Waterways Advisory Committee

Dave Crain	Chair
Dr. William Trotter	Vice-Chair
Steve Sokol	
Phillip Thompson	
Martin Winter	
Eugene Wordehoff	
1 Slot Open	

WAC Background

- The City of Marco Island is a beach and canal community whose central theme is water-related activities. To a high degree, our value as a residential and resort community is dictated by the quality of our waters, the ability to navigate our boats safely, and the integrity of our canal system. Maintaining awareness and input are vital to these efforts

Mission Statement

- The mission of the Marco Island Waterways Advisory Committee is to help guide City government in its action on matters including boating activities, seawalls, public awareness and water quality to enhance the safe and enjoyable use of the precious waters which comprise and surround Marco Island

Focus Areas

- Water Quality
- Safe Boating/Navigation
- Waterway Maintenance/Infrastructure
- Public awareness

Current Focal Points

- Educate Residents about Water Issues and how each of us can make a difference in water quality and safe boating
- Promote BMP's that will help to improve our water quality and make our island better
  - Single Family Homes Construction
  - Street Cleaning
  - Swale Improvements
  - Identify illegal discharges into canals

Educational Literature

- WAC has developed 3 Brochures and 1 manual that are available on the City's website

  – 1. Healthy Waterways Begin with You
  – 2. Clean Boating Habits
  – 3. Safe Boating
  – 4. Seawall Manual

Marco Island's Healthy Waterways Begin with You!

What Can Homeowners Do To Improve The Water Quality in Our Canals?

REMEMBER!

Whatever is on the ground, roofs, driveways, sidewalks, or lawns, eventually flows to our canals during a rain event.

Drains from Gutters or Pools into the Canals is Illegal

Aerial View

Aerial View

WAC Recommendation

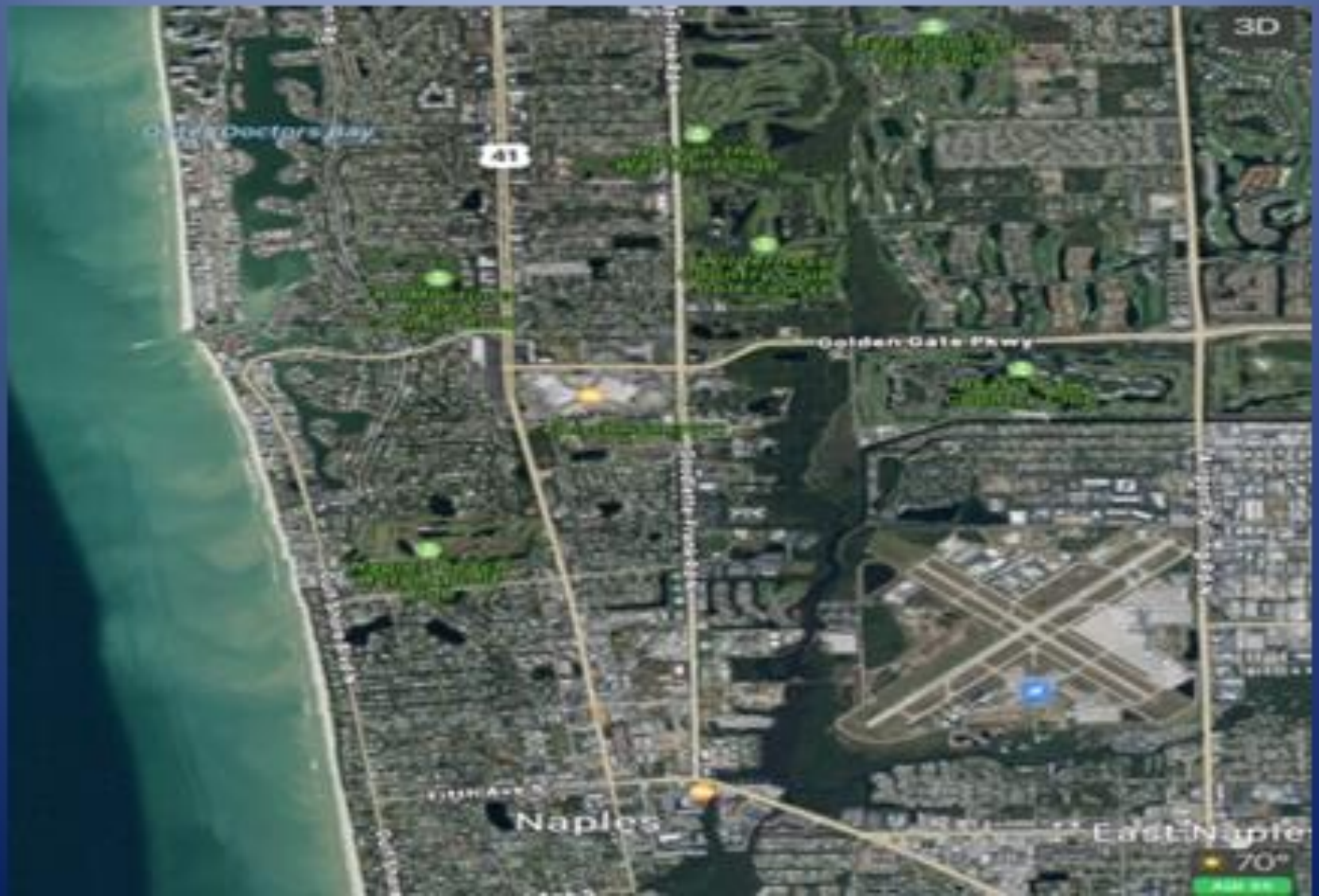
- Revisit current City Codes to include on-site stormwater storage for new homes including teardowns

