

"Discovering Collingswood"

A Master Plan for the Borough of Collingswood

Infrastructure and Utilities Plan Element

JUNE 1999

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Professional Planners

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Atlantic City, NJ 08401

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A Master Plan for the Borough of Collingswood

Infrastructure and Utilities Plan Element

Prepared for:

Borough of Collingswood Planning Board as part of the Community's Master Plan Analysis

Prepared By:

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June, 1999

(The original of this report has been signed and
sealed in accordance with the law)

PPK No. 2800.00

**COLLINGSWOOD MASTER PLAN
INFRASTRUCTURES AND UTILITIES PLAN ELEMENT**

EXECUTIVE SUMMARY

As a fully developed community, Collingswood is served by an existing system of local streets and public utilities. The Utility Plan focuses on improvements required to the existing systems as opposed to designation of areas for future utility and roadway extensions.

- Potable water is provided by seven (7) wells serving two treatment plants with a combined capacity to treat up to 5 mgd. The Borough water supply system also has an above ground water storage capacity of 2.3 million gallons. Collingswood has an allocation to pump 777 million gallons per year (mgy), or an average water usage of 2.2 million gallons per day (mgd). The average water usage in the Borough is 2.1 mgd.
- The residential water demand in Collingswood is estimated to be approximately 1.54 to 1.92 mgd or between 73% to 91% of the daily water usage leaving a relatively small amount of the water allocation available for commercial and industrial uses.
- Sanitary wastes from the Borough are carried by local sewer system to the CCMUA pump station near the intersection of Comly and Newton Avenues where they are conveyed to the CCMUA sewage treatment plant in Camden. Collingswood currently contributes an average daily flow of approximately 2.25 mgd, or 3.75% of the average 60 mgd treated by the CCMUA facility.
- Stormwater runoff is captured by existing inlets that serve the localized drainage area. The water collected is carried by a subsurface storm sewer system to the outfall point where it is discharged into either the Cooper River, Newton Lake, the North Branch of Newton Creek or the Knight Park ponds.
- The issue of greatest concern relating to the stormwater management in the Borough is the frequent flooding that occurs along Route 130 in the Borough. Interim measures to reduce the frequency and duration of flooding should be considered until the problem can be solved as part of the proposed roadway modifications by NJDOT and the Borough in a collaborative effort to incorporate the affected areas into part of a strategic planning district. By doing so the Borough can utilize its powers under the Redevelopment Law to correct the problems of flooding along with NJDOT and produce developable land that can host economic growth in the community.
- Collingswood has contracted with a private hauler for weekly curbside pick up of solid waste from residences and businesses that generate less than 300 lbs of trash/week and recycled glass, cans, plastic, and mixed paper.

RECOMMENDED ACTIONS

- The Route 130 is a critical area that is subject to flooding due to the inadequacies of the storm drainage system. NJDOT is proposing to undertake improvements to Route 130 through the Borough sometime in the next 5 to 10 years, including modifications to the configuration of the Collingswood Circle, will probably include improvements to the drainage system. In conjunction with the proposed state improvements, the Borough should address the areas around the Collingswood Circle as a redevelopment area and adopt a land use plan and regulations that will serve to promote the detention of stormwater to slow the rate of runoff flowing into the state drainage system.
- Sanitary sewer renovations include construction of force mains along Comly Avenue and Newton Drive and the reconstruction of gravity mains on designated streets throughout the Borough.
- Water distribution renovations include installation of new 4" water mains along Merek Avenue from Lees Lane to South Newton Lake Drive and along Belmont Avenue from Lees Lane to Dayton Avenue.
- Combined water distribution and sanitary sewer renovations are recommended on Merek Avenue from South Newton Lake Drive to Beetlewood Avenue; Fern Avenue from the Haddon Township border to Haddon Avenue; Harvard Avenue for its entire length; East Knight Avenue for its entire length; East Madison Avenue for its entire length, and; along Haddon Avenue from East Madison Avenue to Harvard Avenue.
- To implement the economic development programs the Borough must increase the amount of water available for non-residential uses. This should be achieved through obtaining from Bureau of Water Resources an increased allocation and amending building code standards to reduce water useage through techniques such as, but not limited to:
 - Requiring the installation of low flow and flow restricted plumbing fixtures in all new construction and all renovation and rehabilitation projects.
 - Adopting standards and techniques designed to reduce demand by sprinklers and irrigation systems including; equipping irrigation systems with timers and moisture sensors, the installation of drip irrigation systems in planter beds, the installation of drought resistant and native plant species that minimize the need for irrigation, revising codes to allow grey water to be used for irrigation, and irrigation systems that utilizes captured rainwater stored in underground cisterns.

**COLLINGSWOOD MASTER PLAN
INFRASTRUCTURE AND UTILITIES PLAN ELEMENT**

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**COLLINGSWOOD MASTER PLAN
INFRASTRUCTURE AND UTILITIES PLAN ELEMENT**

I. INTRODUCTION

Historically, one of the principal functions of government has been to build and maintain roads, provide a source of potable water and provide a system for the removal of waste water, stormwater and solid waste. The importance of providing these essential functions continues to this day. The New Jersey Municipal Land Use Law specifically identifies among its purposes, to "...promote the public health, safety...and general welfare" and, to "...secure from flood and other natural and man made disasters."

As a fully developed community, Collingswood is served by an existing system of local streets and public utilities (which are inventoried in the following section of this document). Accordingly, this plan focuses on improvements required to the existing systems as opposed to designation of areas for future utility and roadway extensions.

This report was prepared with the cooperation of Remington and Vernick, Engineers for the Borough, as well as the Water and Sewer Supervisor, Public Works/Sewer Superintendent, and Water Superintendent of the Borough.

II. EXISTING UTILITIES AND INFRASTRUCTURE

A. POTABLE WATER SUPPLY

Collingswood operates its own system for supplying potable water to residents and businesses in the Borough. Figure U-1, entitled "Key Potable Water and Sanitary Sewer Facilities", identifies the locations of primary infrastructure elements including wells, water treatment plants, water storage facilities and sanitary sewer pump stations.

