SELECTMEN'S MEETING AGENDA*

Donn B. Griffin Room, Town Hall
732 Main Street, Harwich, MA
Regular Meeting 6:30 P.M.
Monday, September 24, 2018

****As required by Open Meeting Law, you are hereby informed that the Town will be video and audio taping as well as live broadcasting this public meeting. In addition, anyone in the audience who plans to video or audio tape this meeting must notify the Chairman prior to the start of the meeting.***

I. **CALL TO ORDER**
II. **PLEDGE OF ALLEGIANCE**
III. **WEEKLY BRIEFING**
IV. **PUBLIC COMMENTS/ANNOUNCEMENTS**

V. **CONSENT AGENDA**
- A. Approve Minutes – September 6, 2018 Regular Session
- B. Approve Town Administrator's recommendation on Mad Minnow's Entertainment License

VI. **PUBLIC HEARINGS/PRESENTATIONS** *(Not earlier than 6:30 P.M.)*
- A. Town Administrator presents the Five-Year Financial Plan to the Board of Selectmen

VII. **NEW BUSINESS**
- A. Resolution in support of Wequassett Inn and the Wychmere Beach Club
- B. MS4 – Approval of the Notice of Intent and Adoption of the Rules and Regulations
- C. Consideration of Richard Anderson's regrade to COA Program Specialist
- D. Monthly Financial Reports

VIII. **OLD BUSINESS**
- A. Sign By-Law pertaining to sandwich board signs
- B. Town Administrator authority to approve contracts and approval of Capital items over 50K
- C. Board Policy on Access to Town Counsel
- D. Beach Nourishment in vicinity of Beach 22

IX. **CONTRACTS**
- A. Contract approval for the Harwich Community Center Energy Management System Project in the amount of $55,839

X. **TOWN ADMINISTRATOR'S REPORT**
- A. Tax Collection Update
- B. Departmental Reports

XI. **SELECTMEN'S REPORT**
XII. **ADJOURNMENT**

****Per the Attorney General's Office: The Board of Selectmen may hold an open session for topics not reasonably anticipated by the Chair 48 hours in advance of the meeting following "New Business." If you are deaf or hard of hearing or a person with a disability who requires an accommodation contact the Selectmen's Office at 508-430-7513.***

Authorized Posting Officer:

Posted by: _____
Town Clerk

_____
Sandra Robinson, Admin. Secretary

Date: September 20, 2018

MINUTES
SELECTMEN'S MEETING
GRIFFIN ROOM, TOWN HALL
MONDAY, SEPTEMBER 6, 2018
6:30 P.M.

SELECTMEN PRESENT: Ballantine, Howell, Kavanagh, MacAskill, McManus

OTHERS PRESENT: Town Administrator Christopher Clark, Assistant Town Administrator Evan Melillo, Chief Guillemette, Deputy Police Chief Gagnon, Deputy Fire Chief LeBlanc, Carolyn Carey, Carol Coppola, Foster Banford, Cyndi Williams, Bob Weiser, and others.

WEEKLY BRIEFING

Chief Guillemette thanked all those who participated in the annual Jailhouse Barbeque. Deputy Chief LeBlanc reported that 9/11 ceremony will be at 9:45 a.m. on Tuesday at the Fire Department. He also reported that Congressman Keating's office has notified us that we have received a grant in the amount of $70,000 to be used to replace nozzles and hoses.

PUBLIC COMMENTS/ANNOUNCEMENTS

Ms. Williams reported on upcoming Chamber of Commerce and Harwich Cranberry Festival events.

Mr. Salewski, Chairman of the Bikeways Committee, reported that they will be having a bike ride commemorating the 20th anniversary of the Old Colony trail.

Mr. Weiser also reported on Harwich Cranberry Festival events.

Ms. Melissa Maguire of the Cape & Islands Suicide Prevention Coalition spoke in support of the request for proclamation on the Consent Agenda and described the programs they offer.

CONSENT AGENDA

A. Approve Minutes –
   1. June 4, 2018 Executive Session
   2. July 23, 2018 Regular Meeting
   3. August 6, 2018 Regular Meeting

B. Approve and sign proclamation request from the Cape & Islands Suicide Prevention Coalition

Mr. McManus moved approval of the Consent Agenda. Mr. Howell seconded the motion and the motion carried by a unanimous vote.