WAC Recommendations (Single Family Homes)

- Basis for Recommendations
  - Our waterways have been declared impaired for excess Nitrogen for the last 3 years
  - There have been 2,745 new homes (including tear downs and rebuilds) built on Marco in the last twenty years… 646 homes in the last five
  - Based on an assumption of 60% impermeable area on a typical lot, we have increased impermeable area by 375 acres in 20 years and 89 acres in just the past 5 years!

Marco Island Aerial View

Naples Aerial View



Collect Runoff at the Source!

- Only 1” of rainfall over these 375 acres of impermeable surfaces results in over 10 Million gallons of polluted runoff which ends up in our canals
- Each single family lot should be required to treat the first flush runoff on property before any water leaves the site.
- Hideaway Beach requires each home site to provide a treatment system
- City of Naples has required on site treatment since 2008 They are currently reviewing changes to their codes to increase storage even more

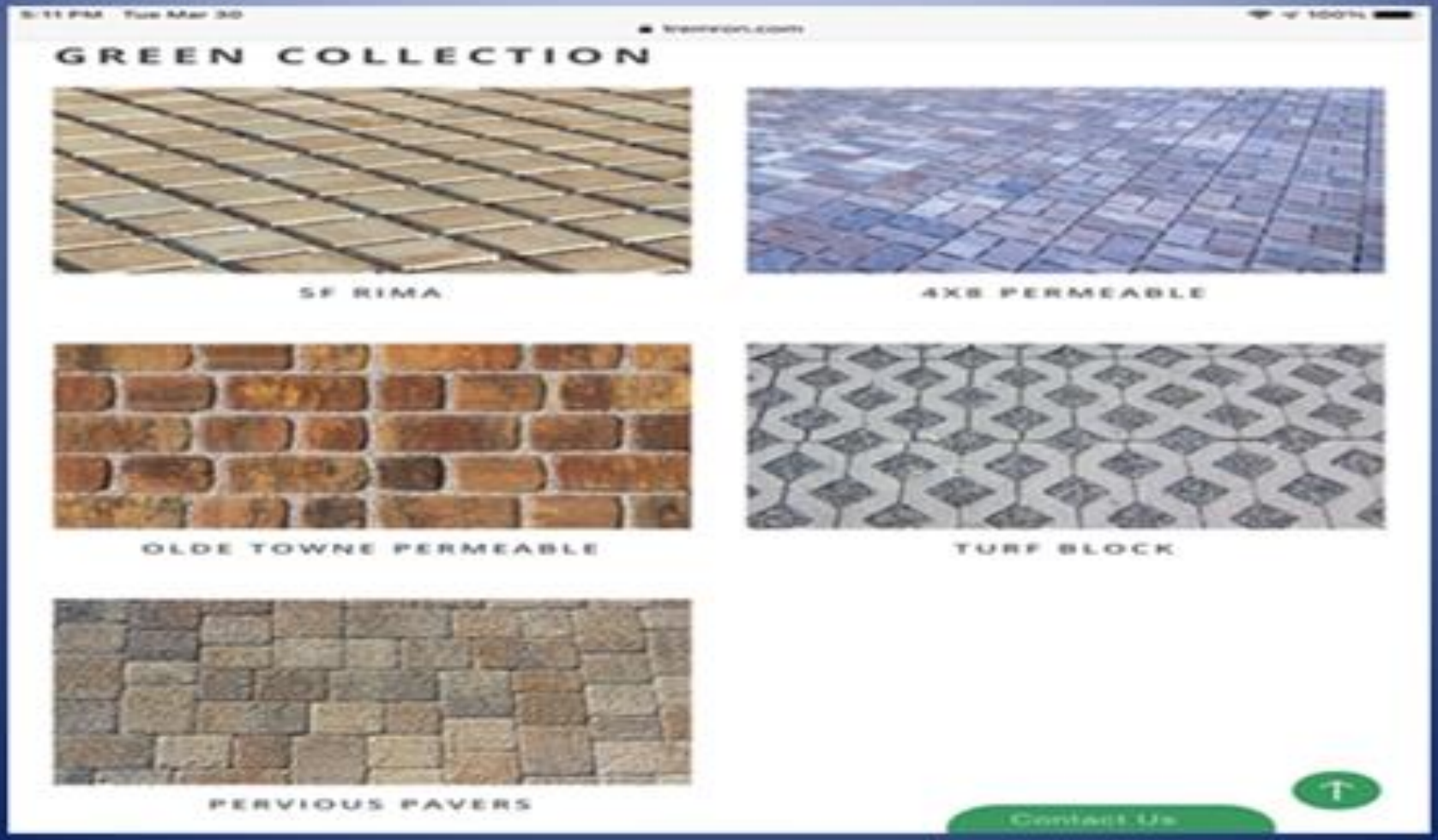
What Can Existing Homeowners do?

