

The City Of

WINTER HAVEN

WATER CONSERVATION PROGRAM

FINAL REPORT



02555

MICROFILMED

HD
1694
W5

Submitted by
THE ROBERTS COMPANY, INC.

THE ROBERTS COMPANY, INC.

HD
1694
WS

March 17, 1993

Mike Britt
Lakes Manager
City of Winter Haven
P.O. Box 2277
Winter Haven, FL 33883

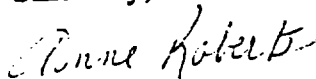
Dear Mike,

The following report is for the recently completed pilot program which involved the distribution of water saving devices in The City of Winter Haven. The Roberts Company, Inc. (TRC) feels that the program was a great success, having achieved a 70% contact rate with 89% of those contacted having installed or intending to install at least one of the devices provided in the water saving kit. The program was completed on time and within budget with virtually no complications.

TRC's water savings analysis, as well as equipment retention rate survey will be completed in July of this year. This report includes all information as outlined in the original program proposal.

TRC appreciates the confidence demonstrated by The City of Winter Haven in our ability to execute the program. We give special thanks to Mike Britt for expediting our various requests which contributed greatly to the success of the program. We look forward to working with you again. If you have any questions, please do not hesitate to call.

Sincerely,



Anne Roberts
President

SWFWMD does not discriminate upon the basis of any individual's disability status. This non-discrimination policy involves every aspect of the District's functions including one's access to, participation, employment, or treatment in its programs or activities. Anyone requiring reasonable accommodations as provided for in the Americans With Disabilities Act should contact D. Hanville at 1-800-423-1476(FL), extension 4023; TDD ONLY 1-800-231-6103(FL); FAX 904 754-6875/Suncom 663-6875.

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2-22-94

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Notification Letter
Water Saving Kit Literature
50 Ways Brochure Cover
Window Display Card

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PROCEDURES / OPERATIONS

In January of 1993, The Roberts Company, Inc. (TRC) was contracted by The City of Winter Haven to initiate a pilot water conservation retrofit program. The program was designed to include the distribution of water conservation devices and an evaluation of water savings resulting from the program. To facilitate an analysis of water savings resulting from the retrofit program, an area with at least 2,000 single-family homes was identified. Within this area, 1,000 target retrofit homes and 1,000 control homes were identified. To ensure an accurate representation of the city, the target area was divided into three regions. Even-numbered houses were designated as the target group (i.e., homes that would be included in the retrofit program) and odd-numbered houses were included in the control group. This method of selection of treatment and control groups virtually assured that the two samples were not significantly different in terms of their household and water use characteristics.

The City of Winter Haven provided TRC with a computer listing of all single-family residential accounts. This information included the customer address and account number. Water conservation kits were distributed to single-family homes only, with the exception of one multi-family unit consisting of ninety individually metered units.

Prior to delivery of the kits, TRC hand delivered a program notification letter to each customer who was to receive a kit. This notification letter outlined the program as well as provided the customer with a conservation hotline number in the event that he/she had questions or comments regarding the program.

The notification letter and conservation hotline served as the public relations for this program. For evaluation purposes, media coverage regarding the distribution of the water conservation kit was avoided. This prevented the control group from being contaminated, rendering the results inaccurate.

Delivery of the kits was scheduled for Friday, giving residents the weekend to install the devices. Each home that received a kit was visited by a canvasser up to three times the following week, in an attempt to make contact with the resident. The canvasser asked the resident if he or she had installed the devices, retrieved or offered additional devices, answered customer questions and asked specific home information. This information was then recorded on canvass sheets. Contact and participation rates were determined daily in order to monitor the progress of the program. Low contact rates could then be immediately detected by the program manager, facilitating a shift in canvassing hours for the following day. All field work for this program was conducted by The Roberts Company, Inc.

The conservation office was located at 1180 North East Cleveland Street in Clearwater, Florida. Office hours were 8:30 a.m. to 5:00 p.m. Monday through Friday. A conservation hotline was manned throughout office hours.

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EQUIPMENT

The equipment vendor for the City of Winter Haven water conservation program was Waterguide, Inc. of Montague, New Jersey, a division of AM International. The Roberts Company, Inc. highly recommends the continued use of Waterguide products for any future Winter Haven water conservation programs.

Each kit included the following components:

- * Two Low Flow Showerheads
-uses a maximum of 2.5 gallons per minute
- * Two Toilet Tummies
-reduces the water used for each flush
- * Three Bathroom Faucet Aerators
- uses a maximum of 2.5 gallons per minute
- * Toilet Leak Dye Tablets
-detects water leaks in the toilet
- * Window Display Card
- * Equipment Installation Instructions

Kits were hung on the front door knobs of homes or placed in front of the doors if no knobs existed. In some cases, kits were placed in front of a locked gate or by a mailbox if no front door access was visible. Any kit found to be in the same location during the first canvass attempt was removed by the canvasser for home security reasons.

The window display, provided in each kit, enabled residents to communicate to the field canvasser that they had installed the kit.