PUBLIC HEARINGS/PRESENTATIONS *(Not earlier than 6:30 P.M.)*

A. Financial Transparency Presentation – Carol Coppola

Ms. Coppola provided the attached presentation on financial transparency. She took questions and comments from the Board regarding trend analyses, inclusion of benefits, tracking of interdepartmental assistance, and the need for budget tracking and forecasts. Mr. Clark said the Tyler Company, which is the parent company of Munis, has direct access which means they wouldn't have to translate anything as another company may need to. He said having Munis directly on the site will be much more robust and we may also get a discount as we already have Munis. Ms. Coppola said Tyler has reduced the price and there may be a grant opportunity. Mr. Ballantine said we should go with the program that the Finance Director recommends. Chairman Kavanagh asked about integration with Accela, network security and frequency of updating. Mr. Banford said we have worked with Tyler (Socrata) for a long time and have had no problems. He added that if we use them we wouldn't have to add additional access into our system. Mr. Clark recommended that the Board approve Socrata so it's transparent as it comes out of the Munis product into the visual display product and also in the interest of maintaining continuity. Mr. McManus moved to go with Socrata. Mr. Howell seconded the motion. Mr. MacAskill said we don't have money in the budget for this. Mr. Clark said we can start it in FY20 and build it into the budget or we could try to identify the funding source. He said we are working on a grant for government transparency and if we secure that we can use it for that purpose and then possibly go earlier. Mr. Howell withdrew his second. Mr. McManus offered an amended motion that we approve moving to use the Socrata product and that it be implemented absent receiving any grant funding to implement earlier, that it be placed in the 2020 budget for Town Meeting. Mr. Howell seconded the motion and the motion carried by a unanimous vote.

NEW BUSINESS

A. Approve request for Two-Day Beer & Wine License by Harwich Cranberry Festival, Inc.

Mr. McManus recused himself on this item. Mr. Howell moved to approve the request for a Two-Day Beer & Wine License by Harwich Cranberry Festival, Inc. commencing September 15 noon to 8:00 p.m., September 16 noon to 3:30 p.m. behind the Community Center at 100 Oak Street in the fenced in music and picnic area as further outlined in the Festival's August 28th written request and further move to waive the license fee. Mr. MacAskill seconded the motion and the motion carried by a 4-0-0 vote.

B. Request for reduced rate for library use at Cultural Center

Ms. Carey outlined the request as described in her letter for free labyrinth classes in the Cultural Center library and said they are working with the schools on this. She said they are happy to pay a minimal fee as they are a non-profit and they are looking to have the fee reduced to $400 for the few times they have asked to use it. She noted it would be 14 uses and there is no one currently scheduled in the library. Mr. MacAskill moved to approve the request for reduced rate for library use at Cultural Center by the applicant to a flat rate of $400 for the 14 uses. Mr. McManus seconded the motion and the motion carried by a unanimous vote.

C. Treasurer/Tax Collector position – recommendation for regrade

Mr. Clark explained that the Board had approved looking at the SEIU position which was completed and in the last six months we have had three staff members approached by other towns to apply for positions. He commented that raiding for positions is becoming more common place. He explained that in this case the employee came to him and said she was recruited to go to a neighboring town and he is taking an anti-poaching approach to keep valued employees. He said he gave this employee a two-step increase and said he would look at the position and see if a regrade was in order. He explained that they

reexamined the work she does and the position should match up with the Director of Assessing as both positions report to the Finance Director. He proposed reclassifying this position from Grade M4, Step 9 to Grade M5, Step 7. He noted that over the 3 year timeline of contract it will bring the position to be more competitive with the town that came raiding. He pointed out that we didn't match dollar for dollar but the position would be treated in more equitable manner. He said he left it with the union that we will take up on a case by case basis.

Mr. Howell said the big concern is when looking at these salaries in terms of where we live as a competitive area, it would be hard to find a job in this salary range of $80K to $100K. He said we need a strategy as we will be having problems perpetually and losing valuable people. Mr. Clark noted that it is a $12,000 difference which affects the retirement significantly. He commented that Brewster has been struggling to fill their Finance Director position. Mr. McManus commented a Town Treasurer has become more and more a specialized position over time.

Mr. MacAskill asked questions regarding the timeline of events and questioned how we know what the job offer is. He also pointed out that the other town pays 60/40 health insurance and we pay 75/25. He added that we have longevity and a 35 hour work week as opposed to the other town's 40 hour work week. He further noted that the job descriptions should be compared. Mr. Clark stated that he has a copy of the offer and he added that she would have additional staff in the other town. Mr. MacAskill asked that the Chair review the documents and see that we are comparing apples to apples. He added that we have lost others that we haven't given this opportunity. Mr. MacAskill said he would also like to see where the differences in longevity, health insurance and work hours were factored into the numbers and asked that the information be given to the Chair.