- Install rain gardens and direct flow off of roofs and other hard surfaces towards the garden
- Use pervious pavers for driveways, sidewalks and patios
- Install buried ex-filtration trenches or drywells to capture rainfall runoff from roof gutters

Rain Gardens

Rain Garden

Pervious Pavers



Porous Pavers

Rain Garden North of Jolley Bridge

Ex-Filtration Piping
Stormwater Capture

Add a Mini Reef!

Clean Streets = Clean Water

massachusetts Clean Water TOOLKIT

Toolkit Topics | Interactive Scenarios | BMP Factsheets

Street Sweeping

From the MassHighway Storm Water Handbook for Highways and Bridges

Description:

Street sweeping is a non-structural method of controlling pollutants in storm water. It is essentially a source reduction practice. It involves the use of mechanical or vacuum pavement cleaning equipment (and sometimes, manual labor), to remove particulates from the pavement surface prior to wash-off by storm water runoff. To be effective in controlling storm water pollution, sweeping must be conducted regularly. Vacuum sweepers are more effective than brush or broom sweepers because they do a better job at picking up fine-grained particulates (clays, silts, fine sands) in addition to coarse materials (sand and gravel) and debris.

Sweeper Types

Mechanical: Usually broom-type sweepers designed to pick up debris, these are the least expensive available. About 90% of street sweepers currently in use in the United States are of this type. Models include Elgin Pelican (three-wheel) and Eagle (four-wheel) sweepers, Athey's Mobile three- and four-wheel models, and Schwarze M-series sweepers.

Regenerative Air: This type of sweeper blows air onto the road surface, causing fine particles and sediments within pavement crevices to rise, then vacuums them up. This type of sweeper has been available for more than two decades. Elgin's Crosswind J, Mobile's RA730 series, Schwarze's A-series, and all Tymco sweepers are of this type.

Vacuum Filter: Also called vacuum-assisted or small-micron-particulate sweepers. Two general types are available: wet and dry. The dry type combines a mechanical (broom-sweeping) process with a vacuum to capture small particles it stirs up. The wet type uses water for dust suppression. Scrubber-type machines apply water to the pavement so that fine particles are suspended, then vacuum up the mixture. Elgin's GeoVac and Whirlwind models are examples of the dry type, and Schwarze's EV-Series particulate management machines are a variant.

Tandem Sweeping: Two machines are used in this process: a first pass, usually by a mechanical sweeper, is followed by a second pass with a vacuum-type machine.

Figure 1. From: J. P. Partland. 2001. A Clean Sweep to Swipe Pollutants. Stormwater. Vol. 12. No. 4.