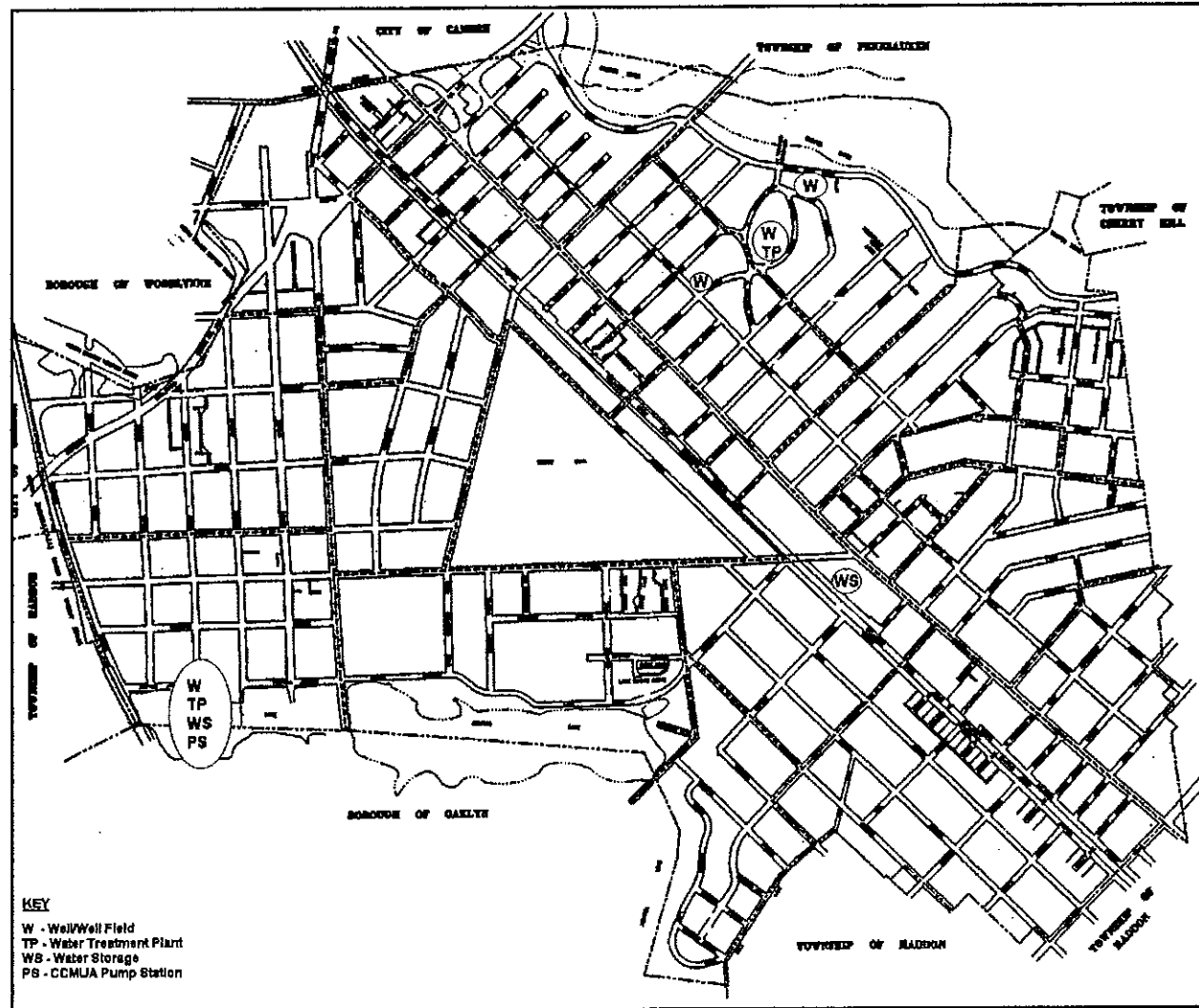
The Borough has seven (7) wells that draw water the Lower Raritan-Magothy aquifer at depths between 250 - 320 ft underground. The water drawn from the wells is treated at one of two treatment plants that serve as the points of entry into the distribution system, Station 01 located at 215 Hillcrest Avenue and Station 02 located near the intersection of Comly and Newton Avenues. The Borough water supply system also has an above ground water storage capacity of 2.3 million gallons (mg) consisting of 2.1 mg in the Atlantic Avenue standpipes (1.5 mg and 0.6 mg) and 0.2 mg at Station 02.

The NJ Bureau of Water Allocation currently allows the Borough to pump 777 million gallons per year (mgy), or an average water usage of 2.2 million gallons per day (mgd). The average water usage in the Borough is 2.1 mgd --1.7 mgd at Station 01 and 0.4 mgd at Station 02. The Borough's water treatment system has the capacity to treat up to 5 mgd --3.5 mgd at Station 01 and 1.5 mgd at Station 02.

For planning purposes, residential water demand is estimated to be between 100 to 125 gallons per capita per day (gpcd). Based on an estimated population of 15,350 persons, the residential water demand in Collingswood is estimated to be approximately 1.54 to 1.92 mgd. This represents between 73% to 91% of the daily water usage in the Borough. The high proportion of residential water usage leaves a relatively small amount of the existing water allocation available for commercial and industrial uses. Strategies for providing more water for nonresidential purposes will be evaluated in the recommendations section of this plan.

FIGURE U-1

LOCATION OF KEY POTABLE WATER AND SANITARY SEWER FACILITIES
BOROUGH OF COLLINGSWOOD, NEW JERSEY



SOURCE: PETER P. KARABASHIAN ASSOCIATES, INC., 1997

Collingswood has a potable water allocation of 777 million gallons of water a year or an average of 2.2 million gallons of water a day. The CCMUA reports an average flow of 2.25 million gallons per day through the Collingswood pump station.

B. SANITARY SEWER

Sanitary wastes generated in the Borough are carried by the local sanitary sewers to the Camden County Municipal Utilities Authority (CCMUA) pump station located near the intersection of Comly and Newton Avenues. From the pump station the wastes are conveyed through the regional collection system to the CCMUA sewage treatment plant in Camden.

According to the staff at the CCMUA, the regional sewage treatment plant has a design capacity of 80 mgd and an average daily flow of 60 mgd. Collingswood currently contributes an average daily flow of approximately 2.25 mgd, or 3.75% of the sewage treated on an average day.

C. STORM SEWER

The stormwater that runs off from existing developed areas in the Borough is directed to existing stormwater inlets that serve the localized drainage area. The water collected is carried by a subsurface storm sewer system to the outfall point serving the drainage area where it is discharged into either the Cooper River, Newton Lake, the North Branch of Newton Creek or the Knight's Park ponds.

The land development regulations for the Borough require new commercial and industrial development to provide facilities to detain stormwater of a 10 year design storm. The detention of stormwater reduces non point source pollution by allowing sediments and other suspended solids to settle prior to discharge.

The issue of greatest concern relating to the stormwater management in the Borough is the frequent flooding that occurs along Route 130 in the Borough. This is an element of prime concern that must be addressed as part of the proposed roadway modifications by NJDOT. However, these improvements are not anticipated to occur for approximately five years. Accordingly, interim measures to reduce the frequency and duration of flooding should be considered until the problem can be solved.

From a planning perspective the serious flooding problems that occur along this corridor at the Conrail overpass, Richey Avenue and the PATCO overpass (see Figure U-2) requires a collaborative effort with NJDOT and the Borough to incorporate these areas into part of a strategic planning district. By doing so the Borough can utilize its powers under the Redevelopment Law to not only correct the problems of flooding along with NJDOT but also to produce developable land that can host economic growth in the community.

D. SOLID WASTE

A detailed analysis of the Borough's solid waste and recycling program are presented in the report entitled "Recycling Plan Element" of this Master Plan. The information on solid waste and recycling in the municipality are presented here in summary form.

Collingswood has contracted with a private hauler for weekly curbside pick up of solid waste from residences and businesses that generate less than 300 lbs or six containers. In addition to solid waste, the Borough's contracted hauler also collects recycled glass, cans, plastic, and mixed paper from residences and businesses. Except for paper, the recycled materials are delivered to the Camden County Recycling Facility. Paper is marketed by the Borough. From April through September, the contract hauler also collects grass clippings and small brush.

Large brush (over 4"), leaves and Christmas trees are collected by the Borough's Public Works Department. Yard waste is also accepted at the Borough's compost facility for processing into landscape material.

