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TOWN OF HARTFORD
VERMONT

QUECHEE
WASTEWATER TREATMENT FACILITY
UPGRADE/EXPANSION

ENVIRONMENTAL INFORMATION DOCUMENT

JUNE 2009

TOWN OF HARTFORD, VERMONT
QUECHEE
WASTEWATER TREATMENT FACILITY UPGRADE/EXPANSION

ENVIRONMENTAL INFORMATION DOCUMENT

June 2009

A. PROJECT IDENTIFICATION

Project Name: Town of Hartford, Vermont
Quechee Wastewater Treatment Facility
Upgrade/Expansion
Contract No. 3

Contact and Address: Richard Menge, Authorized Representative
Town of Hartford
173 Airport Road
Hartford, VT 05001

Project Location: Izzo Place
Quechee, Vermont

B. SUMMARY OF ENVIRONMENTAL REVIEW

The "Town of Hartford, Vermont, Quechee Wastewater Collection System Investigation and Treatment Facility Expansion Study, Preliminary Engineering Report" dated November 2007, and the "Town of Hartford, Quechee Wastewater Treatment Facility Expansion Study, dated June 2008, have been reviewed and in accordance with State/Federal regulations, the findings of the our environmental review are summarized below.

1. Project Description

a. The proposed project is located in the Town of Hartford, Windsor County, Vermont. The Town of Hartford is located at the intersection of Interstate 89 and 91 on the Connecticut River. Refer to the "Overall Map", in Attachment No. 1.
b. The proposed project consists of the upgrade/expansion of the Quechee treatment facility. The treatment facility capacity will be increased from 0.300 to 0.475 mgd. This project also includes expansion of the Main Pump Station and connection of the Leachfield 2A to the municipal collection system. Refer to the "Proposed Site Plan" for the wastewater treatment facility in Attachment No. 1. A brief description of the project is provided as follows:

i. Main Pumping Station:
   - New grinder/screen in the influent channel.
   - Three (3) new dry pit centrifugal pumps, interior piping and valves
   - Three (3) new variable frequency drives
   - Control panel upgrade
   - New standby generator and automatic transfer switch

ii. Headworks:
   - Abandon the existing headworks structure.
   - Add a new at-grade headworks building containing: a mechanical fine screen and vortex grit removal system and grit classifier.

iii. Aerated Lagoons No. 1 and 2:
   - Abandonment of existing lagoons.

iv. Sequential Batch Reactors
   - Two (2) new cast-in-place concrete SBR tanks.
   - One (1) new cast-in-place concrete post equalization tank.

v. Secondary Clarifiers
   - Abandon and remove the secondary clarifier.

vi. Blower Building
   - Continue to use the existing aeration blowers.
   - Add two (2) new SBR aeration blowers.

vii. Tertiary Filtration
   - Abandon and remove the existing filter.
   - Add two (2) new disk filters in the existing Control Building.

viii. Disinfection System
   - Add a new ultraviolet disinfection structure with two (2) bank variable output system.
   - Convert the existing chlorine contact tank to process water storage.

ix. Sludge Storage Tanks
   - Continue to use the existing 45,000 gallon aerated sludge storage tank.
   - A new 90,000 gallon cast-in-place concrete aerated sludge storage tank.

x. Sludge Drying Beds
   - Abandon the sludge drying beds.

xi. Control Building
   - Upgrade existing ventilation, heating, and electrical systems.
   - Replace existing utility pumps in the lower level.
   - Add a new PLC/SCADA system to monitor the existing facilities.

xii. Stand-By Power
   - Add a new exterior stand-by generator with automatic transfer switch to operate the critical liquid stream components.

c. The upgrade/expansion project is anticipated to be constructed under one (1) contract for a duration of about twelve (12) months. Construction is scheduled to begin in April 2010.

d. Projected wastewater flows and loading projections are fully described in the Preliminary Engineering Report and updates are provided in Addendum No. 1. A summary of the 175,000 gpd of additional wastewater flow is provided in Attachment No. 2.
e. The Town of Hartford will continue to own, and operate the upgraded facilities.