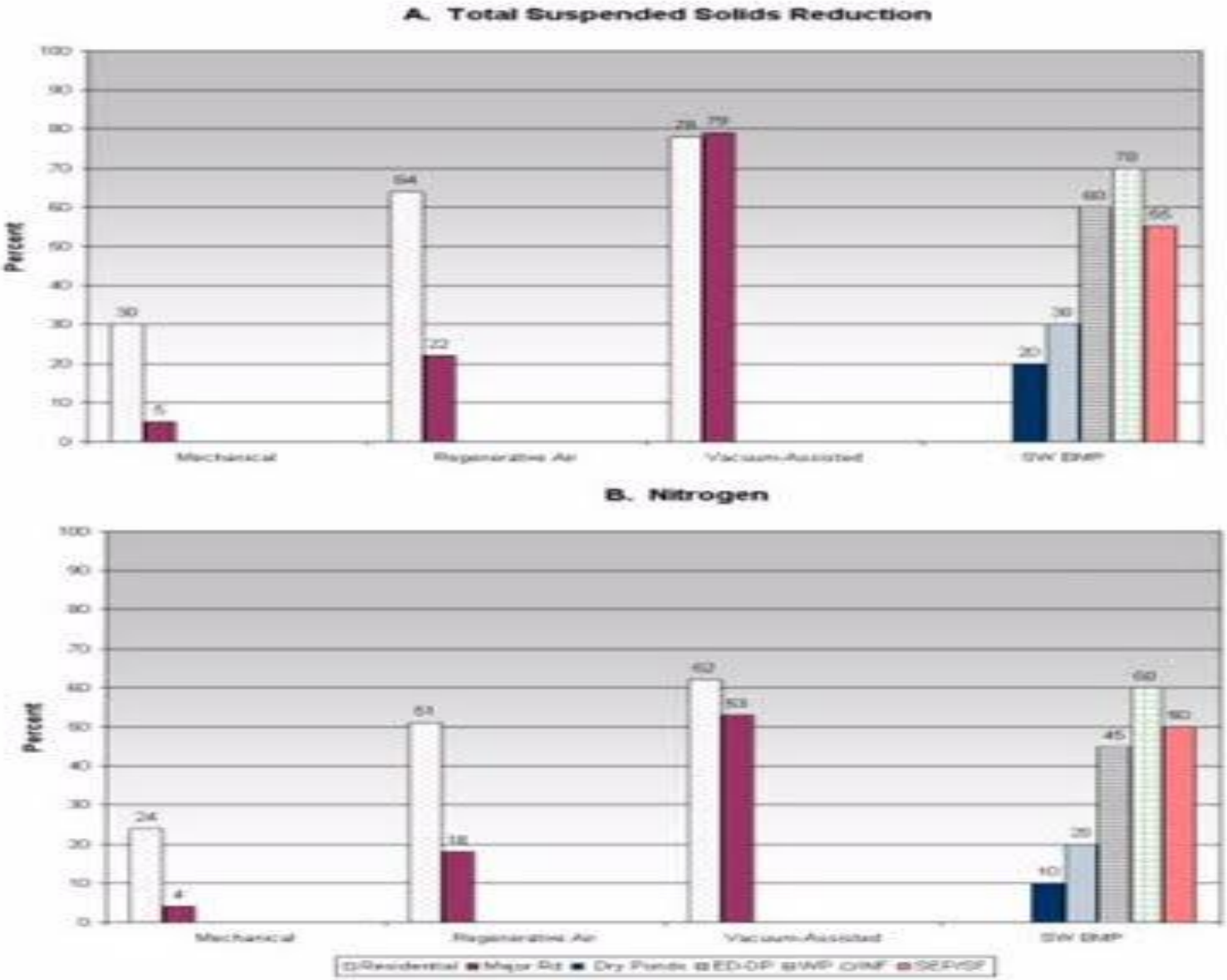


Figure 3. Percent Removal associated with Street Sweeping (for Residential vs Major Roads) and by 5 Storm Water Best Management Practices (SW BMP). *ED-DP=extended detention dry ponds; WP=wet ponds; INF=infiltration; SEP/SF=separators/sand filters. (Sweeper Type Removal from: The Watershed Treatment Model, March 2001. Center for Watershed Protection. SW-BMP removal from information compiled by Urban BMP Workgroup for Patuxent Demonstration Project, 1994)*

Table 4. Year 2000 Curb Miles Swept and Material Removed in Montgomery County.

Road Type	Curb Miles	Tons collected	Tons/curb mile
Residential	3,779.31	2093.73	0.553998
Arterial	1,644.66	263.15	0.160003
Piney Branch CBD	136.76	6.84	0.050015
Bethesda Urban Partnership (Bethesda, Silver Spring, and Wheaton CBDs)	8,812.44	100	0.011348
TOTAL:	14,373.17	2,463.72	0.171411

Upcoming presentations at WAC Meetings

- Water Quality Status Report – Gene Wordehoff- April
- Florida Friendly Landscaping - May
- Clam Restoration – Date not set

Marco Island's Healthy Waterways Begin with You!