III. RECOMMENDED UTILITY IMPROVEMENTS

A. CRITICAL SITES AND IMPROVEMENTS

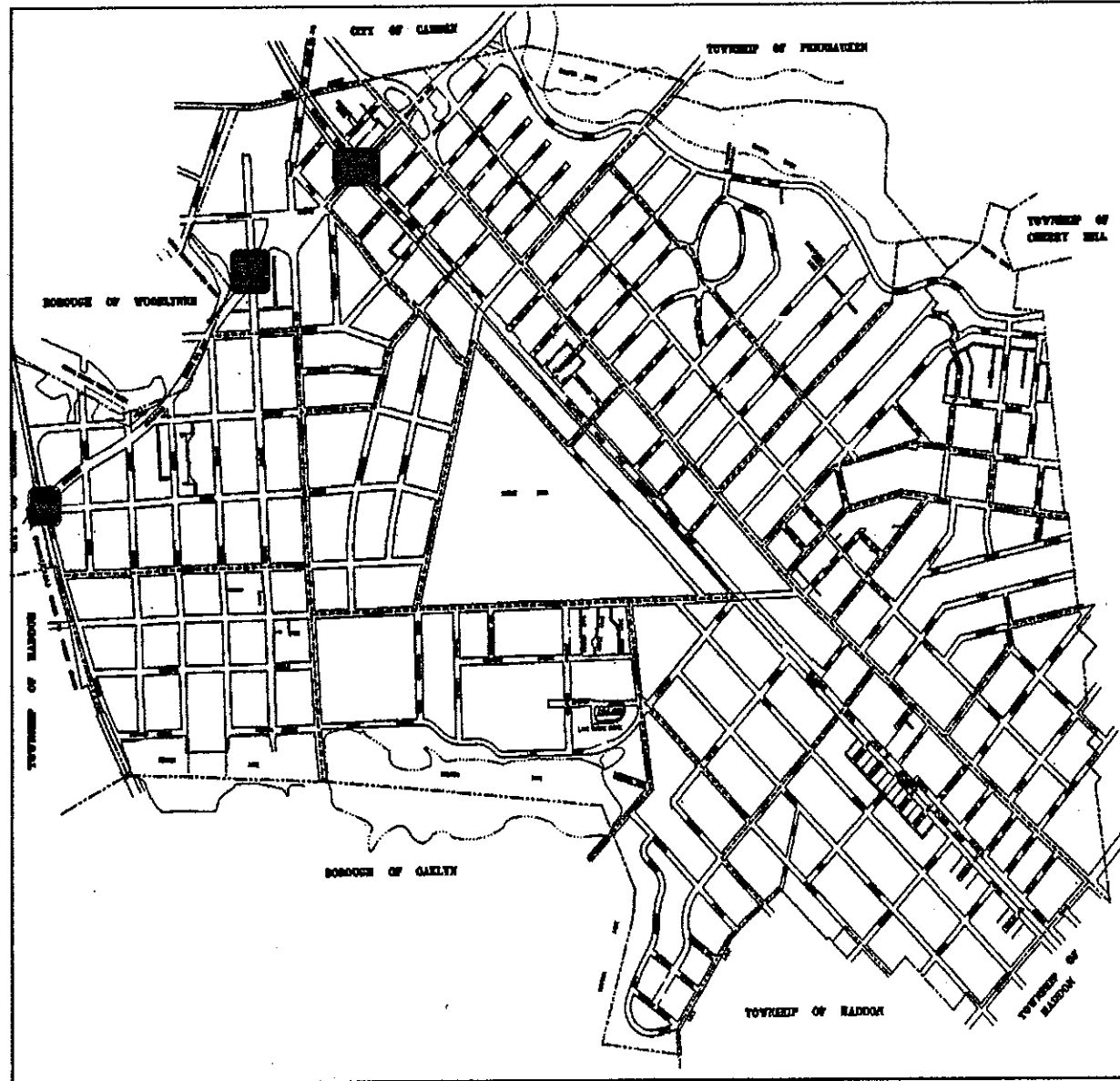
1. Route 130 Corridor

There are three locations along Crescent Boulevard (NJ Route 130) in the Borough that are frequently subject to flood due to the inadequacies of the storm drainage system serving the state highway. These locations are at the Conrail overpass (Champion Avenue), at Richey Avenue (the Collingswood Circle area), and at the PATCO line overpass (See Figure U-2).

NJDOT is proposing to undertake improvements to Route 130 through the Borough sometime in the next 5 to 10 years. These improvements, which will include modifications to the configuration of the Collingswood Circle, will probably include improvements to the drainage system that should alleviate much of the flooding problems. In conjunction with the proposed state improvements, the Borough should address the areas around the Collingswood Circle as a redevelopment area and adopt a land use plan and regulations that will serve to promote the detention of stormwater on site thus slowing the rate of runoff from private property flowing into the state drainage system.

FIGURE U-2

AREAS ON THE ROUTE 130 CORRIDOR SUBJECT TO FREQUENT FLOODING
BOROUGH OF COLLINGSWOOD, NEW JERSEY



The three shaded locations along Crescent Boulevard are subject to frequent flooding due to the inadequacies of the storm drainage system serving the State highway. NJDOT is proposing to undertake improvements along the highway in the next 5 to 10 years.

B. GENERAL IMPROVEMENTS TO THE MUNICIPAL INFRASTRUCTURE

A number of utility systems renovations have been identified as priority improvements to the local infrastructure in consultations with department heads and the Borough Engineer. The locations of these recommended renovations are depicted in Figure U-3, depicts the locations of renovations to the existing utility services that have been identified by the department heads in coordination with the Borough Engineer as the priority improvements to the local infrastructure.

The details of the recommended utility systems renovations are described as follows:

1. Sanitary Sewer Renovations

The construction of an 8" force main along Comly Avenue from Route 130 to the CCMUA Pump Station at Newton Avenue;

The construction of a 6" force main and 12" gravity main along Newton Drive from approximately Culford Avenue to the CCMUA Pump Station;

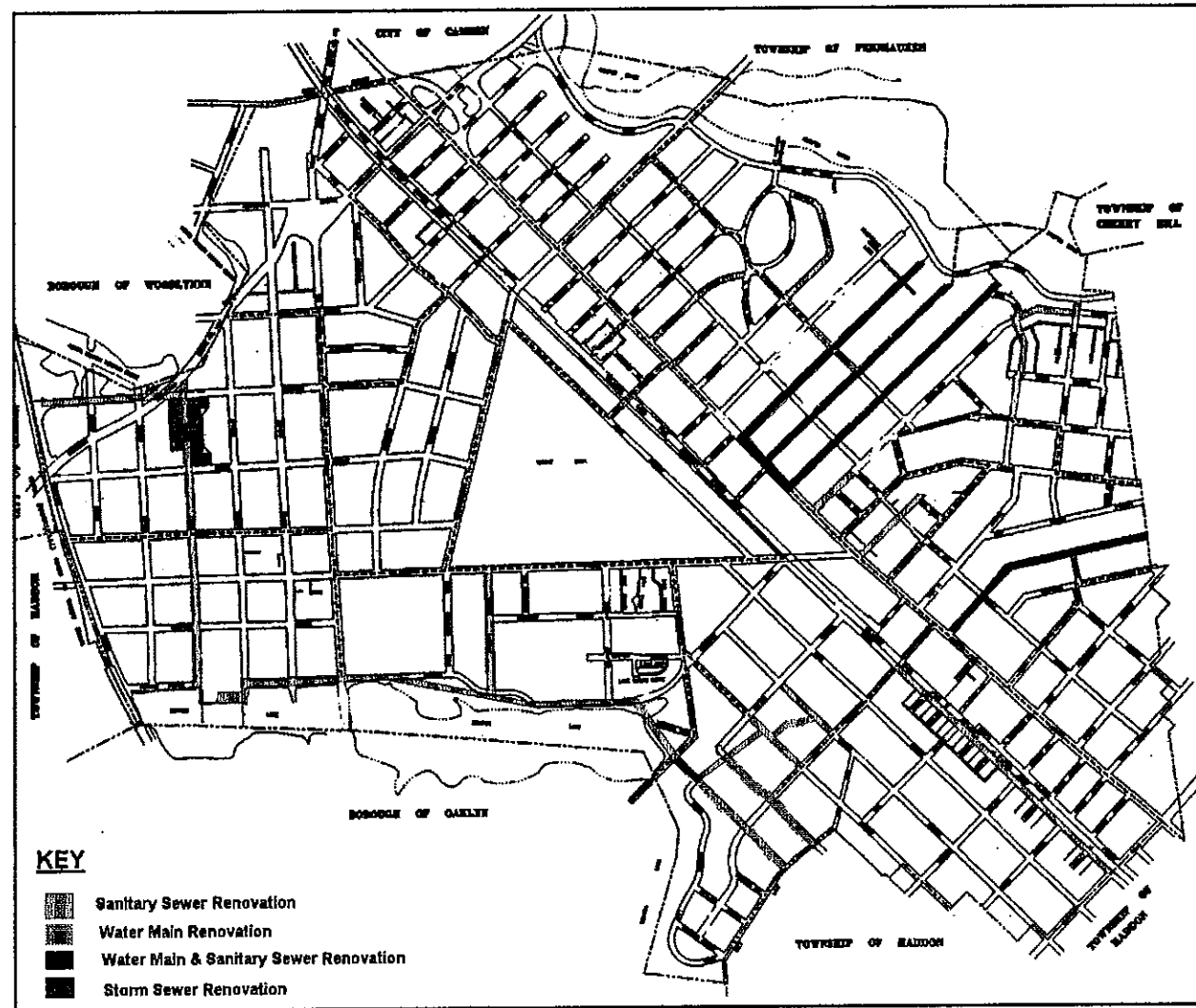
The construction of an 8" gravity main from the intersection of Culford and Newton southeasterly through an existing easement to the intersection of Merek Avenue and South Newton Lake Drive, then north through an existing easement to Linwood Avenue, then north through an existing easement to Stokes Avenue;