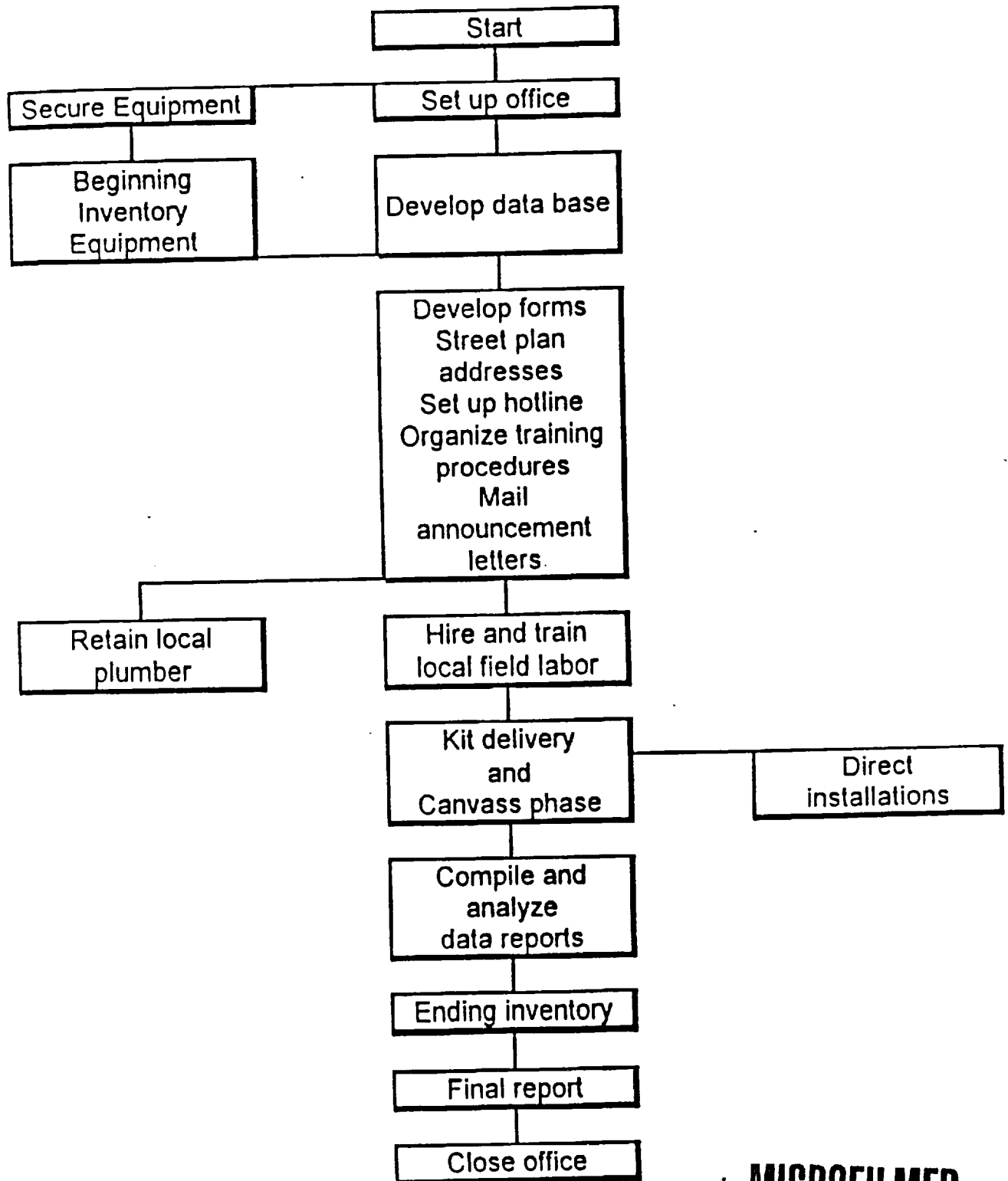
HOTLINE RESULTS

The Roberts Company, Inc. provided a hotline number for kit recipients to call if they had any questions or comments on the program. This hotline was manned 8:30 a.m. to 5:00 p.m. Monday through Friday. Approximately thirty calls were received between January 5th and January 12th.

The purpose of the calls and estimated percentages thereof were:

- * Request for assistance (10%)
- * Outside of delivery area (40%)
- * Installation questions (8%)
- * Request for extra equipment (4%)
- * Comments on program (30%)
- * Did not receive kit (1%)
- * Questions on sponsorship of program (5%)
- * Kit not wanted (2%)