Mr. Clark noted that he budgeted $10K for reclassifications for this year and there is about $6K remaining toward this adjustment. He reported that the offer is $92K and she would be going to $88K if she stays here. Mr. Howell stressed the need to nail down a strategy moving forward to deal with this issue.

Ms. Coppola said based on analysis that she has completed over the past year and the job duties that fall statutorily, the current grading is not accurate and she will continue to ask the Administrator to bring this regrade back to the Board because its accurate and appropriate.

Mr. Clark agreed to bring the analysis forward. No action was taken on this item and Chairman Kavanagh said she would bring this item back on September 17th.

OLD BUSINESS

A. Fraud Assessment Policy – vote to approve

After brief discussion, Mr. Howell moved that we strike in its entirety the yellow highlighted section on page 41 and in its place put "for allegations pertaining to the Town Administrator or the Finance Director, calls should be directed to the Office of the Inspector General Confidential Fraud Waste and Abuse 24 hour hotline 1-800-322-1323" and approve the policy in its entirety with that change. Mr. Howell restated his motion as follows: approve the policy in its entirety after striking this paragraph in its entirety and replacing it with that text. Mr. MacAskill seconded the motion and the motion carried by a unanimous vote.

CONTRACTS

A. Fire Station 2 contract award update

Deputy Chief LeBlanc reported that the majority of the site work is done, drainage and footings are in the ground, and they are supposed to pour concrete tomorrow.

B. Signing of Police Department Taser lease contract

Mr. Ballantine moved we approve the agreement between the Town of Harwich and Axon Enterprise Inc. from Scottsdale, AZ for the amount of $67,500 for the Taser contract. Mr. Howell seconded the motion and the motion carried by a unanimous vote.

TOWN ADMINISTRATOR'S REPORT

A. Capital budget request instructions

Mr. Clark reported that we have begun sending out the capital budget forms and they are due back on September 21st. Mr. Howell stressed that projects of $50,000 must be in the capital budget regardless of funding source.

B. 2018 Navigational Dredging Pilot Program grant award

Mr. Clark reported that we were awarded a $36,000 grant award from the National Dredging Pilot Program and thanked Mr. Rendon putting together the application.

C. Recycling Dividends Program grant award

Mr. Clark reported that we were awarded $12,100 through the Sustainable Materials Recovery Program and thanked Mr. Hooper and his staff for putting together the application.

D. Departmental Reports

There was no discussion on this item.

ADJOURNMENT

Mr. McManus moved to adjourn at 8:22 p.m. Mr. Ballantine seconded the motion and the motion carried by a unanimous vote.

Respectfully submitted,

Ann Steidel
Recording Secretary

OFFICE OF THE TOWN ADMINISTRATOR

Christopher Clark, *Town Administrator*

Phone (508) 430-7513
Fax (508) 432-5039

732 MAIN STREET, HARWICH, MA 02645

MEMO

To: Board of Selectmen

From: Christopher Clark
Town Administrator

Date: September 18, 2018

Subject: Recommendation on Mad Minnow Disciplinary Hearing

After hearing all testimony at a Disciplinary Hearing on Mad Minnow's Entertainment License which I held on September 13, 2018, I make the following recommendation for the Board of Selectmen with regard to excessive noise complaints in the form of music plainly audible beyond 150 feet reported on July 3, 2018, July 10, 2018, July 29, 2018 and July 31, 2018:

> I recommend that the Board of Selectmen issue a letter of warning to Michael Strangfeld, Manager of Mad Minnow, for violations of the conditions of their Weekday and Sunday Entertainment Licenses relating to incidents of excessive noise complaints in the form of music plainly audible beyond 150 feet reported on July 3, 2018, July 29, 2018 and July 31, 2018. The letter should indicate that the Board recognizes that this season was the first with significant complaints and will follow a progressive course of discipline, if needed, up to and including revocation of Entertainment Licenses and/or Liquor License for any future violations.

Please note that I have determined that the August 10, 2018 incident does not constitute a violation of license conditions as the complaint was unsubstantiated by the Police Department. The license holder appears to be remorseful and willing to comply with the conditions. It should be noted that there was only one complainant and I recommended to the license holder that they change the direction of the entertainment to face toward the building. Attached please find detailed minutes of the hearing.

