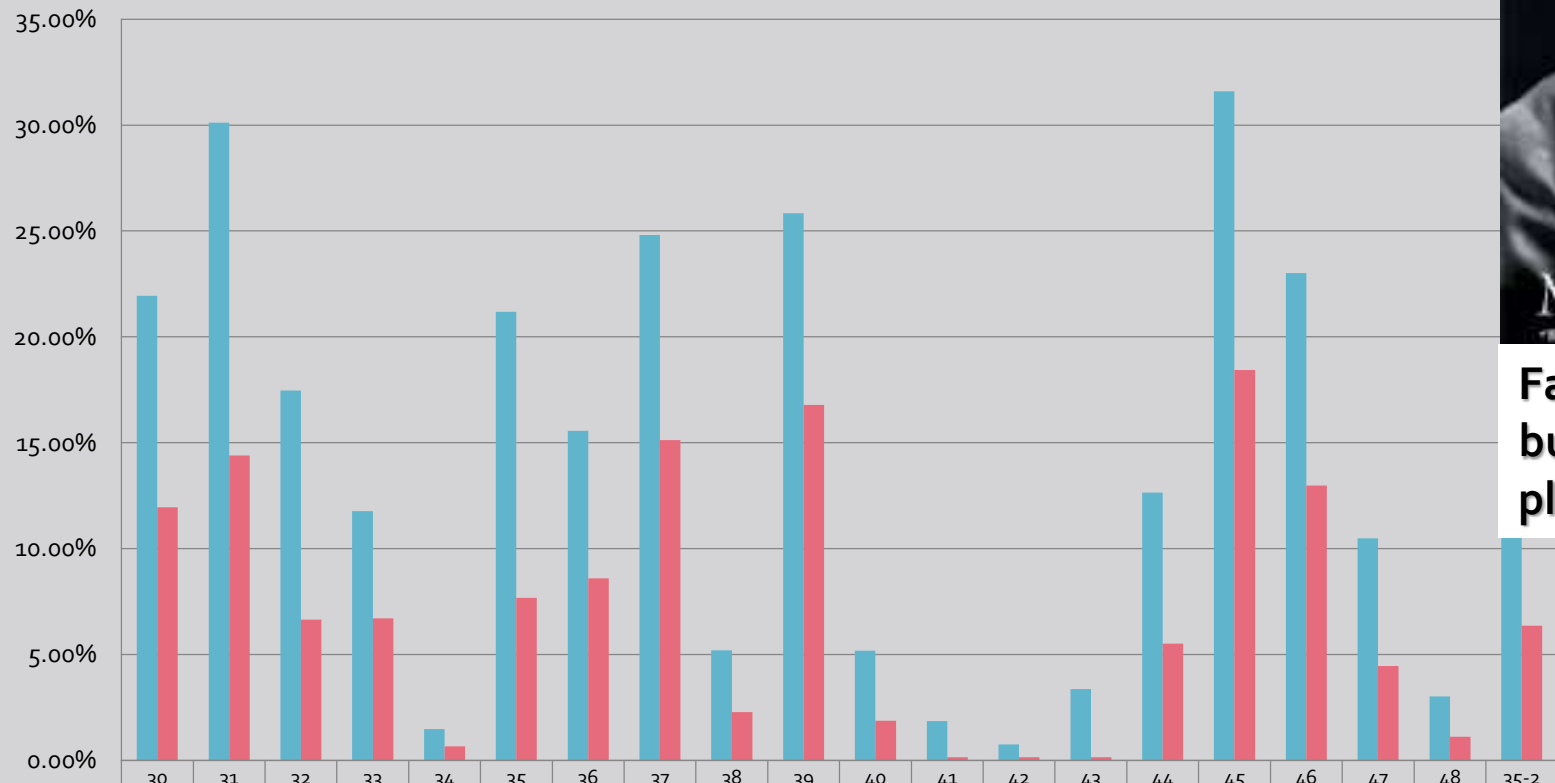
	Never	Occasionally	Frequently	Most of the time	Don't know
In the trash	6%	9%	18%	67%	-
In a diaper pail	83%	5%	5%	6%	2%
Flushed down the toilet	71%	17%	3%	9%	-

Note: While admittedly a very small sample, it appears that those who flush baby wipes span young and old age groups, both male and female respondents, HHs both with children and without, and across education and income levels.

Q10. How are used baby wipes disposed of in your home? For each of the following methods, please tell me if they are disposed of in this matter never, occasionally, frequently or most of the time. (n=66)

# We looked at Max Power Draw as well as Average Power Draw

Max Percentage over Base v. Average Power Draw Chart



**Facts are stubborn,  
but statistics are more  
pliable**

# INDA Disintegration Test



# CFP – Continuously Flowing Pipe

- Designed to simulate a real sewer
  - 43 foot loop
  - Uses a conveyor to transport the wipes
  - Flow rate of 2.3 feet/second
- Used to calibrate other tests



# Continuously Flowing Pipe System



# Continuously Flowing Pipe



# Effect of Size on Power Consumption during Variable-Frequency Drive Operation

- **Purpose:** Evaluate the power draw of the Flygt C3085 Municipal Pump when dosed with the same mass of substrate (Non-flushable Baby Wipe) cut into different size shapes

<b>Dimensions</b>	<b>1.75 x 1.75"</b>	<b>3.5 X 1.75"</b>	<b>3.5 X 2.5"</b>	<b>7 X 5"</b>
<b>Pieces per wipe</b>	<b>16</b>	<b>8</b>	<b>6</b>	<b>Full Wipe</b>
<b>Average % Power Increase</b>	<b>5.6</b>	<b>7.3</b>	<b>8.7</b>	<b>12.2</b>