The construction of 6" gravity mains on the following streets:

- Harrison Avenue from Champion Avenue to Route 130;
- Everett Avenue from Collings Avenue to North Newton Lake Drive;
- Linwood Avenue from Dayton Avenue to Lees Avenue;
- South Atlantic Avenue from Cuthbert Boulevard to Lees Avenue;
- Collings Road from Haddon Avenue to Maple Terrace;
- Woodland Avenue from Haddon Avenue to Maple Avenue;
- Center Street from South Park Road to King Avenue;
- King Avenue from Center Street to Cedar Avenue;
- Cedar Avenue from King Avenue to Woodlawn Terrace;
- East Zane Avenue from Haddon Avenue to Maple Avenue;
- Hillcrest Avenue from Haddon Avenue to Vineyard Boulevard, and;
- Garfield Avenue from Hillcrest Avenue to Highland Avenue.

FIGURE U-3

RECOMMENDED UTILITY RENOVATIONS
BOROUGH OF COLLINGSWOOD, NEW JERSEY



2. Water Distribution Renovations

Install new 4" water mains along Merck Avenue from Lees Lane to South Newton Lake Drive and along Belmont Avenue from Lees Lane to Dayton Avenue.

3. Water Distribution and Sanitary Sewer Renovations

- Construct an 8" force main and a 4" water line on Merck Avenue from South Newton Lake Drive to Beetlewood Avenue;
- Construct a 6" sanitary and a 4" water line along Fern Avenue from the Haddon Township border to Haddon Avenue;
- Construct a 6" sanitary and a 4" water line along Harvard Avenue for its entire length, along East Knight Avenue for its entire length, along East Madison Avenue for its entire length, and along Haddon Avenue from East Madison Avenue to Harvard Avenue.

4. Storm Sewer Renovations

- Repair/replace the storm drainage system serving the area encompassing Harrison Avenue from Route 130 to the alley through Block 153, the alley on Block 152 from Harrison Avenue to Comly Avenue, and the alley serving Block 153 from Harrison Avenue to McGill Avenue.

In addition to the utility and infrastructure improvements identified by the Borough officials, those systems in place around the Route 130 Circle will require significant upgrades and improvements in conjunction with the future construction of the Circle proposed by NJDOT.

C. STRATEGIES FOR INCREASING THE WATER SUPPLY FOR NON-RESIDENTIAL DEVELOPMENT

As identified in the Section II of this report, the Collingswood currently uses approximately 2.1 million gallons of water per day (mgd). This is 95.5% of the average water usage of 2.2 mgd allowed by the NJ Bureau of Water Allocation has allotted Collingswood, based on an allocation of 777 million gallons of water per year (mgy). Residential water usage is estimated to be between 1.54 - 1.92 mgd leaving 0.28 - 0.66 mgd, or between 12.7 and 30% of the daily allocation, available for commercial and industrial uses.

In order to implement the economic development programs recommended in this Master Plan, it is vital for the Borough to increase the amount of water available for non-residential uses. Increasing the amount of available water can be achieved through obtaining a larger allocation and amending building code standards to reduce water demands resulting from new development and the renovation/rehabilitation of existing development.

To increase the amount of water that can be pumped on an annual basis in the Borough must obtain the approval of the NJDEP Bureau of Water Allocation. Application for the increased allocation is a bureaucratic process in which the needs of Collingswood 'compete' with the needs and requests of other communities in the region. As a result of this competition, Collingswood may not receive any increase or may receive only a percentage of the anticipated need.

The second method to increase the available water supply is to reduce the demand for water from existing residential and business users. The reduction in demand can be achieved by amending local construction regulations to require the installation of low flow and flow restricted plumbing fixtures in all new construction and all renovation and rehabilitation projects. Enclosed as examples in Exhibit A are catalog sheets for various low flow/restricted flow fixtures that are available on the market.

In addition to reducing daily consumption, the Borough should also consider adopting standards and techniques designed to reduce demand by sprinklers and irrigation systems. The control mechanisms and irrigation reduction techniques that could be adopted include, but are not limited to:

- Requiring irrigation systems to be equipped with timers and moisture sensors so that sprinklers run at times that minimize evaporation and to avoid overwatering.
- Requiring the installation of drip irrigation systems in planter beds.

- Revising development standards to require the installation of drought resistant and native plant species thereby minimizing the need for irrigation.
- Revising building codes to allow grey water (the waste water from washers, sinks, bath tubs and showers) to be stored in enclosed underground cisterns and used for irrigation.
- Development of irrigation systems that utilizes captured rainwater stored in underground cisterns.

EXHIBIT A

**TYPICAL LOW FLOW and FLOW RESTRICTED PLUMBING
FIXTURES CURRENTLY AVAILABLE**

(Catalog Sheets)

**CADET™ 17"H EL 1.6/FV™
ELONGATED FLUSH VALVE TOILET**

VITREOUS CHINA

CADET™ 17"H EL 1.6/FV

- Vitreous china
- 10" roughing-in
- 17" rim height
- Elongated bowl
- Direct-fed siphon jet action
- 1-1/2" top spud
- Flushes on 1.6 gallons

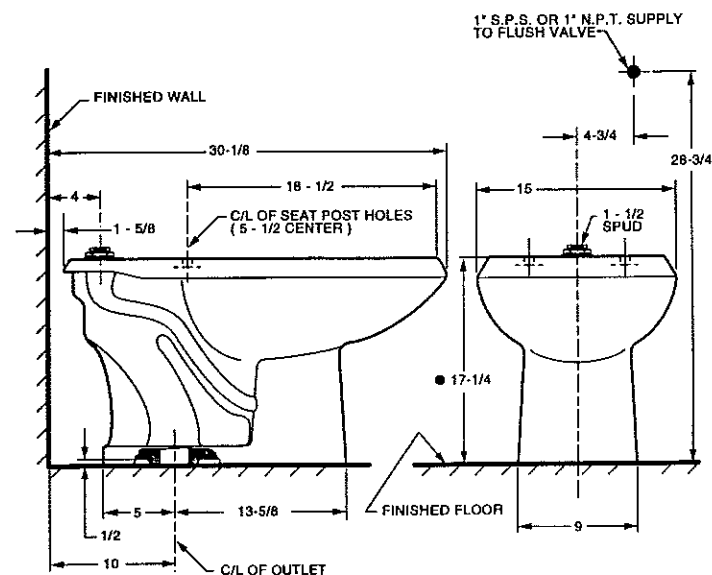
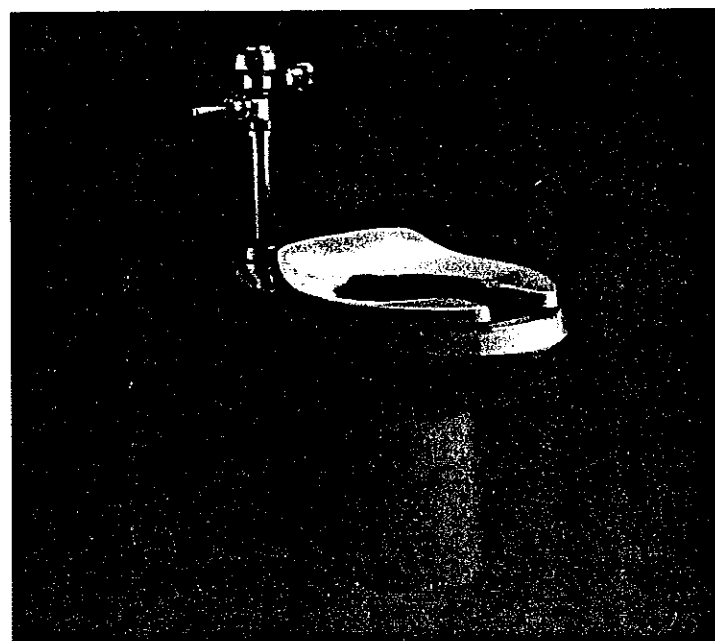
- 3043.102 Top spud
- 3043.156 Top spud with slotted rim for bedpan holding (white only)