Minutes
Mad Minnow Disciplinary Hearing
Harwich Town Hall Library
September 13, 2018
10:00 a.m.

In attendance: Christopher Clark – Town Administrator, Chief David Guillemette – Police Chief, Lt. Kevin Considine, Officer John Larivee, Officer Ronald Ruggiero, Officer Daniel Donovan, Bob Cohn – Citizen, Marcia Casey – Citizen, Tony Gullotti – Owner, Ann Steidel – Support Staff Supervisor.

Mr. Clark discussed the process by which the hearing would be conducted and noted that his findings would be reported to the Board of Selectmen. He explained that this was not an advertised hearing and was referred to him by the Board of Selectmen. He opened the hearing at 10:03 a.m. and read the letter of notice of disciplinary hearing. He noted that the incidents on July 3, 2018, July 10, 2018, July 29, 2018 and July 31, 2018 were the only ones to be discussed after which he swore in all those giving testimony.

Mr. Clark called for testimony from Chief Guillemette, Lt. Considine, Officer John Larivee, Officer Ronald Ruggiero, and Officer Daniel Donavan.

Chief Guillemette reported on that in May he held an informational meeting for all liquor licenses holders at which time the liquor licenses regulations were reviewed but that Mad Minnow had not attended that meeting. Chief Guillemette further reported that there were 4 complaints of noise plainly audible beyond 150 feet reported on July 3, 2018, July 10, 2018, July 29, 2018 and July 31, 2018. He outlined the related Police Department reports. It was confirmed that Mr. Cohn was the caller who reported these incidents to the Police Department.

Officer Larivee testified that he was on patrol on July 3, 2018 and was dispatched for a noise complaint related to the Mad Minnow. He reported that he drove to the Cohn residence (29 Pleasant Street) where the music was clearly audible. He noted that Sgt. Brackett had reported to dispatch that he could hear the music from Cross and Miles Streets and both locations are more than 150 feet from the Mad Minnow. He said he then went to the Mad Minnow and made contact with the manager (Michael Strangfeld) at which time the manager was very cooperative and turned down the music. He added that he then went back to the Cohn residence and the music could no longer be heard. Mr. Cohn confirmed Officer Larivee's account of the events and noted that the distance is more than 500 feet.

Lt. Considine testified that he was working that night (7/3/18) and he went and had a discussion with the owner, Michael Strangfeld. He explained to Mr. Strangfeld that he would be receiving a warning letter. He noted that it was about 1 hour after the incident and there was no music playing at the time.

Officer Ruggiero testified that on July 10, 2018 at 7:21 p.m. he was dispatched for a noise complaint from 29 Pleasant Street (Cohn residence) related to the Mad Minnow. He said he parked behind the Mad Minnow and couldn't hear the music at first but then he heard guitar music and singing. He said he spoke to the manager and advised him of the complaint. He said he watched the manager turn down the speaker. He stated that he then went to the Cohn residence and could faintly hear the music from the backyard. Mr. Cohn confirmed Officer Ruggiero's account of the events.

Officer Donovan testified that on July 29, 2018 at 5:43 p.m. he received a noise complaint that came from 29 Pleasant Street. He said he passed through the Mad Minnow parking lot and there was no music

happening and he guessed there was a break in the set. He said he went to 29 Pleasant Street and spoke to Mr. Cohn at which time the music started again. He stated that it was audible and he could hear the music clearly. He stated that the distance was at least 150 feet and he told Mr. Cohn they would document it. He said he did not return to the Mad Minnow. Mr. Cohn confirmed Officer Donovan's account of events.

Lt. Considine reported that on July 31, 2018 at 8:20 p.m. he was dispatched for a noise complaint from 29 Pleasant Street. He said he drove through the Mad Minnow lot and there was no music at that time. He stated that he went to the Cohn residence and could clearly hear music from the Mad Minnow. He stated that he went to the area of Miles and Cross Streets which is a considerable distance away and could clearly hear the music. He said he explained to Mr. Gullotti of the Mad Minnow that this was a violation of the Noise By-Law and that Mr. Gullotti said they don't want any issues and would turn the music down. He said that Mr. Gullotti said he wasn't aware of the other violations. Mr. Cohn confirmed Lt. Considine's account of events.