ORGANIZATIONAL FLOW CHART



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CALENDAR OF EVENTS

January 5, 1993

Open Conservation Office
Conservation Hotline Begins

January 7, 1993

Street plan Retrofit Area
Delivery of Notification Letters

January 8, 1993

Delivery of Conservation Kits

January 11, 1993

Canvass I

January 12, 1993

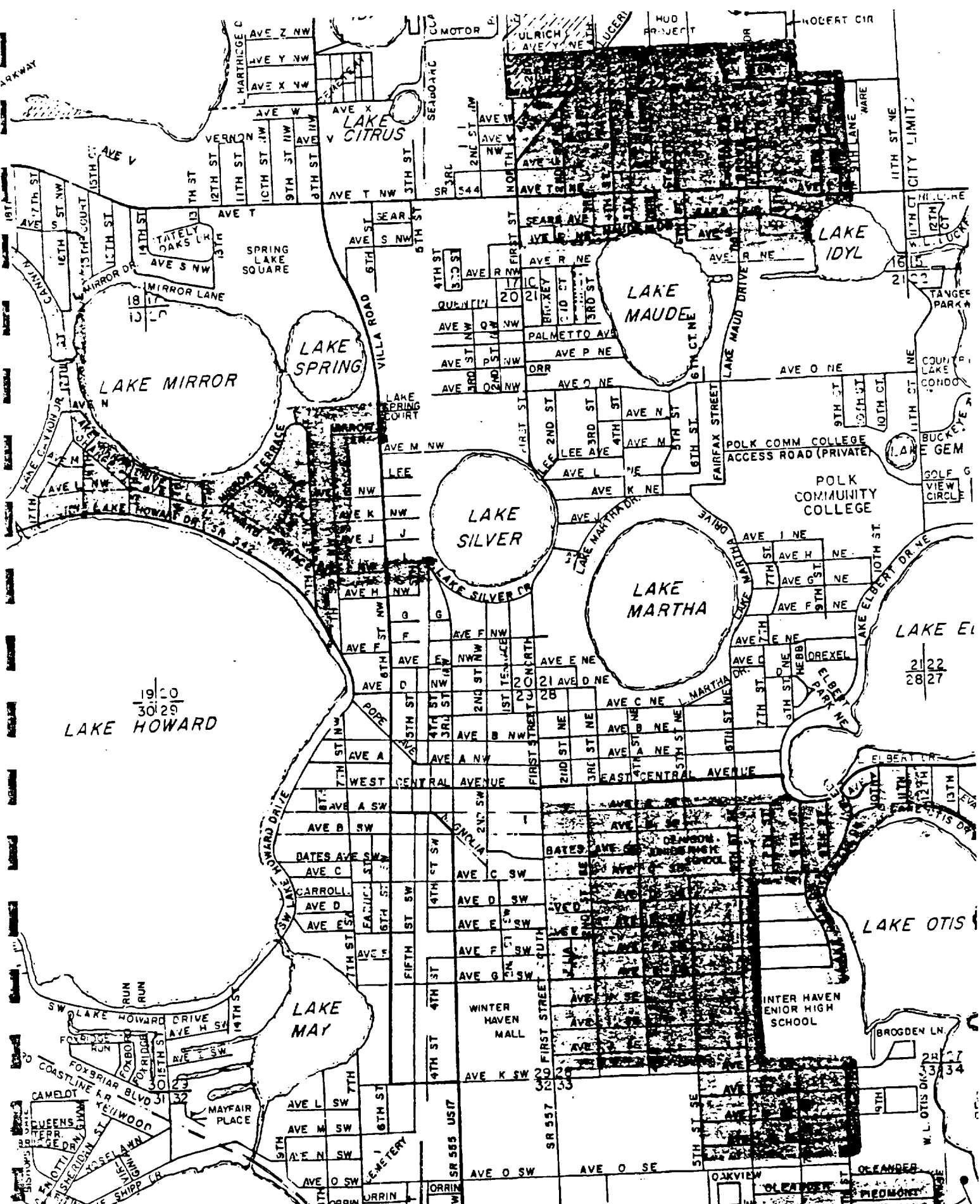
Canvass II
Direct Installations

January 13, 1993

Canvass III

January 14, 1993

Close Conservation Office

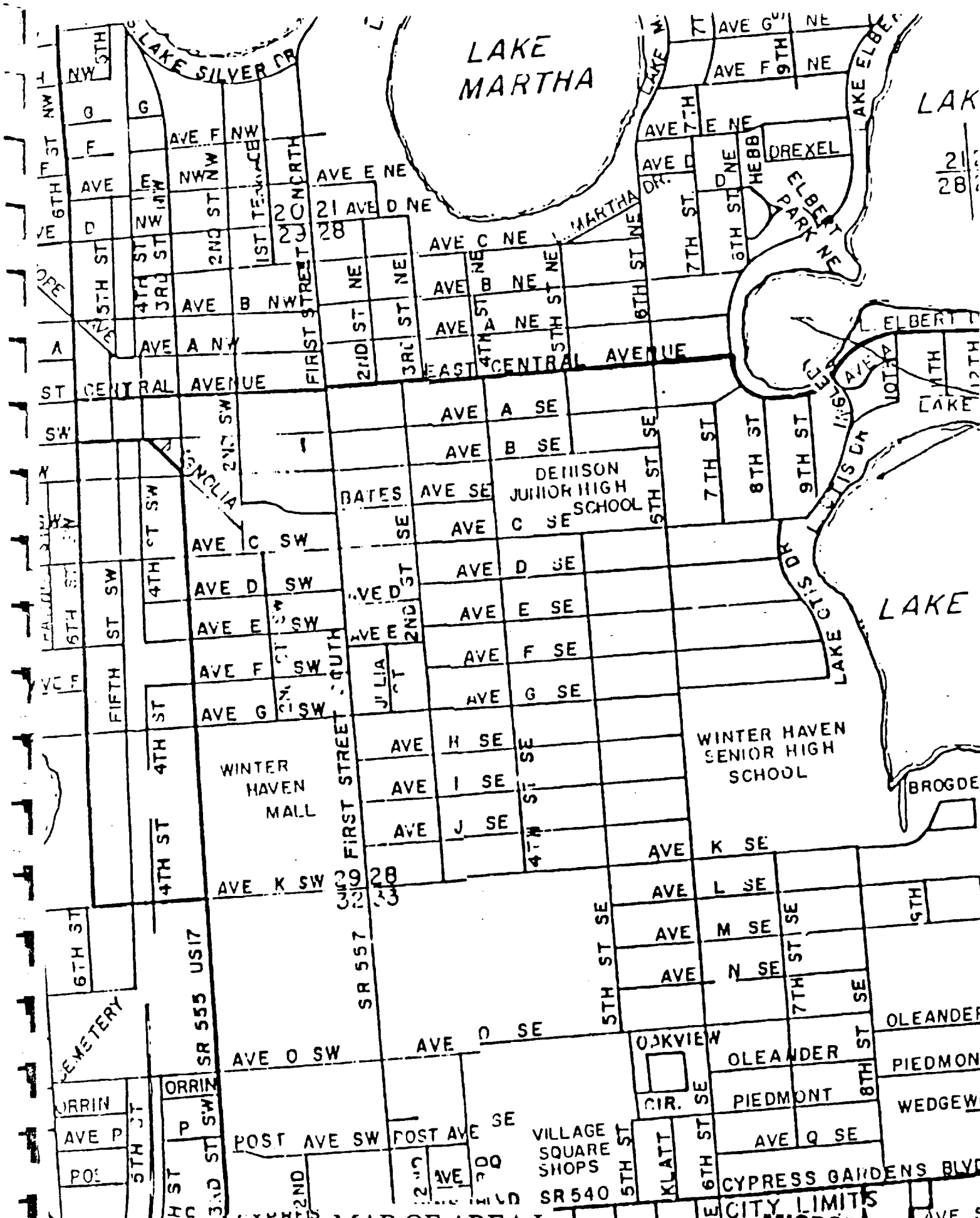


19/20
30/29
LAKE HOWARD

LAKE EL
2/22
28/27

MAP OF RETROFIT AREA

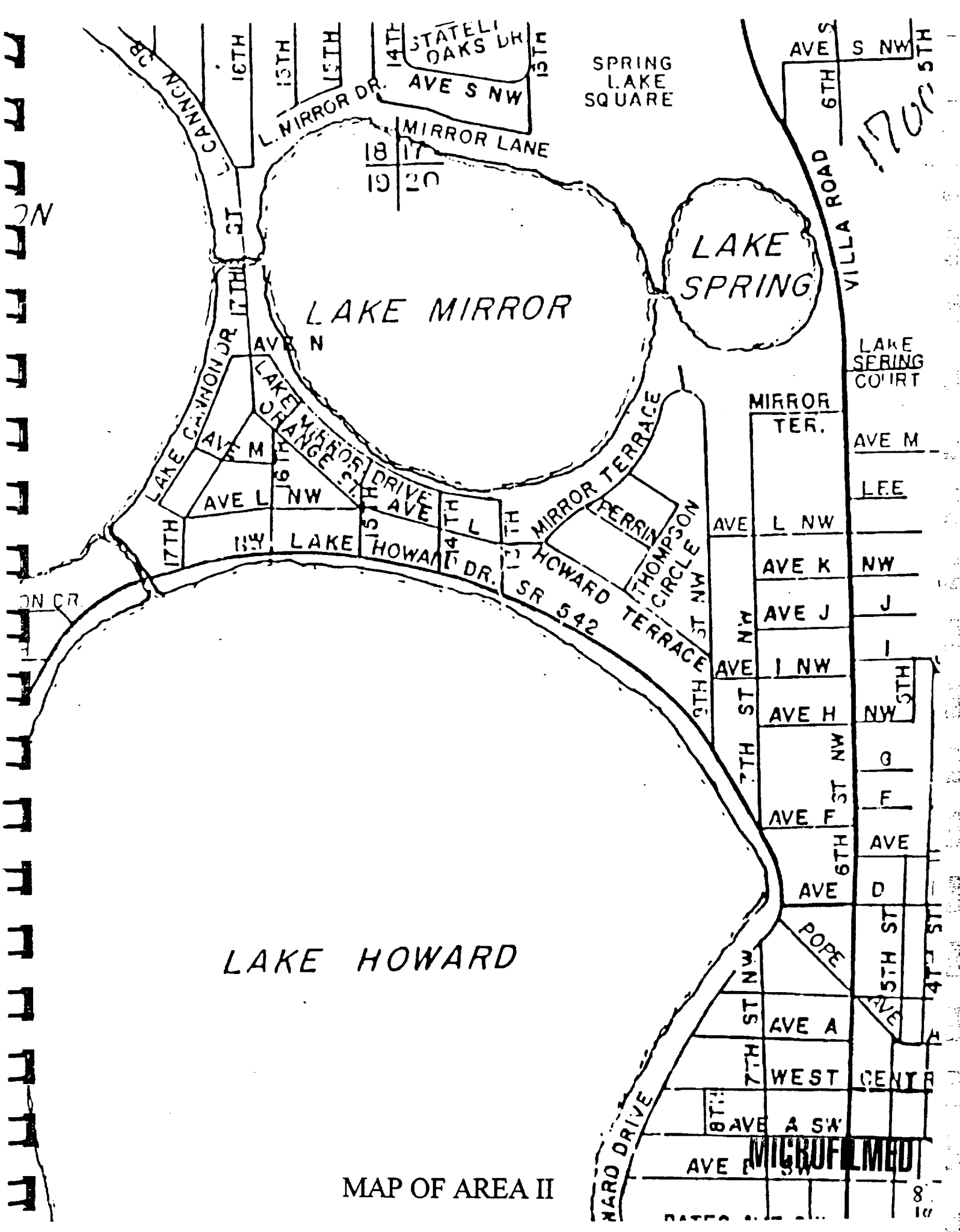
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LAK
21
28