2. Purpose and Need

a. The original wastewater treatment facility was constructed in 1975 and upgrades to the lagoon aeration system were completed in 2002. The original structures and equipment require refurbishment and/or replacement to continue to operate efficiently and provide reliable performance for the next 20 to 30 years.
b. Replacement of original equipment will improve the energy efficiency of the existing facility.
c. Over the past few years, continuing depreciation of the original equipment have contributed to increased operation and maintenance costs.
d. There will be very limited uncommitted reserve capacity available to meet the future residential and commercial wastewater needs of the Town within the Quechee sewer service area. Increase in treatment capacity is required for the Town to continue to offer municipal sewer service within the existing sewer service area and to expand the sewer service area to existing and new development.

3. Discussion of Alternatives

A detailed alternatives analysis was completed in the "Preliminary Engineering Report" dated November 2007 and "Addendum No. 1" dated June 2008 for upgrade and expansion of the wastewater treatment facility. A total of six (6) treatment process alternatives were evaluated and are briefly discussed below. Alternatives No. 1 through 3 were evaluated in the Preliminary Engineering Report and Alternatives No. 4 through 6 were evaluated in Addendum No. 1.

#1: **Lagoon Expansion with Clarification/Filtration at 630,000 gpd:** This approach is based on the upgrade and expansion of the existing treatment process to increase the permitted capacity to 630,000 gpd.

#2: **New Sequential Batch Reactor (SBR) with Filtration at 630,000 gpd:** This approach converts the treatment process to a new sequential batch reactor treatment system with filtration to increase the permitted capacity to 630,000 gpd.

#3: **New Membrane Reactor (MBR) System at 630,000 gpd:** This approach converts the treatment process to a membrane reactor system to increase the permitted capacity to 630,000 gpd.

#4: **Lagoon Upgrade with Clarification/Filtration at 475,000 gpd:** This approach is based on the upgrade and expansion of the existing treatment process to increase the permitted capacity to 475,000 gpd.

#5: **New Sequential Batch Reactor (SBR) at 475,000 gpd:** This approach converts the treatment process to a new sequential batch reactor treatment system to increase the permitted capacity to 475,000 gpd. A change in the permit limits is required to implement this alternative.

#6: **New Sequential Batch Reactor (SBR) with Filtration at 475,000 gpd:** This approach converts the treatment process to a new sequential batch reactor treatment system with filtration to increase the permitted capacity to 475,000 gpd.

Alternative No. 6, New Sequential Batch Reactor with Filtration at 475,000 gpd, was selected as the recommended project as it is the most cost effective approach and provides the greatest long-term benefits.

4. Impact of Proposed Project on the Environment

a. Direct Impacts

i. Air Quality

During construction, noise and dust will be generated by construction equipment. Mufflers and other noise reduction devices will be utilized to minimize noise levels on construction equipment and calcium chloride and/or water will be utilized as required to minimize dust generation. The project will limit the work hours of construction to regular working hours, and specify methods to be used for dust control during construction.

ii. Water Quality and Quantity

The Town will not be allowed to increase the mass loadings of the permitted effluent parameters at the expanded flow of 0.475 mgd, so the quality of the effluent discharged to the Ottaquechee River will be maintained by the upgraded treatment process. By converting to an SBR treatment system with filtration, this facility will have the capability to comply with a future nitrogen limit.

There will be no significant change in the handling of surface runoff or the amount of runoff by this project. Temporary erosion control measures will be required during construction to minimize the impacts on the adjacent receiving waters of the Ottaquechee River. This project will be subject to the State General Permit for Stormwater Runoff and submittal of the Notice of Intent as a low risk site.

iii. Environmentally Sensitive Areas

Floodplains and Wetlands: All of the construction at the main pump station and wastewater treatment facility will occur within the existing perimeter fence. These areas have been disturbed by previous work at the site. New structures will be constructed adjacent to pre-existing structures in grassed and paved areas and will not impact floodplain or wetlands areas.

Prime Agricultural Land: All of the work at the main pump station and wastewater treatment facility will occur within the existing perimeter fence and will not impact adjacent agricultural lands.

Wildlife Habitat: All of the work at the main pump station and wastewater treatment will occur within the existing perimeter fence and will not impact wildlife habitat.