Mr. Gullotti said they have two restaurants and he isn't always at the Harwich location in July and August. He said he didn't know they were having issues. He said it is a very busy time and that Mr. Strangfeld had not had any discussions with him about this. He explained that there are four partners in the business which include himself and Mr. Strangfeld as well as their wives who are not actively involved in the business.

Mr. Clark said that based on the information presented, the noise violations of July 3, 29, and 31 have been substantiated and there was no violation observed on July 10, 2018. Mr. Clark asked Chief Guillemette for his recommendation and Chief Guillemette said these are first events and he would deal with them the way we have dealt with other first offenders. Mr. Clark explained that he believes in a progressive course of discipline and noted that the license holder tried to be compliant. He said he leans toward a sending them a warning letter. Mr. Gullotti said the time was fairly early and July 3 is the busiest night of the summer. He also noted that there were no other complaints from any one else including the timeshare building immediately adjacent to them. He said they typically only have one to two entertainers and it is mostly one person with a guitar. He added that he doesn't think the music is that loud but they will have to re-evaluate going forward. Mr. Clark suggested they set up the music further back and project toward the building. Chief Guillemette confirmed that there were no other complaints.

Mr. Clark said he would put his recommendation on the Board of Selectmen agenda.

Mr. Clark closed the hearing at 10:51 a.m.

Submitted by,

Ann Steidel
Support Staff Supervisor

OFFICE OF THE SELECTMEN

PHONE (508) 430-7513
FAX (508) 432-5039

732 MAIN STREET, HARWICH, MA 02645

September 25, 2018

Mr. Michael Strangfeld
Mad Minnow
554 Route 28
Harwich Port, MA 02646

Subject: Letter of Warning – Violations of Entertainment License

Dear Mr. Strangfeld:

At a meeting of the Board of Selectmen held on Monday, September 24, 2018, the Board voted to issue you the following warning notice relating to violations of the conditions of Mad Minnow's Entertainment Licenses on July 3, 2018, July 29, 2018 and July 31, 2018, per the recommendation of the Town Administrator:

> **You are hereby notified that the Board intends to follow a progressive course of discipline, if needed, up to and including revocation of Entertainment License and/or Liquor License for any future violations.**

The Board recognizes that this season was the first with significant complaints and has the highest expectation that in the future you will comply with the conditions of your license.

Sincerely,

Julie E. Kavanagh, Chair

Larry G. Ballantine

Edward J. McManus

Michael D. MacAskill

Donald F. Howell

cc: Chief David Guillemette

Town of Harwich
Five Year Financial Plan
FY 2020-2024

Board of Selectmen

9/24/2018

…..

Prepared by: Christopher Clark and Carol Coppola

Town of Harwich
Five Year Financial Plan
2020 - 2024

9/19/2018	2020 - 2024 Assumptions Five Year Plan

SOURCES

Property Tax

Property Tax (Base)	*Prior year ending Tax Levy Limit ……..*
Statutory Increase 2.5 %	*Statutory increase 2.5% per Year……..*
Growth	*Growth is estimate at $250,000 per year……..*
Capital Exclusion	*As approved by ATM /STM……*
Debt	*Per Financial Advisor/Finance Director and includes proposed debt*
General Override	*NO General Overrides or/ Under ride included in plan……..*
Overlay Surplus	*Per Assessor $ 100,000 per Year 2020 - 2024……*
Community Preserv. Act	*Community Preservation Committee Debt Service (Land Bank Only) - Paid in full 2024 ……*
Provision for Abatement/Exempt	*Plan at $ 460,000 for FY 2020 plus $10,000 each year thru FY 2024…….*

Non-Property Tax

State Aid Gross	*Trend line projection based upon past history; ……*
MSBA Reimbursement	*Ended in 2017*
State Assessments	*2.5 % increase or based on actual assessments……*
Motor Vehicle Excise	*Based on FY 18 Actual……..*
Other Local Receipts	*Based on FY 18 Actual with the exception of the harbor department……*
Other Available Funds	*Recap Sch. B-2 {Comcast, Septic, Road & Harbors Betterments, Waterways, Mooring and Golf Improvement)*
CVEC and Solid Waste	*Based on current trends and price increase……*
Harbor Department	*FY 18 department rate increase of 10%* *Visitor dockage, fuel concession and offloading permits impacted in FY 18 due to construction*
Motel / Hotel Tax	*Based on FY 18 Actual……..*
Meal Tax	*Based on FY 18 Actual……..*