MAP OF AREA I

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SPRING
LAKE
SQUARE

LAKE MIRROR

LAKE
SPRING

LAKE HOWARD

MAP OF AREA II

1700 5TH

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MAP OF AREA III NE

MICROFILMED
POLK COMM. CO
ACCESS ROAD (P)

EVALUATION METHODOLOGY

The collection of data for the water conservation program was performed by TRC personnel. The canvassing provided answers to installation questions, statistical information on program participation and equipment installation rates. This personal contact at the homeowners' door also served as motivation for the resident to participate in the program. At this time the homeowner has the opportunity to receive additional equipment or to return any unused devices.

Each canvass contact attempt resulted in one of seven possible scenarios. The following is a description of these results:

- No Answer:** No contact was made with the homeowner.
- Undecided:** Homeowner was unsure regarding participation in the program. In this instance, the canvasser returns to the home until a definitive response is attained.
- Verified:** Homeowner installed at least one of the devices from the water conservation kit.
- Intent:** Homeowner plans to install the devices.
- Decal:** Decal provided in the water saving kit is displayed in window, indicating installation of the devices.
- Existing:** Home already equipped with water saving equipment.
- Refusal:** Homeowner did not wish to participate in the program.
- Vacant:** Home was visibly unoccupied either on kit delivery day or the first canvass day.

After the final canvass, 70.68 percent of the 1,000 targeted residential units were contacted. Of this 70.68 percent, 89.23 percent of the units participated in the program by installing or intending to install the devices.

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Field canvassers discovered that 19.07 percent (131 units) of the homeowners displayed the window decal, indicating that they had installed their water saving kit, while the majority at 56.91 percent (391 units) responded that they intended to install the water saving kits in the near future.

From 687 contacted units, only 10.19 percent refused to participate in the program. Less than one percent (4 units) had existing low flow equipment in their homes prior to this program.

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FORMULAS

The total number of homes which received kits is listed at the top of the following charts. Vacant homes, which are not figured in when attaining the contact rate, are also noted.

The raw figures under the heading "Occupied Homes," "Contacted Homes," and "Homes Participated" are the actual number of homes noted with the corresponding response.

The following are the formulas used to achieve the final results:

Occupied Homes:

$$\text{Percent} = \frac{\text{raw number}}{\text{total occupied}}$$

Contacted Homes / Participated Homes:

$$\text{Percent} = \frac{\text{raw number}}{\text{total contacted}^*}$$

*contact = undecided + verified + intent + decal + existing + refusal

Contact Rate:

$$\frac{\text{undecided} + \text{verified} + \text{intent} + \text{decal} + \text{existing} + \text{refusal}}{\text{total occupied}}$$

Participation Rate:

$$\frac{\text{verified} + \text{intent} + \text{decal}}{\text{total contacted}}$$

FINAL RETROFIT SUMMARY

TOTAL HOMES

	Number	Percent
Vacant	28	2.80
Occupied	972	97.20

HOMES OCCUPIED

	Number	Percent
No Answer	285	29.32
Undecided	0	0.00
Verified	91	9.36
Intent	391	40.23
Decal	131	13.48
Existing	4	0.41
Refusal	70	7.20

Contact Rate: 70.68%

HOMES CONTACTED

	Number	Percent
Undecided	0	0.00
Verified	91	13.25
Intent	391	56.91
Decal	131	19.07
Existing	4	0.58
Refusal	70	10.19

Participation Rate: 89.23%

HOMES PARTICIPATED

	Number	Percent
Verified	91	13.25
Intent	391	56.91
Decal	131	19.07

FINAL RETROFIT SUMMARY

AREA I

TOTAL HOMES

	Number	Percent
Vacant	12	2.13
Occupied	552	97.87

HOMES OCCUPIED

	Number	Percent
No Answer	152	27.54
Undecided	0	0.00
Verified	52	9.42
Intent	213	38.59
Decal	92	16.67
Existing	0	0.00
Refusal	43	7.78

Contact Rate: 72.46%

HOMES CONTACTED

	Number	Percent
Undecided	0	0.00
Verified	52	13.00
Intent	213	53.25
Decal	92	23.00
Existing	0	0.00
Refusal	43	10.75

Participation Rate: 85.40%

HOMES PARTICIPATED

	Number	Percent
Verified	52	13.00
Intent	213	53.25
Decal	92	23.00

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FINAL RETROFIT SUMMARY

AREA II

TOTAL HOMES

	Number	Percent
Vacant	7	4.79
Occupied	139	95.21

HOMES OCCUPIED

	Number	Percent
No Answer	45	32.37
Undecided	0	0.00
Verified	12	8.64
Intent	48	34.53
Decal	20	14.39
Existing	4	2.88
Refusal	10	7.19

Contact Rate: 72.46%

HOMES CONTACTED

	Number	Percent
Undecided	0	0.00
Verified	12	12.76
Intent	48	51.06
Decal	20	21.28
Existing	4	4.26
Refusal	10	10.64