Nominal Dimensions:
765 x 381 x 438mm
(30-1/8" x 15" x 17-1/4")

Recommended minimum working pressure--
25 psi at valve when flushing

Fixture only, less seat and bolt caps


Hydraulic performance, water surface area, trap seal depth, ballpass diameter, and all fixture dimensions meet or exceed ANSI Standard A112.19.2 requirements.



NOTES:
THIS TOILET IS DESIGNED TO ROUGH-IN AT A MINIMUM DIMENSION OF 254MM (10") FROM FINISHED WALL TO C/L OF OUTLET.
TO COMPLY WITH AREA CODE GOVERNING THE HEIGHT OF VACUUM BREAKER ON FLUSH VALVE, THE PLUMBER MUST VERIFY DIMENSIONS SHOWN FOR SUPPLY ROUGHING.
FLUSH VALVE NOT INCLUDED AND MUST BE ORDERED SEPARATELY.
IMPORTANT: Dimensions of fixtures are nominal and may vary within the range of tolerances established by ANSI Standard A112.19.2.
These measurements are subject to change or cancellation. No responsibility is assumed for use of superseded or voided pages.

To Be Specified

- Color: White Bone Silver Black
- Seat: Olsonite #95 open front seat less cover
- Seat: Church #9500C open front seat less cover
- Seat: Pressalit seats for American Standard, open front seat with/without cover (thermoset compound material). See page 85B, C, D, E.
- Alternate Seat:
- Flush Valve: Sloan Royal #111
- Alternate Flush Valve:
- Bolt Caps: 481310-100

 ● When installed, top of seat is 432 to 483mm (17" to 19") from the finished floor.
MEETS THE AMERICAN DISABILITIES ACT GUIDELINES AND ANSI A117.1 REQUIREMENTS FOR PEOPLE WITH DISABILITIES

**HERITAGE™ 1-PC 1.6/PA
ELONGATED ONE-PIECE TOILET**

VITREOUS CHINA

HERITAGE™ 1-PC 1.6/PA

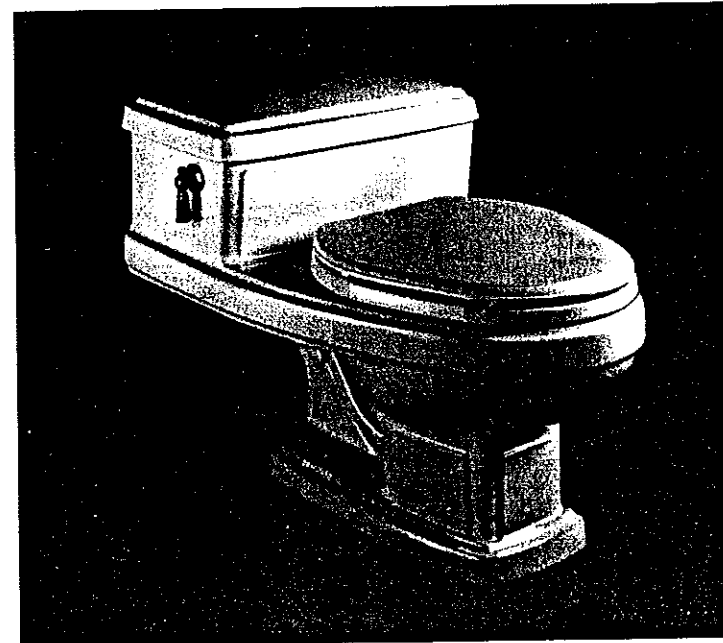
2061.016

- Vitreous china
- Low-profile, one-piece toilet
- Elongated bowl/flushometer tank*
- Pressure-assisted siphon jet flush action
- Design-matched solid plastic seat and cover #005357-016 (included)
- Chrome-plated side mounted trip lever
- 2 concealed bolt covers
- Flushes on 1.6 gallons

Nominal Dimensions:
762 x 508 x 584mm
(30" x 20" x 23")

Fixture only, supply by others

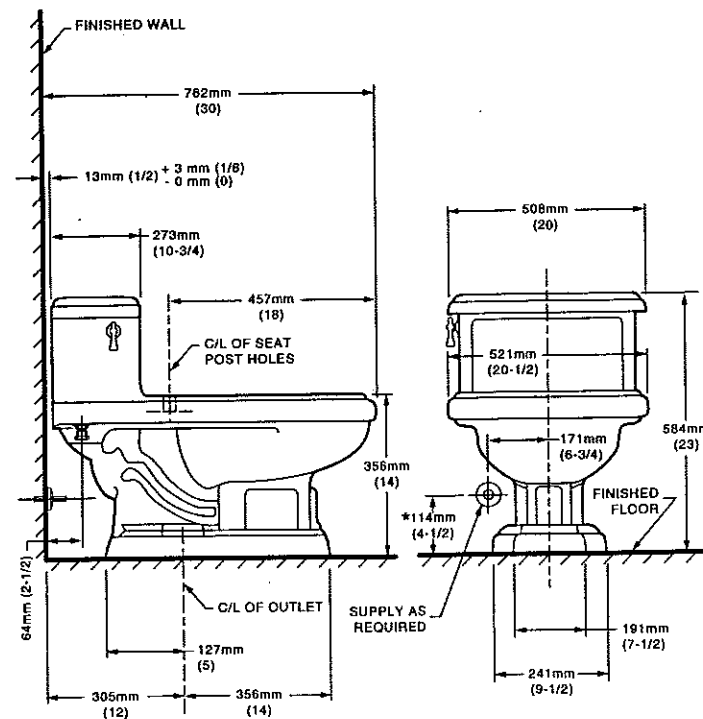
Hydraulic performance, water surface area, trap seal depth, ballpass diameter, and all fixture dimensions meet or exceed ANSI Standard A112.19.2 requirements.



To Be Specified

- Color:
- Supply with stop:

* Flushometer tank system by Flushmate® Div. of Sloan Valve Co.



NOTES:
THIS TOILET IS DESIGNED TO ROUGH-IN AT A MINIMUM DIMENSION OF 305MM (12") FROM FINISHED WALL TO C/L OF OUTLET.
SUPPLY NOT INCLUDED WITH FIXTURE AND MUST BE ORDERED SEPARATELY.
* DIMENSION SHOWN FOR LOCATION OF SUPPLY IS SUGGESTED.
IMPORTANT: Dimensions of fixtures are nominal and may vary within the range of tolerance established by ANSI Standard A112.19.2
These measurements are subject to change or cancellation. No responsibility is assumed for use of superseded or voided pages.