USES

EXPENDITURES

Operating Expenses

Salaries and Wages	*2.25% Annual Salary increases for FY 20 - 24……*
Medicare	*1.45% of total S&W, commence assessing Golf and Harbor department costs in FY 20*
General Expenses	*FY 18 Actual plus 2%, adjustments by exception all other years plus 1.5%……*
Solid waste	*Tipping fees increased from $140.00 to $145.00 effective December, 2017……*
Unemployment	*Plan $20,000/yr for FY 20-24 ($40,000 - FY 20-24 for Golf unemployment costs)……*
Legal	*Increase $5K per year*

Town of Harwich
Five Year Financial Plan
2020 - 2024

9/19/2018	2020 - 2024 Assumptions Five Year Plan	

USES

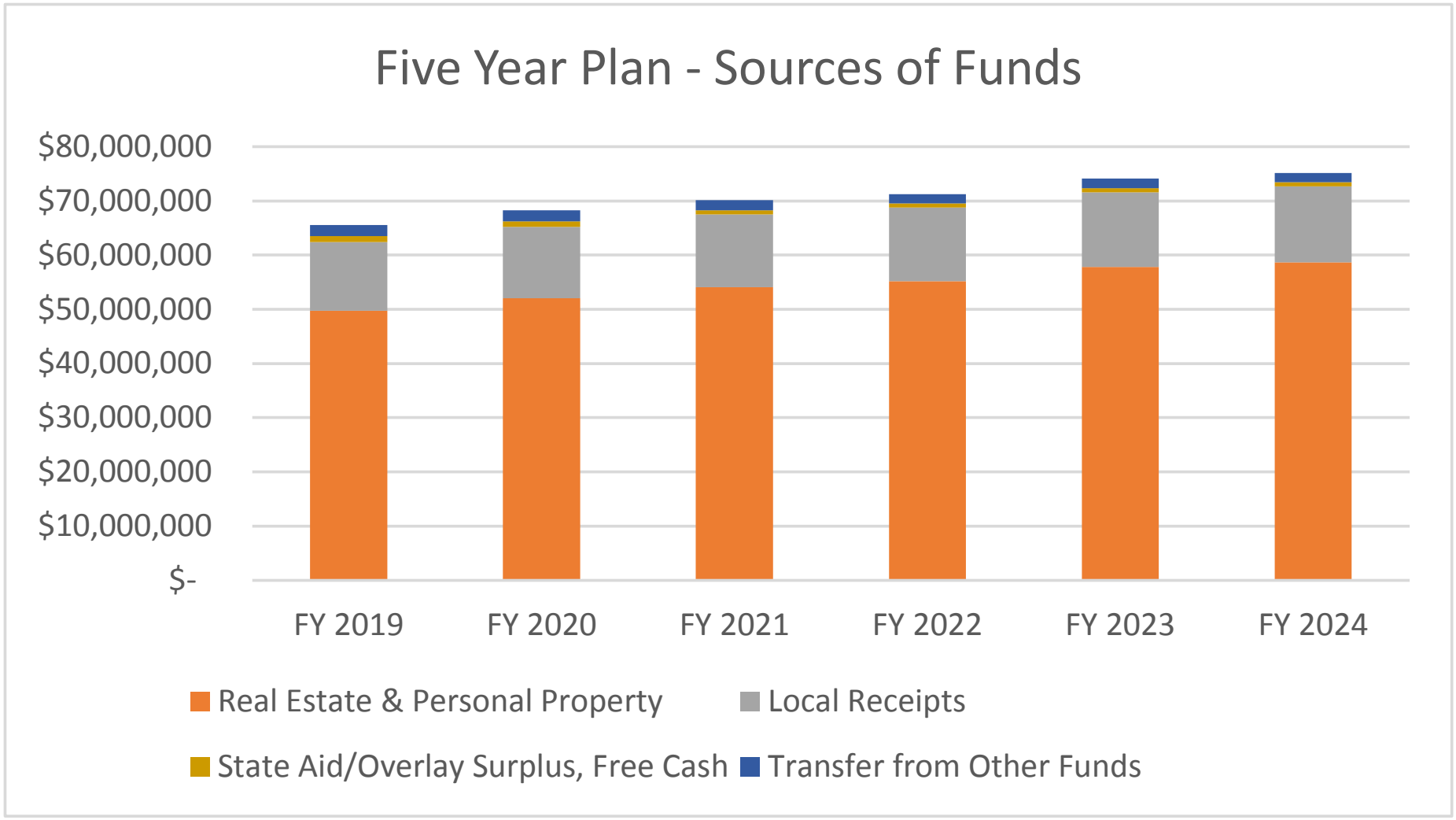
EXPENDITURES

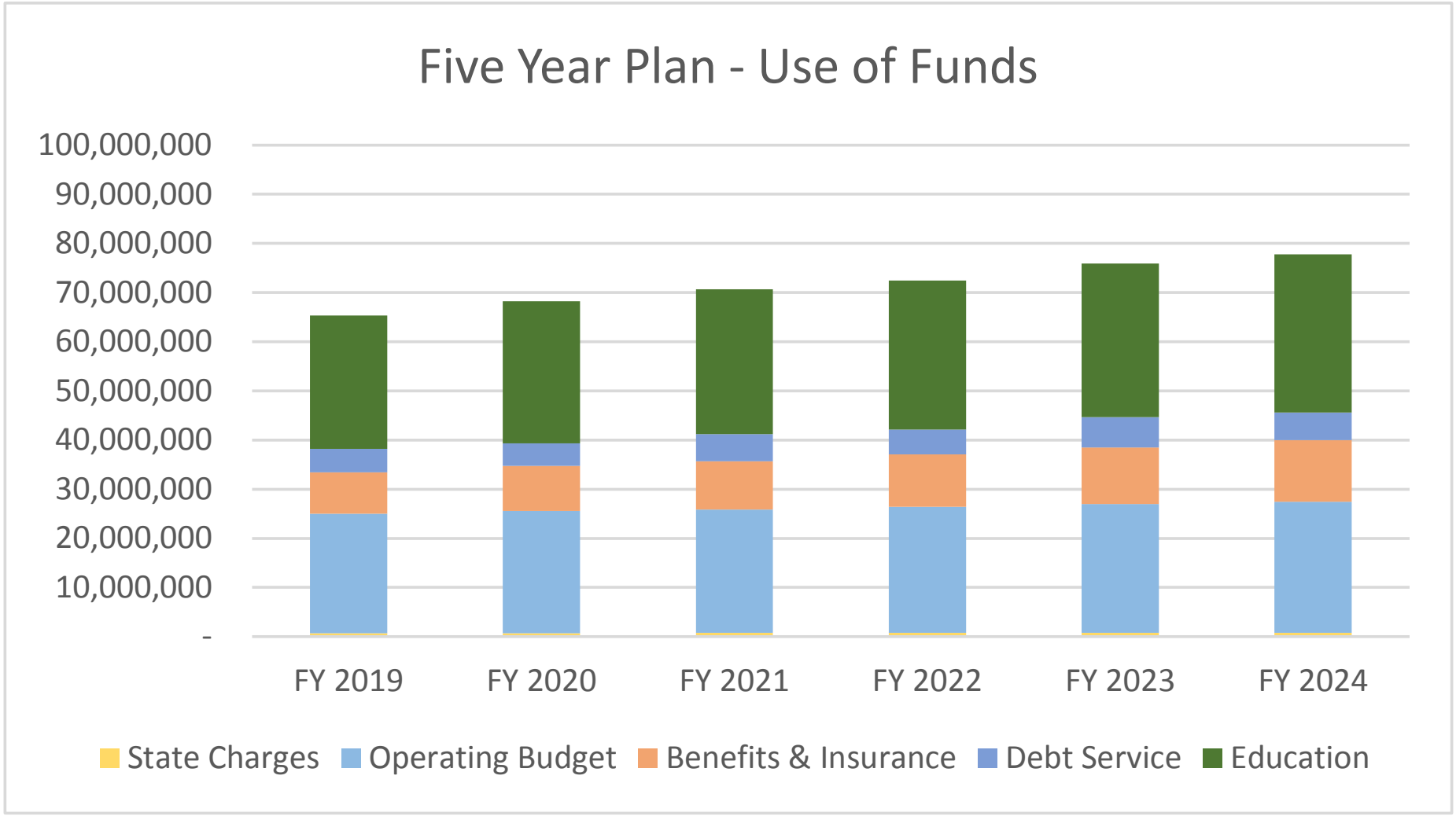
Municipal (continue)