Stream Modification: The Ottaquechee River will not be impacted by any of the proposed work as the existing outfall pipeline will continue to be used.

iv. Socio-Economic Impacts

The projected construction cost of the wastewater treatment facility upgrade/expansion is $5,500,000 using an assumed ENR cost index of 8970 for April 2010. The total project cost has been estimated at $7,400,000 of which the majority is eligible for State loans. A bond vote in the amount of $8,100,000 was passed on March 3, 2009.

v. Historical/Archaeological Sites

All of the work at the main pump station and wastewater treatment facility is being performed within the existing perimeter fence and previously disturbed areas. Once the layouts are finalized for the new structures, this item will be further addressed during the Act 250 process and concurrence requested from the Division of Historic Preservation.

vi. Endangered Species

All of the work at the main pumping station and wastewater treatment treatment facility will occur within the existing perimeter fence and will not impact endangered species.

vii. Coastal Zone Management

Not applicable

viii. Wild and Scenic Rivers

Not applicable

5. Mitigation of Environmental Impacts

There are no significant, long-term, adverse impacts anticipated as a result of construction of this project. Minor impacts will be mitigated as follows:

a. Air Quality

During construction, dust and equipment exhaust may temporarily adversely impact air quality. These impacts will be mitigated by requiring the contractor to utilize calcium chloride for dust control. The contract documents will specify that the contractor must control emissions to the maximum extent possible using the latest available techniques.

Noise generated during construction will be controlled by the installation of adequate muffling devices on construction equipment and proper regulation of working hours as will be required in the contract documents.

b. Water Quality and Quantity

Temporary and permanent erosion control measures are required to be installed at critical locations on the project site. These measures will be incorporated on the plans and in the specifications.

c. Environmentally Sensitive Areas

The construction of this project will be performed in a manner which will not impact any environmentally sensitive areas, including wetlands and floodplains.

d. Socio-Economic Impacts

The project will not require mitigation of socio-economic impacts.

e. Historical/Archaeological Sites

The project will not require mitigation of historical/archaeological sites.

f. Endangered Species

The project will not require mitigation of endangered species.

g. Coastal Zone Management

Not applicable

h. Wild & Scenic Rivers

Not applicable

6. Summary of Agency and Public Consultation

a. Discussions have been conducted with the District Coordinator for the State Agency of Natural Resources. Since the capacity increase is greater than 10%, an Act 250 permit is required.
b. The State DEC Facilities Engineering Division has been involved throughout the project, and will also be responsible for technical review of the final designs prior to construction.
c. The Town conducted a bond vote on March 3, 2009, which included several public hearings.

7. List of Agencies and Groups Consulted During the Environmental Review Process

a. Federal

None

b. State of Vermont

Facilities Engineering Division
Wastewater Management Division
Water Quality Division
District Act 250 Coordinator