American Standard

Reliant

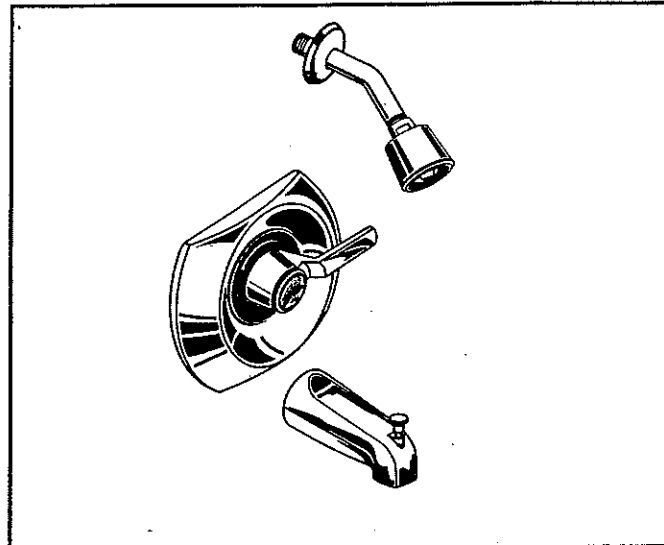
ULTRA-MIX PRESSURE BALANCED BATH/SHOWER FITTING

A combination of durability and contemporary design.

MODEL NUMBER:

- 1363.403 Pressure Balanced Bath/Shower With metal lever handle and I.P.S. diverter spout .
- 1363.419 Pressure Balanced Bath/Shower With metal lever handle and slip-on diverter spout.
- 1363.496 Pressure Balanced Shower Only With metal lever handle.
- 1363.482 Pressure Balanced Valve Only With metal lever handle.

NOTE: See Commercial Section for Bulk Pack Information.



1363.403 Shown.

GENERAL DESCRIPTION:

Cast-brass body, washerless ceramic disc valve cartridge, back-to-back capability. Cycles from off to hot through cold. Equipped with a pressure balancing mechanism and hot limit safety stop. Combination 1/2" direct sweat/I.P.S. inlets and I.P.S. outlets. Adjustable spray showerhead with 2.5 GPM flow restrictor. All metal lever style handle. Also features built-in supply stops.

PRODUCT FEATURES:

Solid Brass Valve Body

Durable - Ideal material for prolonged contact with water.

Ceramic Disc Valving

The only competitively-priced single-control faucet with ceramic valving, which assures a lifetime of drip-free performance.

Pressure Balancing Valve

Adjusts mix of hot and cold water for a constant output temperature in response to changes in relative supply inlet pressure.

Back-to-Back Capability

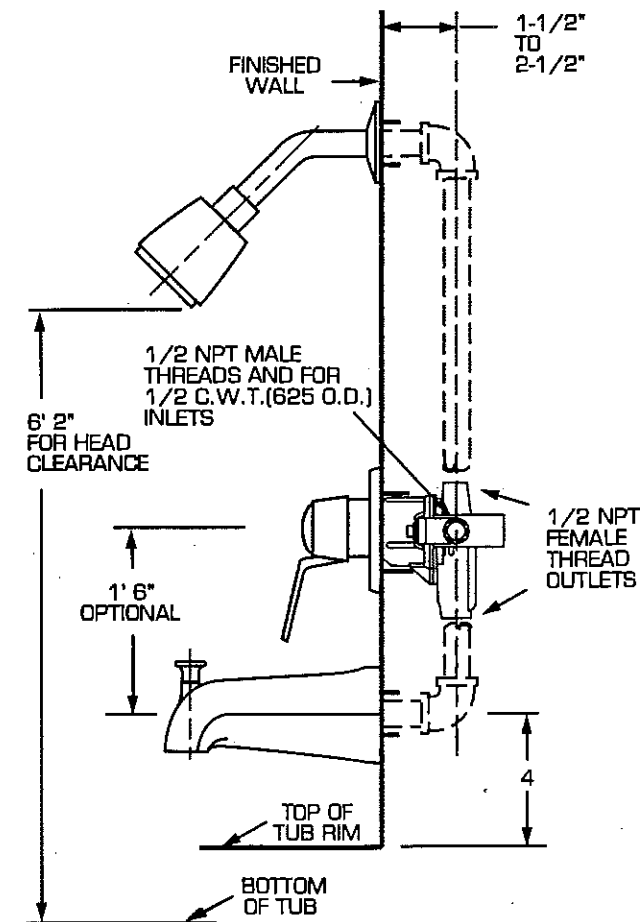
Hot and cold can be reversed quickly and easily with just an allenwrench.

Adjustable Hot Limit Safety Stop

Limits the amount of hot water allowed to mix with cold. Reduces the risk of accidental scalding. Safe for children.

Large "Comfort Zone"

Allows easy fine tuning of temperature. 2 degrees of handle rotation alters temperature by only 1 degree Fahrenheit.



SUGGESTED SPECIFICATION:

Bath/shower fitting shall feature a cast brass body. Shall also feature washerless ceramic disc valving, which is capable of back-to-back installation. Fitting shall be equipped with a pressure balancing mechanism, hot limit safety stop, and large "comfort zone"-20 degree temperature range for at least 45 degree handle rotation. Fitting shall be American Standard Model # _____.

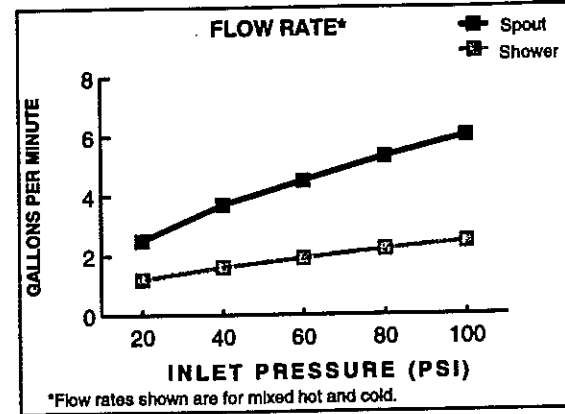
Product names listed herein are trademarks of American Standard Inc. ©American Standard Inc. 1992

ULTRA-MIX PRESSURE BALANCED BATH/SHOWER FITTING

CODES AND STANDARDS

These products meet or exceed the following codes and standards:

ASTM
ANSI A117.1
ANSI A112.18.1M
NSF14
Operating force for valve cartridge is less than ANSI A112.18.1M requirements.



Product Number	Description	Finish Options		
		Polished Chrome 002	White 020	Polished Brass 099
1363.403	Pressure Balanced Bath/Shower, I.P.S. spout			
1363.419	Pressure Balanced Bath/Shower, slip-fit spout			
1363.496	Pressure Balanced Shower Only			
1363.482	Pressure Balanced Valve Only			

Complies with ANSI A117.1 Buildings & Facilities Providing accessibility and usability for physically handicapped people.

NOTE: See Commercial Section for Bulk Pack Information.