Participation Rate: 85.40%

HOMES PARTICIPATED

	Number	Percent
Verified	12	12.76
Intent	48	51.06
Decal	20	21.28

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FINAL RETROFIT SUMMARY

AREA III

TOTAL HOMES

	Number	Percent
Vacant	0	0.00
Occupied	200	100

HOMES OCCUPIED

	Number	Percent
No Answer	66	33.00
Undecided	0	0.00
Verified	7	3.50
Intent	103	51.50
Decal	12	6.00
Existing	0	0.00
Refusal	12	6.00

Contact Rate: 67.00%

HOMES CONTACTED

	Number	Percent
Undecided	0	0.00
Verified	7	5.22
Intent	103	76.88
Decal	12	8.96
Existing	0	0.00
Refusal	12	8.96

Participation Rate: 91.04%

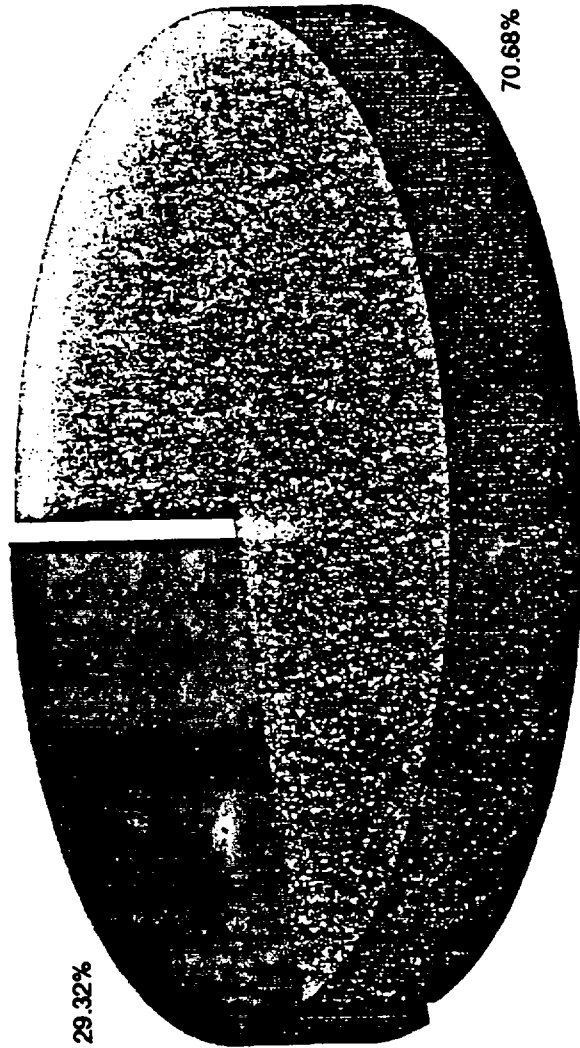
HOMES PARTICIPATED

	Number	Percent
Verified	7	5.22
Intent	103	76.88
Decal	12	8.96

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CONTACT RATE

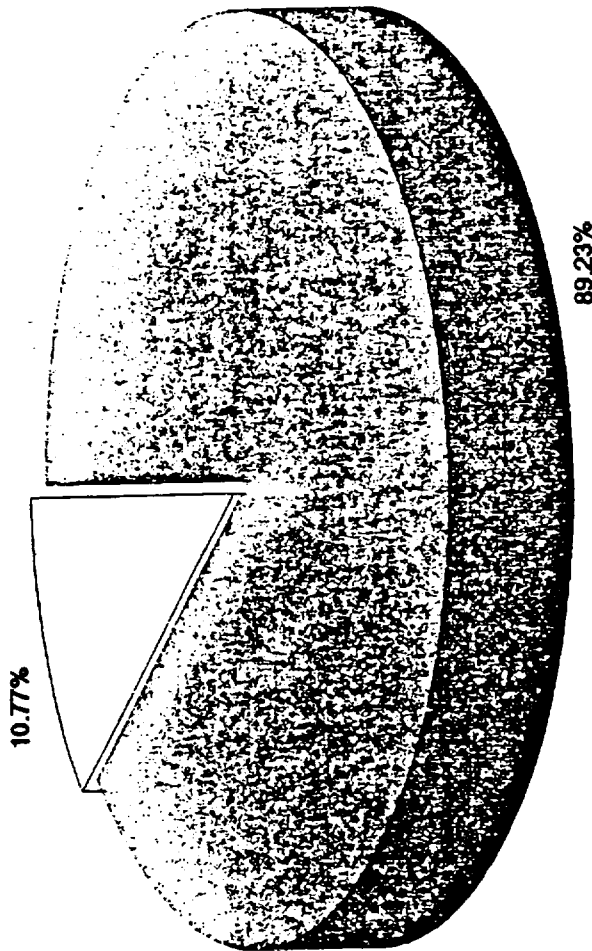
TOTAL DELIVERED	972
TOTAL CONTACTED	687



■ CONTACTED
■ NOT CONTACTED

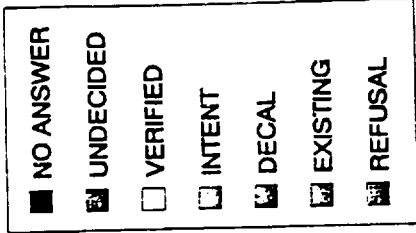
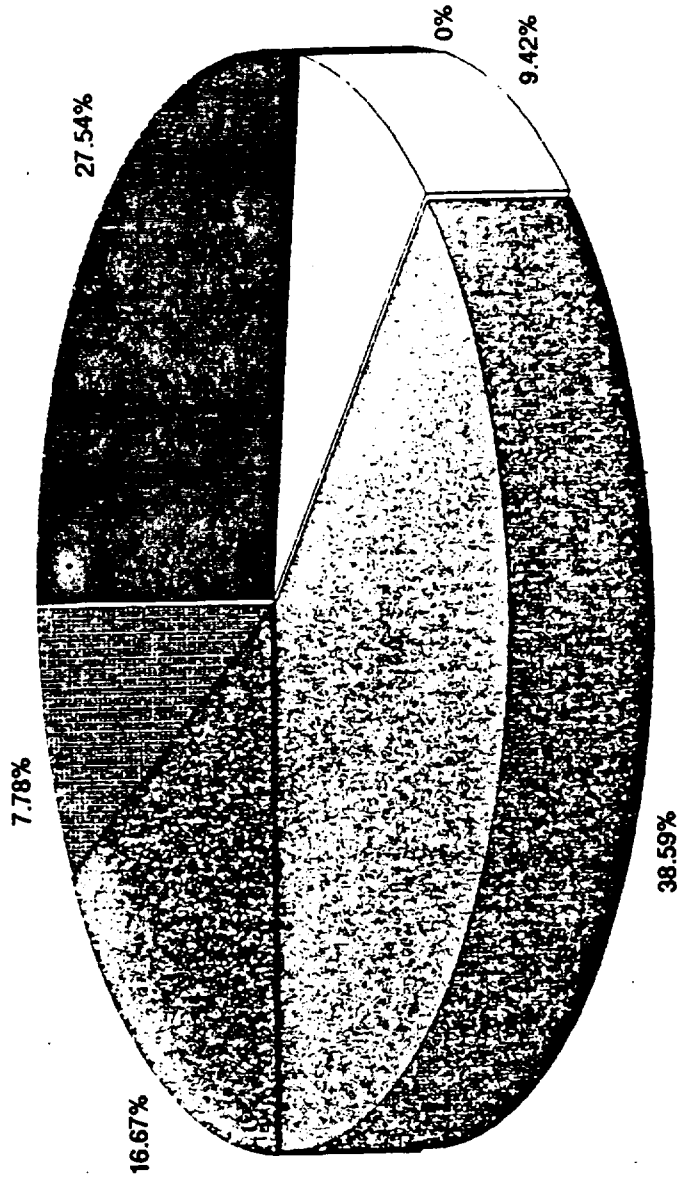
PARTICIPATION RATE