c. Local – Town of Hartford

Public Works Director
Town Manager
Selectboard

C. PREPARER'S SIGNATURE

Forcier Aldrich & Associates

Wayne A. Elliott, PE
Vice President

ATTACHMENT NO. 1

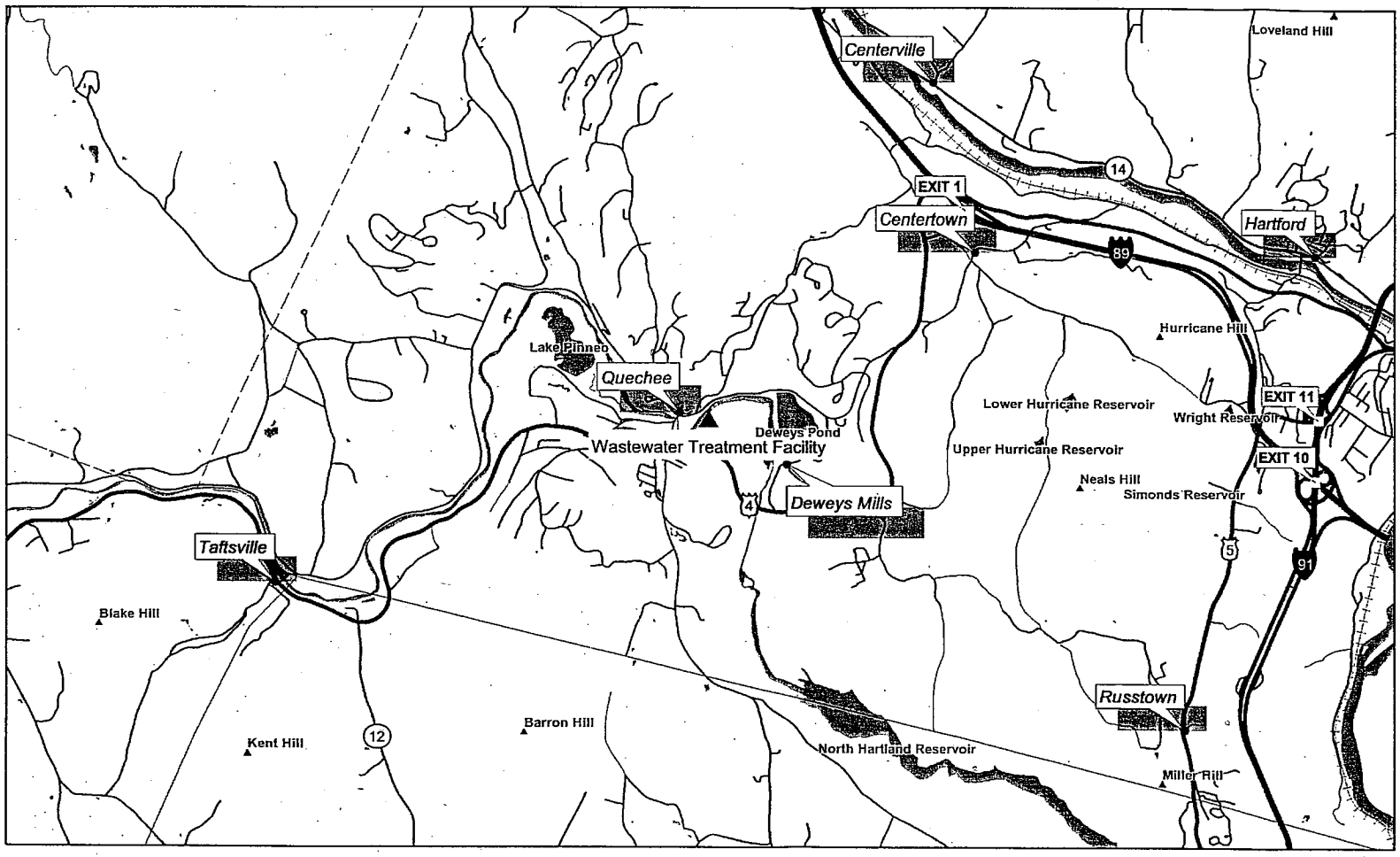
FIGURES

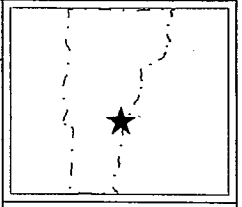
VERMONT

Vermont Interactive Map Viewer

Vermont Center for Geographic Information (VCGI)

Quechee Wastewater Treatment Facility





Legend

- Airports
- Mountains and Hills
- Interstates
- US Highways
- VT State Highways
- Rail Lines
- Town Boundaries
- Roads
  - Class 1-3
  - Class 4
- Rivers and Lakes
- Cities
- VT State Boundary

0 4000 8000 12000 ft.

VT State Plane Meters (NAD83)