American Standard

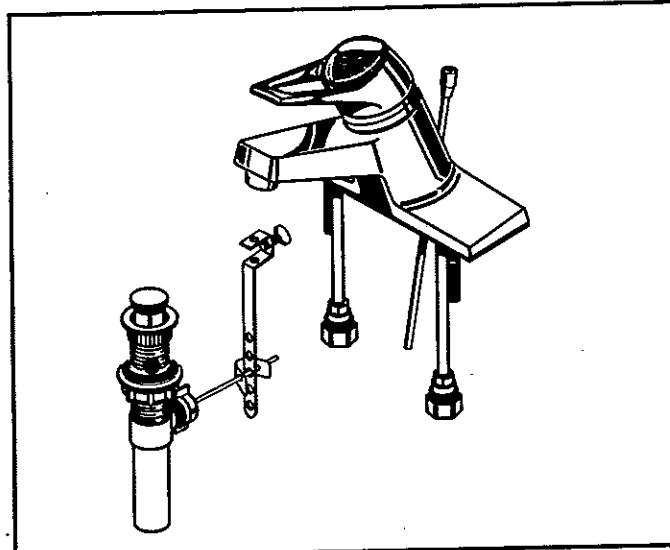
Reliant

SINGLE CONTROL LAVATORY FAUCET

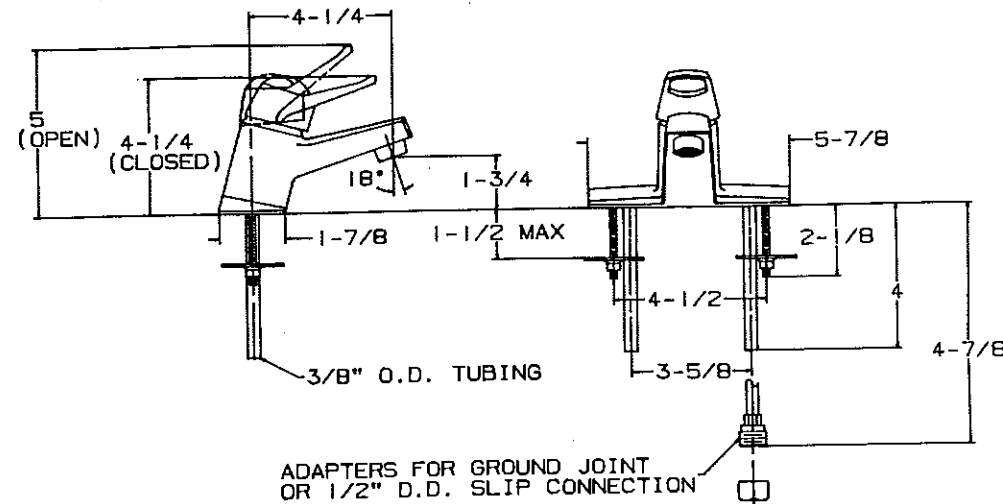
Provides a lifetime of maintenance-free performance.

MODEL NUMBER:

- 2385.297 Lavatory Faucet**
Metal loop handle with metal pop-up drain.
- 2385.257 Lavatory Faucet**
Metal loop handle with one-piece combination pop-up drain.
- 2385.263 Lavatory Faucet**
Metal loop handle, less pop-up drain.



2385.297 Shown.



GENERAL DESCRIPTION:

Washerless ceramic disc valving with back-to-back capability. All brass and copper waterways. Aerator with 2.2 GPM flow restrictor. Copper supply tubes with 1/2" male threaded connectors and nuts. All-metal loop style handle with large "comfort zone".

PRODUCT FEATURES:

Brass and Copper Waterway
Highest quality faucet materials for durability & long maintenance-free life.

Ceramic Disc Valving
The only competitively priced faucet with ceramic valving, which assures a lifetime of drip-free performance.

Memory Position Valving
Allows user to turn valve on and off at preferred temperature setting without readjusting handle position each time.

Large "Comfort Zone"
Allows easy fine tuning of temperature. 1 degree of handle rotation alters temperature by 1 1/2 degrees Fahrenheit.

Back-to-Back Capability
Hot and cold can be reversed quickly and easily with just a screwdriver.

SUGGESTED SPECIFICATION:

Single control lavatory fitting shall feature all brass and copper waterways. Shall also feature washerless ceramic disc valving, which is capable of back-to-back installation. Also features memory position valving and large "comfort zone". Fitting shall be American Standard Model #

Product names listed herein are trademarks of American Standard Inc.
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SINGLE CONTROL LAVATORY G-6

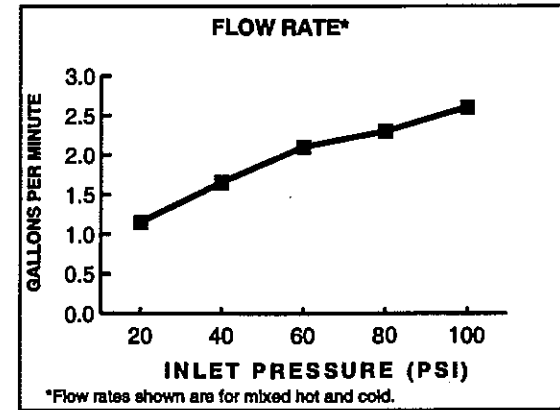
Reliant

SINGLE CONTROL LAVATORY FAUCET

CODES AND STANDARDS

These products meet or exceed the following codes and standards:

- ASTM**
- ANSI A117.1**
- ANSI A112.18.1M**
- NSF14**
- Operating force for valve is less than **ANSI A112.18.1M** requirements.



Product Number	Description	Finish Options			
		Polished Chrome 002	White 020	Bone 021	Polished Brass 099
2385.297	Lavatory Faucet with metal pop-up drain				
2385.257	Lavatory Faucet with one-piece pop-up drain				
2385.263	Lavatory Faucet , less pop-up drain		N/A	N/A	N/A

N/A = NOT AVAILABLE

Complies with **ANSI A117.1 Buildings & Facilities** Providing accessibility and usability for physically handicapped people.

American Standard

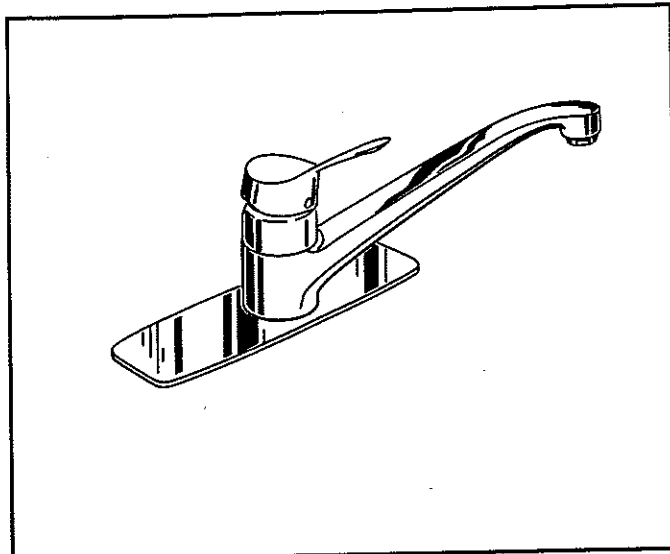
CERAMIX™

**SINGLE CONTROL KITCHEN FAUCET
WITH CAST BRASS SPOUT**

Sleek design combined with unbeatable performance.

MODEL NUMBER:

- 2021.631 Kitchen Faucet**
Cast brass spout with spray through escutcheon.
- 2021.641 Kitchen Faucet**
Cast brass spout with escutcheon and separate spray.
- 2021.600 Kitchen Faucet**
Cast brass spout with escutcheon, less spray.



2021.600 Shown.

GENERAL DESCRIPTION:

All brass body with all metal handle. Washerless ceramic disc valve cartridge. 3/8" O.D. copper supplies. Spout has 2.2 maximum gpm flow (at 60 p.s.i.). Fitting can be mounted with or without escutcheon.