TOTAL CONTACTED 687
TOTAL PARTICIPATED 613



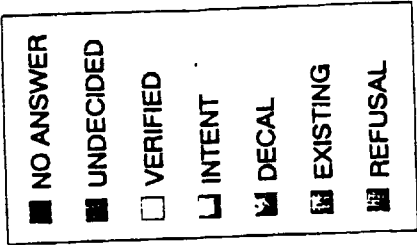
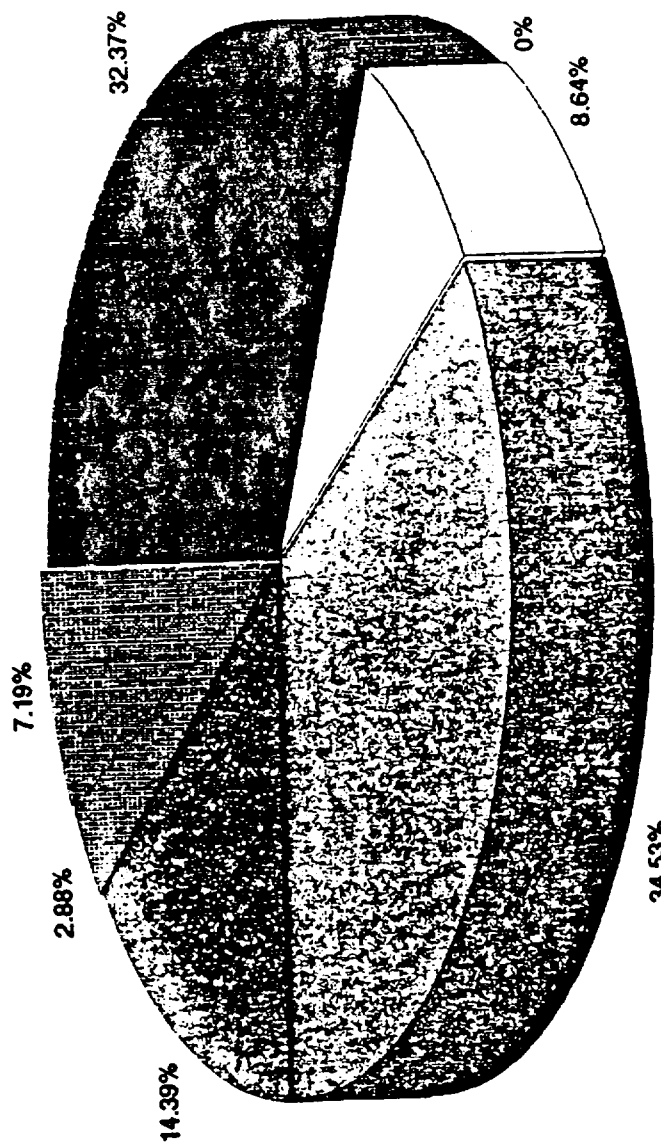
PARTICIPATING
 NOT PARTICIPATING

FINAL RETROFIT SUMMARY AREA I



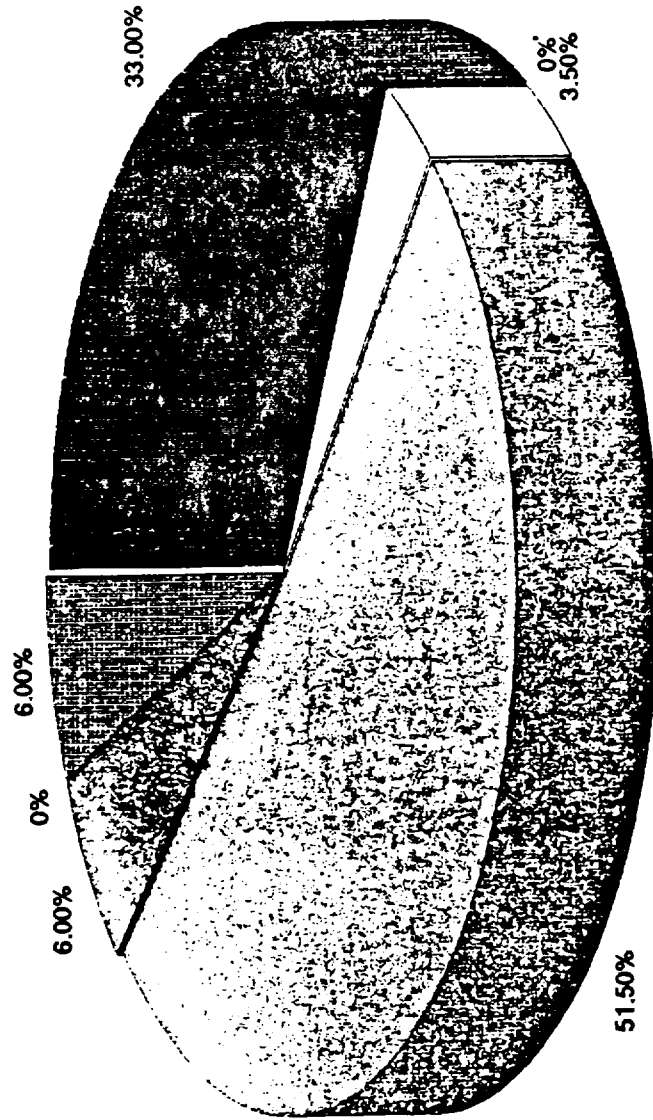
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FINAL RETROFIT SUMMARY AREA II