Scale: 1:41,551

Map center: 506822, 127183

URL: http://maps.vermont.gov/imf/sites/VCGI_basemap/jsp/launch.jsp

VCGI 6/22/09

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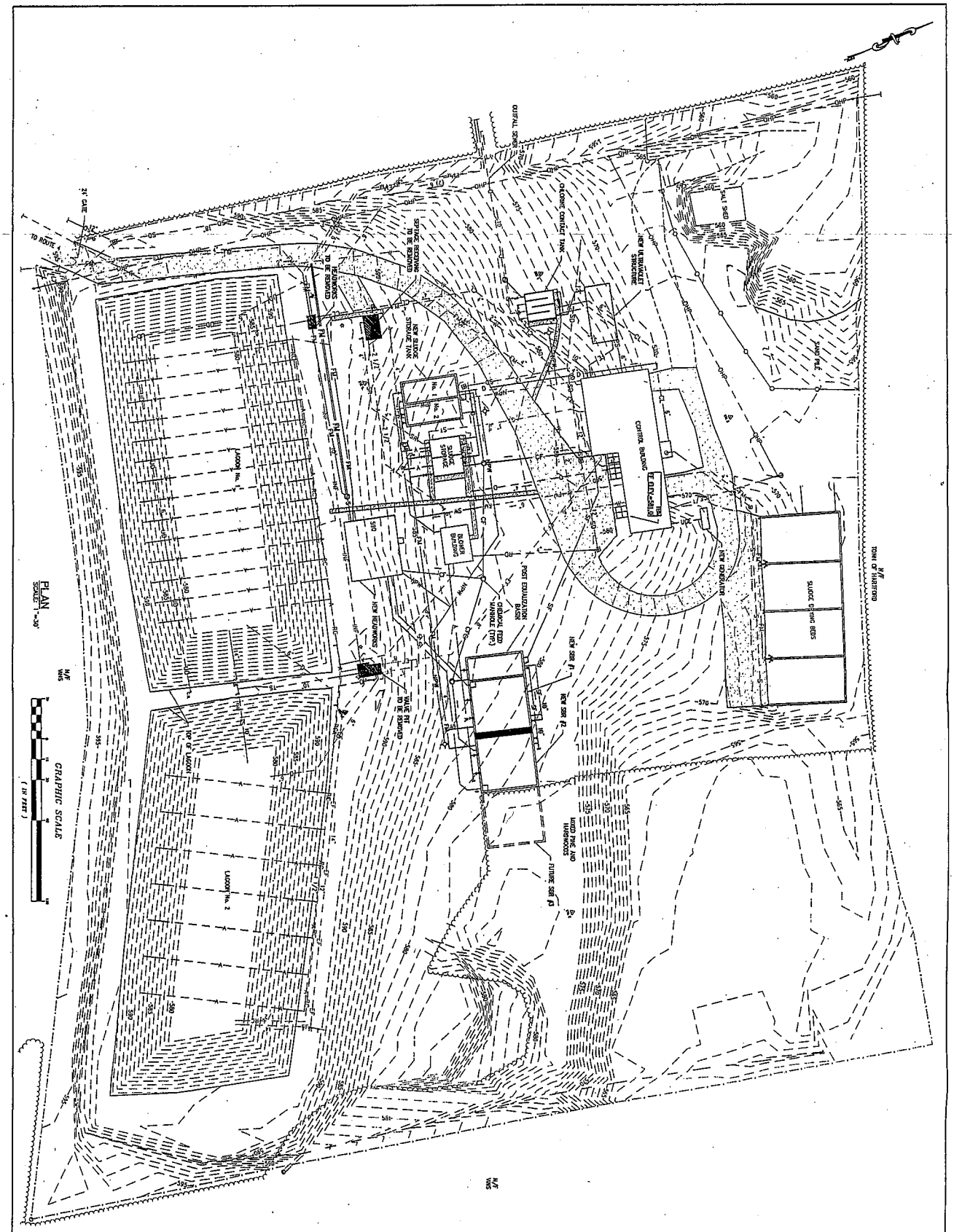


DESIGNED	TS	TOWN OF HARTFORD HARTFORD, VERMONT	FA&A FORCIER ALDRICH & ASSOCIATES CIVIL & ENVIRONMENTAL ENGINEERS
DRAWN	JDN		
CHECKED	WAE		
DATE	MAY 2009		
PROJECT NO.	09030	QUECHEE WASTEWATER TREATMENT FACILITY UPGRADE BASIS FOR FINAL DESIGN	
DRAWING NO.	C5	PROPOSED SITE PLAN	
SHEET			