## Any Questions



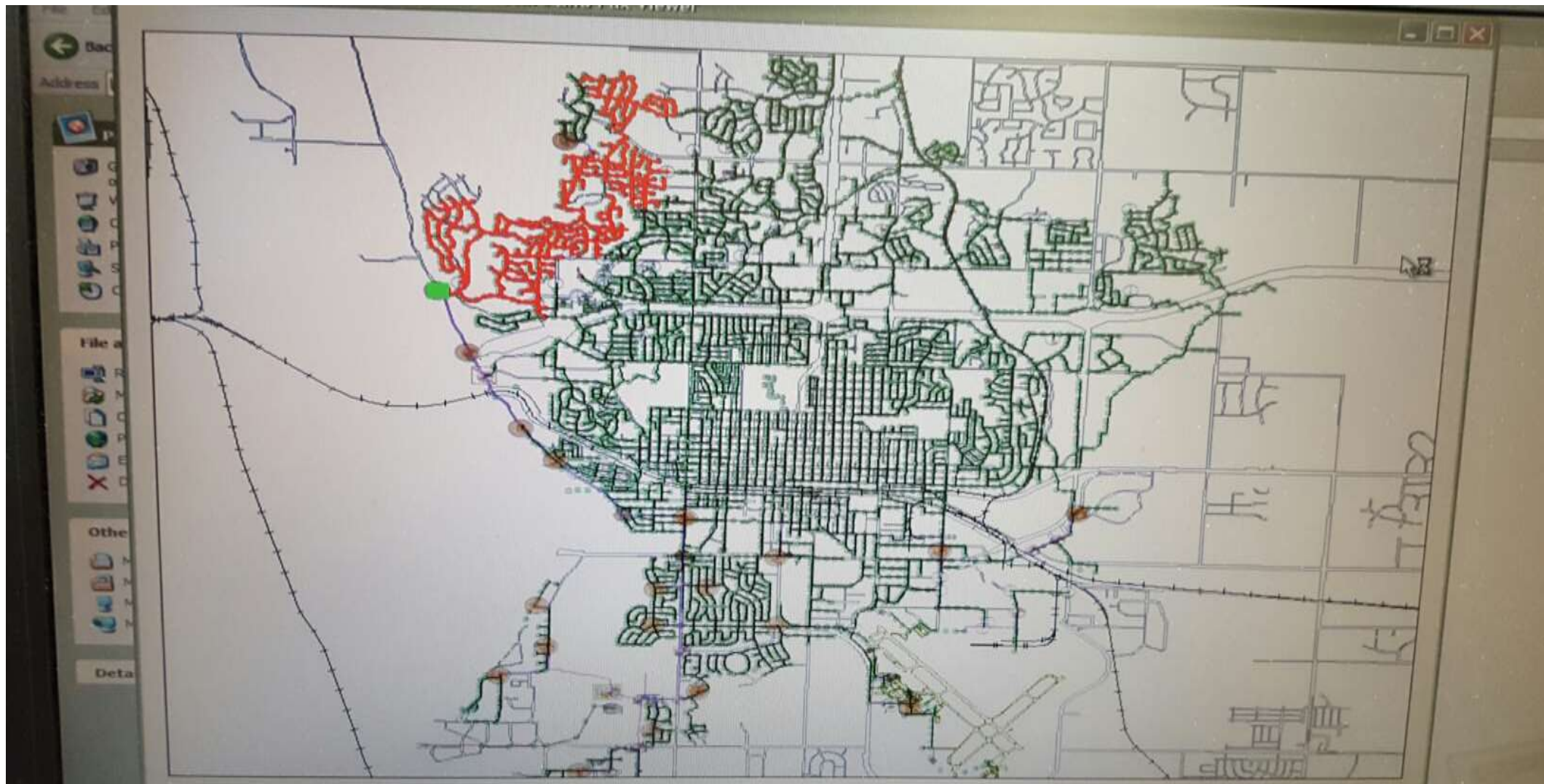
The buffalo isn't as dangerous as everyone makes him out to be. Statistics prove that in the United States more Americans are killed in automobile accidents than are killed by buffalo.  
-- Art Buchwald



Water

Soil

Plants







Water

Soil

Plants







💧 Water

🌱 Soil

🌿 Plants





# It's a TOILET, not a trash can!

Use the **trash can** for:



- paper towels
- cleaning wipes
- facial wipes
- baby wipes
- diapers
- feminine products

If it doesn't come  
off the roll,  
don't throw  
it in the  
bowl.



## The City of Bismarck Needs your HELP!

Bismarck has been seeing a higher than normal accumulation of paper towels and disposable cleaning products in the sewer pipes in your neighborhood which could lead to sewer backups.

### Keep Wipes out of Pipes

Sometimes we forget the toilet is not a trash can. All wipes and disposable cleaning products belong in the trash, not the toilet. Did you know flushing wipes and paper products down the toilet can cause problems in your home and in the City's sewer system? Those "disposable" wipes may be labeled flushable, but they can clog the sewer system, contributing to costly cleanups, and may result in backup of sewage into your basement or your neighbor's. Most products labeled "flushable" or "disposable" often don't dissolve or breakdown after being flushed.



### How You Can Help

A general guideline is, if it doesn't dissolve as fast as toilet paper, it's not flushable. We are asking everyone to please do your part and place these materials where they belong: in the **trash**.



For more information go to [www.bismarcknd.gov](http://www.bismarcknd.gov) or call 355-1700.



Thank you.

If we can provide you some additional information please contact:

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