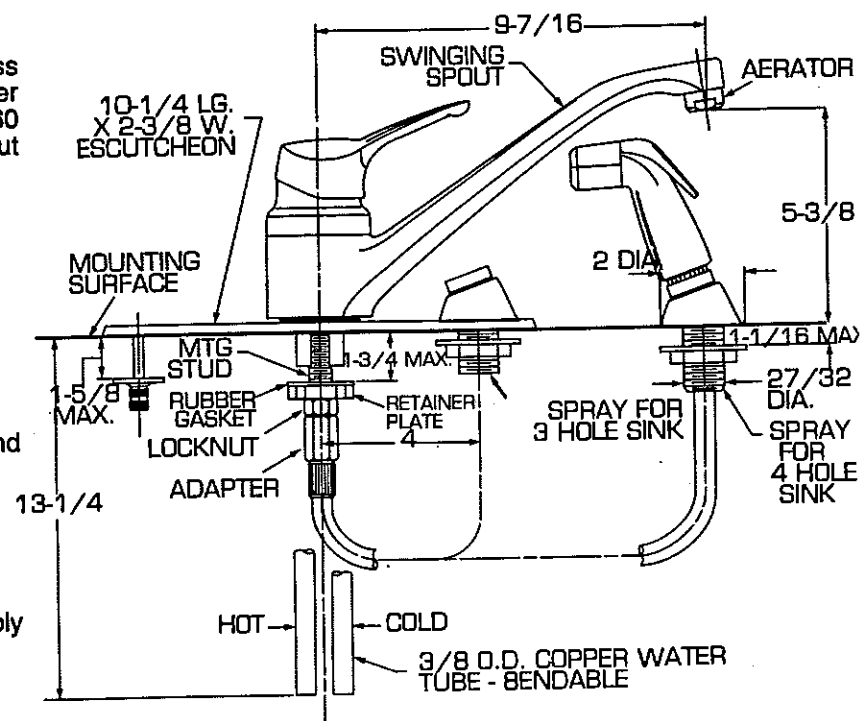
PRODUCT FEATURES:

Brass and Copper Waterway
Highest quality faucet materials for durability and long life.

Ceramic Disc Valving
Assures a lifetime of drip-free performance.

Low Lead
All brass components in contact with water supply contain no more than 3% lead content by weight.

Choice of Finishes
Choice of Polished Chrome, White or Bone.



SUGGESTED SPECIFICATION:

Single control kitchen fitting shall feature a brass body, cast brass spout and all metal handle. All brass components in contact with water supply shall contain no more than 3% lead content by weight. Shall also feature washerless ceramic disc valve cartridge. Fitting shall be American Standard Model # _____.

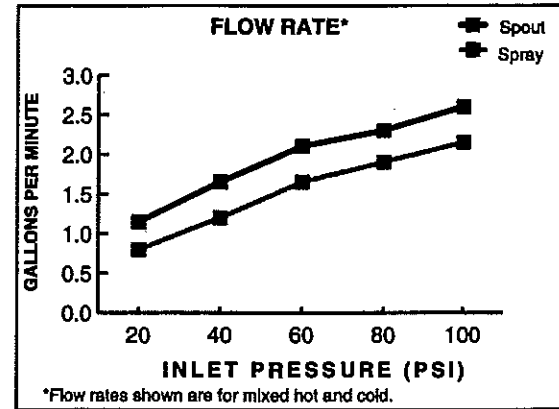
**SINGLE CONTROL KITCHEN FAUCET
WITH CAST BRASS SPOUT**

CODES AND STANDARDS

These products meet or exceed the following codes and standards:

- ASSE
- ASTM
- ANSI A117.1
- ANSI A112.18.1M
- CSA B 125
- NSF14

Operating force for valve cartridge is less than ANSI A112.18.1M requirements.

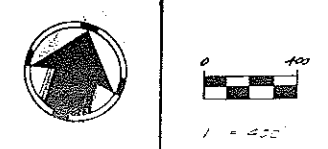
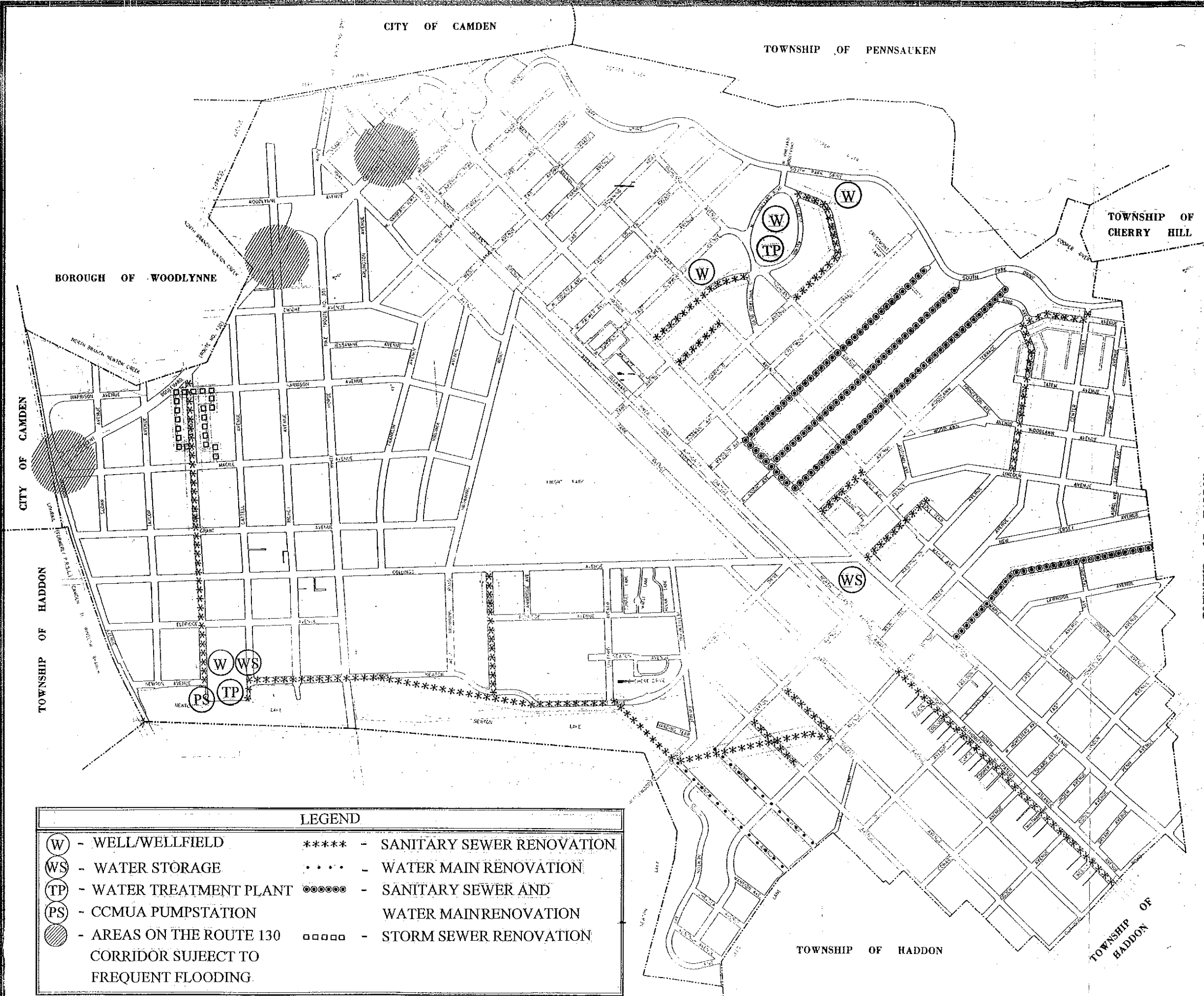


Product Number	Description	Finish Options		
		Polished Chrome	White	Bone
		002	020	021
2021.631	Kitchen Faucet w/ spray through escutcheon			
2021.641	Kitchen Faucet with separate spray			
2021.600	Kitchen Faucet, less spray			

All products comply with ANSI A117.1 Buildings & Facilities Providing accessibility and usability for physically handicapped people.

EXHIBIT B

Overall Utility Plan



Utilities Plan

Borough of Collingswood

Camden County, New Jersey

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 Peter P. Karabashian Associates, Inc.
 Professional Planners
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 Atlantic City, New Jersey 08401
 Phone: (609) 374-0311 Fax: (609) 347-1819
 Map Source: Remington & Vernick Engineers (10/2/87)