MICROFILMED

FINAL RETROFIT SUMMARY AREA III



- NO ANSWER
- UNDECIDED
- VERIFIED
- INTENT
- DECAL
- EXISTING
- REFUSAL

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COST DATA

Total Estimated Program Cost	\$22,260.00
Total Actual Program Cost	\$22,260.00
Total Labor Cost	\$15,970.00
Total Equipment Cost	\$6,290.00
Labor Cost Per Household	\$15.97
Equipment Cost Per Household	\$6.29
Total Cost Per Household	\$22.26

FROM THE CITY OF
WINTER HAVEN

YOUR *FREE*
WATER SAVING KIT
IS COMING SOON



Dear Resident:

**You have been selected to receive a FREE water saving kit
which will be delivered to your door soon!**

Your easy-to-install kit will contain:

- | | |
|---------------------------|---|
| *2 Showerheads | *2 Dye Tabs (to check for leaks) |
| *2 Toilet Devices | *Easy to follow instructions |
| *3 Faucet Aerators | *Window Display Card |

**Please install your kit when it arrives and display your window card. Our crews will
be back a few days after delivery to see if you need additional equipment.**

**INSTALLING THE EQUIPMENT WILL HELP US ALL SAVE
PRECIOUS WATER RESOURCES**

QUESTIONS?
CALL THE CONSERVATION OFFICE

1-800-956-2255

**THIS PROGRAM HAS BEEN PARTIALLY FUNDED BY
THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT**

NOTIFICATION LETTER

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Your Free Water-Saving Kit

Dear Customer - We are conducting a pilot water conservation program in your neighborhood. Please assist us with our water goals by installing this FREE equipment.

- 1) Please install this equipment and place the enclosed display card in your front window.
- 2) Our crews will be in your neighborhood starting next week to answer any questions.

— Thank You For Helping in This Very Important Water Saving Program —



Sponsored by the City of Winter Haven & Southwest Florida Water Management District

Questions?

Call 1-800-958-2333

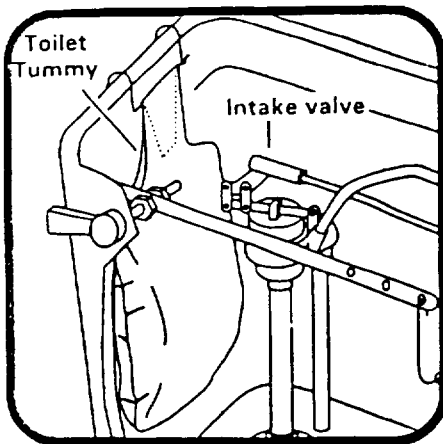
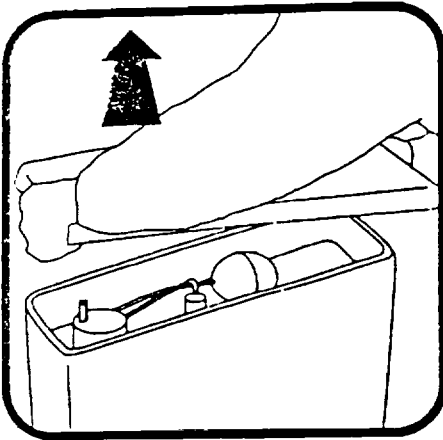
WATER SAVING KIT LITERATURE

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Toilet Tummy Installation

SAVINGS

Toilets are the largest water-wasters in your house. About 5-7 gallons of water are lost with every flush. Using the Toilet Tummys contained in this kit you can save hundreds of gallons of water per person per year.



Step 1 Remove the toilet tank lid.

Step 2 Fill the Toilet Tummy to the top of the opening with water from the sink. The Toilet Tummy must be filled completely to eliminate buoyancy.

Step 3 Place the filled Toilet Tummy in the toilet tank between the tank wall and the intake valve.

Step 4 Hang the mounting bracket on the toilet tank wall as shown.

NOTE: If the Toilet Tummy interferes with the toilet's internal components on the left side of the tank, try hanging it on the right side.

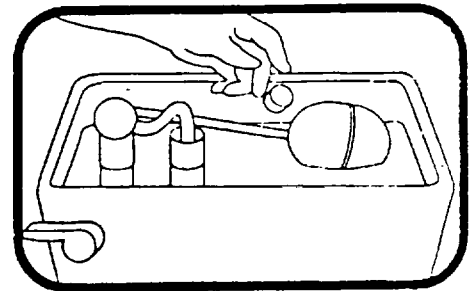
Leak-Seeking Dye Tablets

SAVINGS

When a toilet leaks, water escapes from the tank into the bowl and washes away into the sewer. Toilets are notorious for hidden leaks, most of which are so silent you will need the leak-seeking dye tablets contained in this kit to detect them. Silent leaks can easily waste hundreds of gallons of water each week.

Step 1 Remove cover from toilet tank.

Step 2 Drop one dye tablet in the tank. Do not flush for 15 minutes. If color shows up in the bowl, you have a leak.





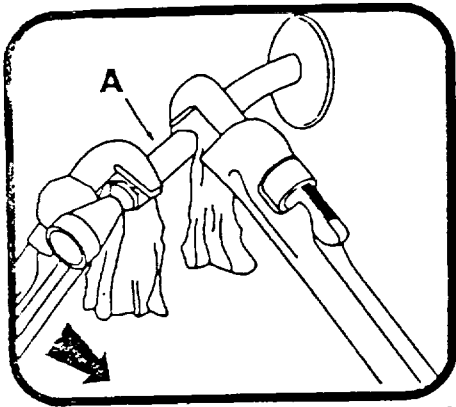
50 WAYS BROCHURE COVER

AMORCEU MED.

Showerhead Installation

SAVINGS

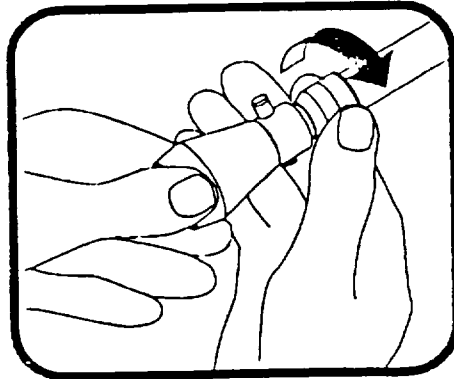
Hot showers cost you money, both for the water and the energy you use to heat it. This modern efficient showerhead will help you enjoy a full force shower while you save water and cut your energy bill.