NO.	DATE	REVISION DESCRIPTION	CHECKED

ATTACHMENT NO. 2

PROJECTED WASTEWATER FLOWS AND LOADINGS

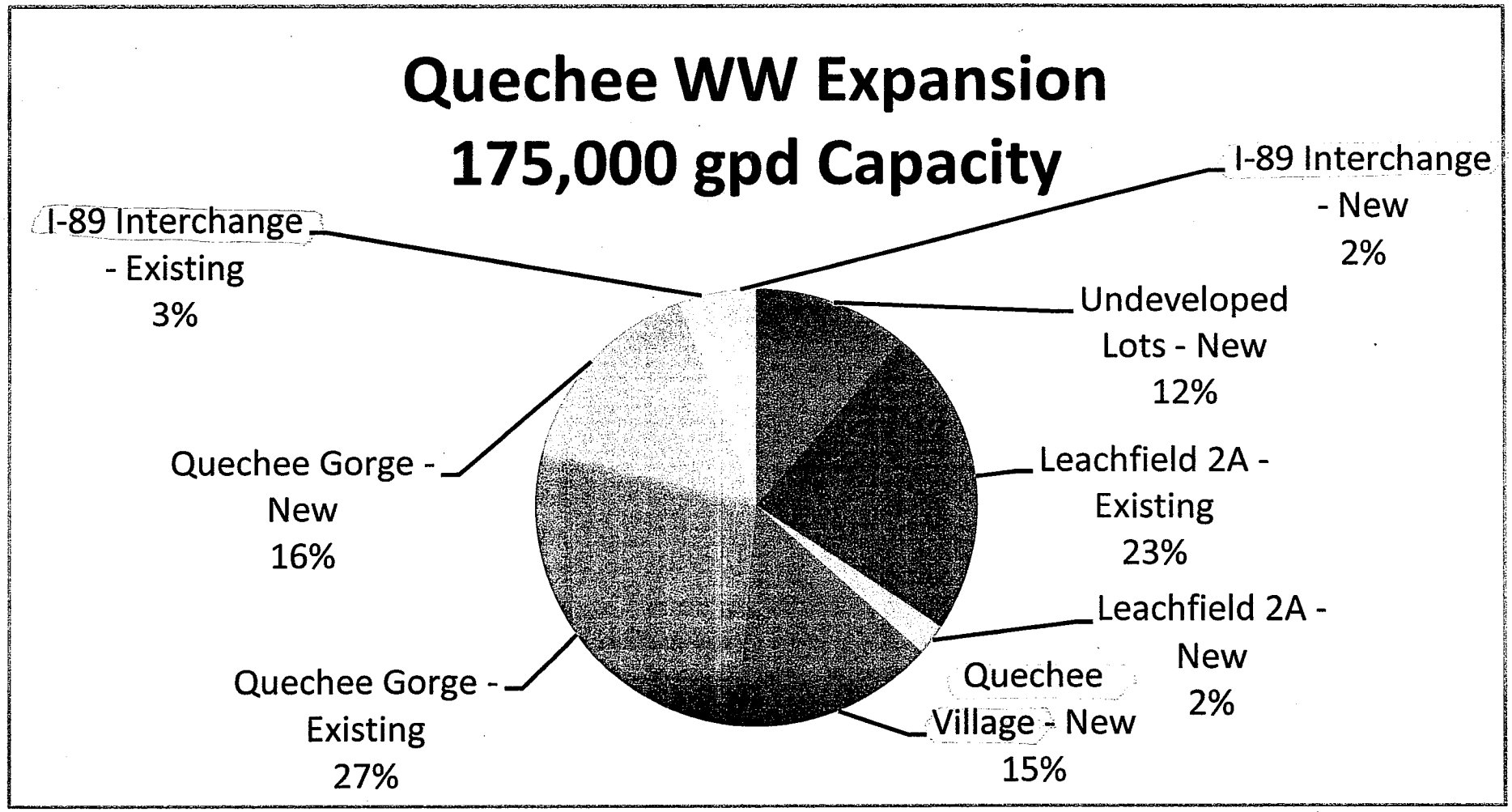
TOWN OF HARTFORD
QUECHEE WWTF UPGRADE/EXPANSION

PROJECTED WASTEWATER FLOWS

Source	Existing Development		New Development		Total (gpd)
	Projected Flow (gpd)	%	Projected Flow (gpd)	%	
Other Undeveloped Lots	0	0	20,000	11.5	20,000
Leachfield 2A	40,000	23.0	4,000	2.0	44,000
Quechee Village	0	0	26,000	15.0	26,000
Quechee Gorge/Woodstock Road	48,000	27.5	27,000	15.5%	75,000
Interstate Interchange	6,000	3.5	4,000	2.0	10,000
Total	94,000	54	81,000	46	175,000

Notes:

1. The flows above are for Town expansion only and are all included in the additional 175,000 gpd of capacity. None of the projected flows above are included in the existing permitted capacity of 300,000 gpd.


Quechee WW Expansion
175,000 gpd Capacity
I-89 Interchange - New 2%
Undeveloped Lots - New 12%
Leachfield 2A - Existing 23%
Leachfield 2A - New 2%
Quechee Village - New 15%
Quechee Gorge - Existing 27%
Quechee Gorge - New 16%
I-89 Interchange - Existing 3%