Step 1 Remove the old showerhead from the showerarm (A). If you need to use tools to remove it, use pieces of cloth to protect the finish of both showerhead and showerarm from tool marks (see illustration). Hold the showerarm in a stationary position with one wrench while rotating the showerhead in a counter-clockwise direction with another wrench or pliers.

Step 2 Wipe the showerarm threads clean then run water to flush any dislodged particles from the showerarm.

Step 3 Carefully hand thread the new showerhead on to the showerarm. Care must be taken not to cross-thread the showerhead to the showerarm. Finish the tightening with a wrench or pliers until snug. Do not overtighten.



Step 4 Turn the water on all the way to test connection. If it leaks, tighten more using both wrenches or remove and apply teflon tape.

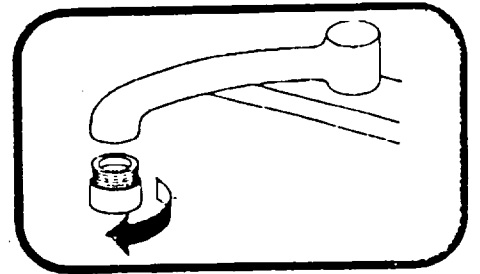
Aerator Installation

SAVINGS

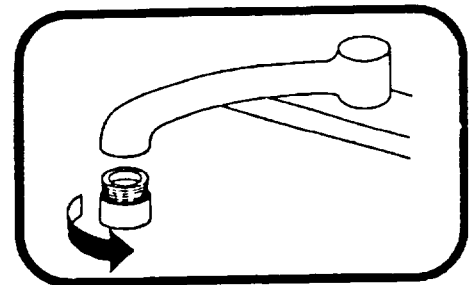
Your kitchen and bathroom faucets can also cost you money. These highly efficient aerators will give you the rinsing force you need while you save water, cut your energy bill, and reduce sewer flows.

Step 1 Remove old aerator from the faucet. A wrench may be required (see illustration). Use cloth to protect finish.

Step 2 Before installing new aerator turn on water to wash out faucet.



Step 3 Turn off water. Screw on the new aerator and hand tighten. (Use one rubber washer for faucets with external threads and two washers for faucets with internal threads.)



Step 4 Turn on water. If aerator leaks, tighten by using wrench. Use cloth to protect finish. Tighten until snug. Do not overtighten.

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Pinpoint the Leaks

Fixing a Leaking Toilet

Toilets are the most common source of leaks. Here are some possible causes.

• When water stands too high in the toilet tank (A) it can continually spill out of the overflow tube (B). The fill line (C) on the back of the tank usually marks the right level, approximately $\frac{1}{2}$ inch below the top of the overflow tube.

When water stands too low you may get a poor flush, necessitating a second flush; this "double flushing" can waste hundreds of gallons of water each month.

If water is too high, bend the float arm (D) down (very gently) until the toilet fills to a point about $\frac{1}{2}$ inch below the top of the overflow tube. If the water is too low, bend the float arm up (very gently).

• A worn flapper valve (E) can also leak hundreds of gallons of water each day, but so secretly you'll need a dye table t to spot it. The flapper valve is a part you can easily remove and replace.

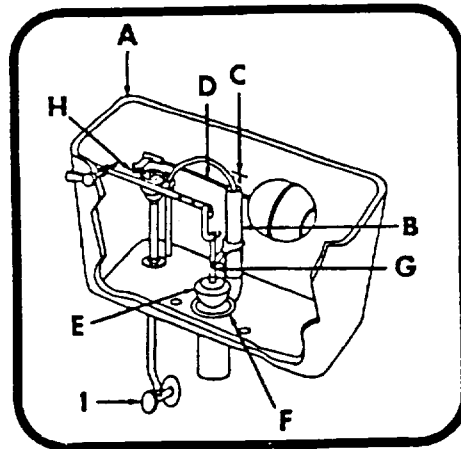
It may also happen that the flapper valve isn't seating properly. Check the valve seat (F) for scale or corrosion and clean with a coarse nylon scrubbing pad if necessary.

• If the ball still won't seat, the guide-wire (G) may be bent or sticking in the guide. Straighten the wire or clean the guide until the valve seats properly.

In newer toilets, the guide-wire assembly has been replaced by a chain, and the flapper valve by a streamlined "flapper-ball." If you have these parts, you won't have problems with a sticking guide-wire.

• If you have to jiggle the handle to keep the toilet from "running," it may be a sticking guide-wire, or a handle itself may be loose. If the handle is loose, tighten the nut that secures it to the toilet tank.

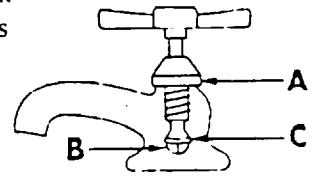
• If the water that refills the tank won't shut off, you probably have a defective ballcock assembly (H). You'll find that water continues to run and spill into the overflow tube, eventually wasting tons of water and a lot of money. Unless you're a good household plumber, you'll probably want to call a professional to replace it. In replacing a ballcock assembly, consider getting a new, efficient model.



• To empty the tank for toilet repairs, turn off the water inlet valve (I) under the toilet tank. Empty the tank by flushing it, and sponge up leftover water.

Fixing a Leaking Faucet

You don't need to be a detective to find leaky faucets. And it's not necessary to be a magician to fix them. The most common cause of leaks is a worn washer. Here's how to fix a washer on simple faucets.



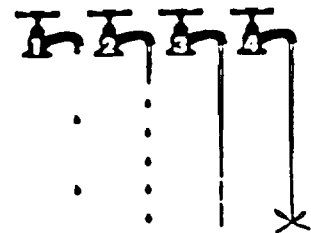
- 1 Shut off the water at the nearest shutoff valve – or at the main shutoff.
- 2 Loosen the cap nut (A) by turning counter clockwise. Turn the faucet handle in the direction of opening until it comes off.
- 3 Lift out the faucet assembly.
- 4 Unscrew the brass setscrew (B) which holds the washer (C) in place.
- 5 Remove the old washer. Flush or wipe the cup clean.
- 6 Select the proper size replacement washer and insert it. Then replace the setscrew.
- 7 Replace the assembly. Turn faucet handle as far as possible to close it. Then loosen handle slightly.
- 8 Replace cap nut. Close the faucet. Turn on the water.

If your faucet has a more elaborate design, consult a "how-to" book on plumbing.

How Much water Does a Leaky Faucet Waste?

Water wasted in one week from leaks

Flow	Gallons/week
Slow steady drip	350
Fast drip	about 600
Small stream	2000-2700
Large Stream	4600



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Dear Customer — Important Information! Please Read!

Place this display card inside your front window after you've installed your kit. This will enable us to count you as an active participant in this very important program.

WINDOW DISPLAY CARD

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31 pages

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