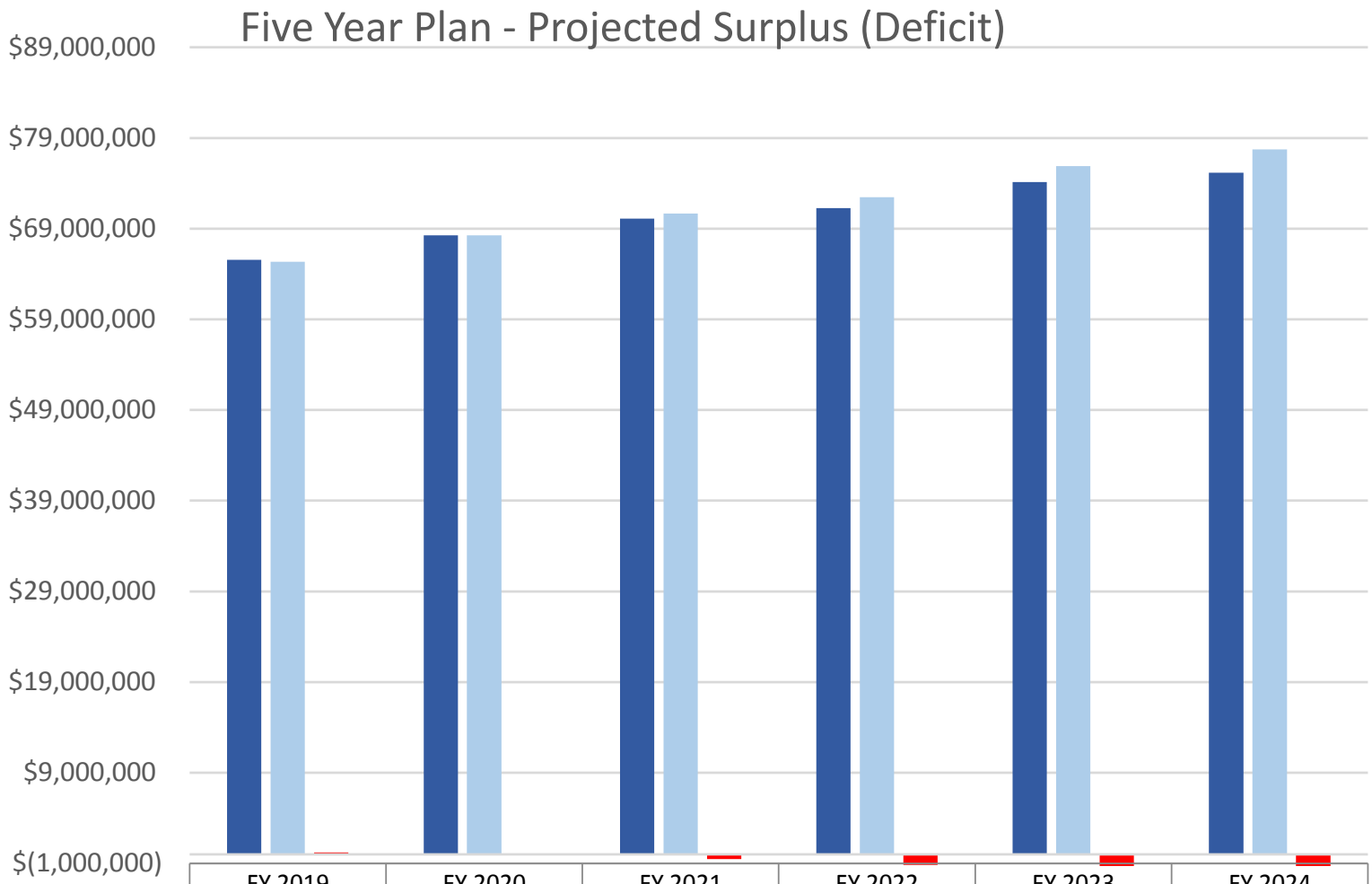
Group Health Insurance	***2020-2024 - 10%***	
OPEB	***Increases $50K per year***	
Pensions- Barnstable County	***5.28% increases for FY 2019-2023 according to Barnstable County Administrator, predicated on a 7.625% investment return - fully funded 2036……***	
Property / Liability Ins.	***MIIA FY 20 for town only plus 3.0% per year through 2024……***	
Harbor Property Ins.	***Capital Improvements of $11M premium increase of $30K in FY 19***	
Debt	***Total Principal and Interest on existing, authorized & unissued and projected debt 2020-2024***	
	Note: Authorized and Unissued Debt, as of July 1, 2018 is $44,445,150	
State/County Assessments	***2.5% annual increase on municipal accounts or based on acutal assessments ….……***	

Education

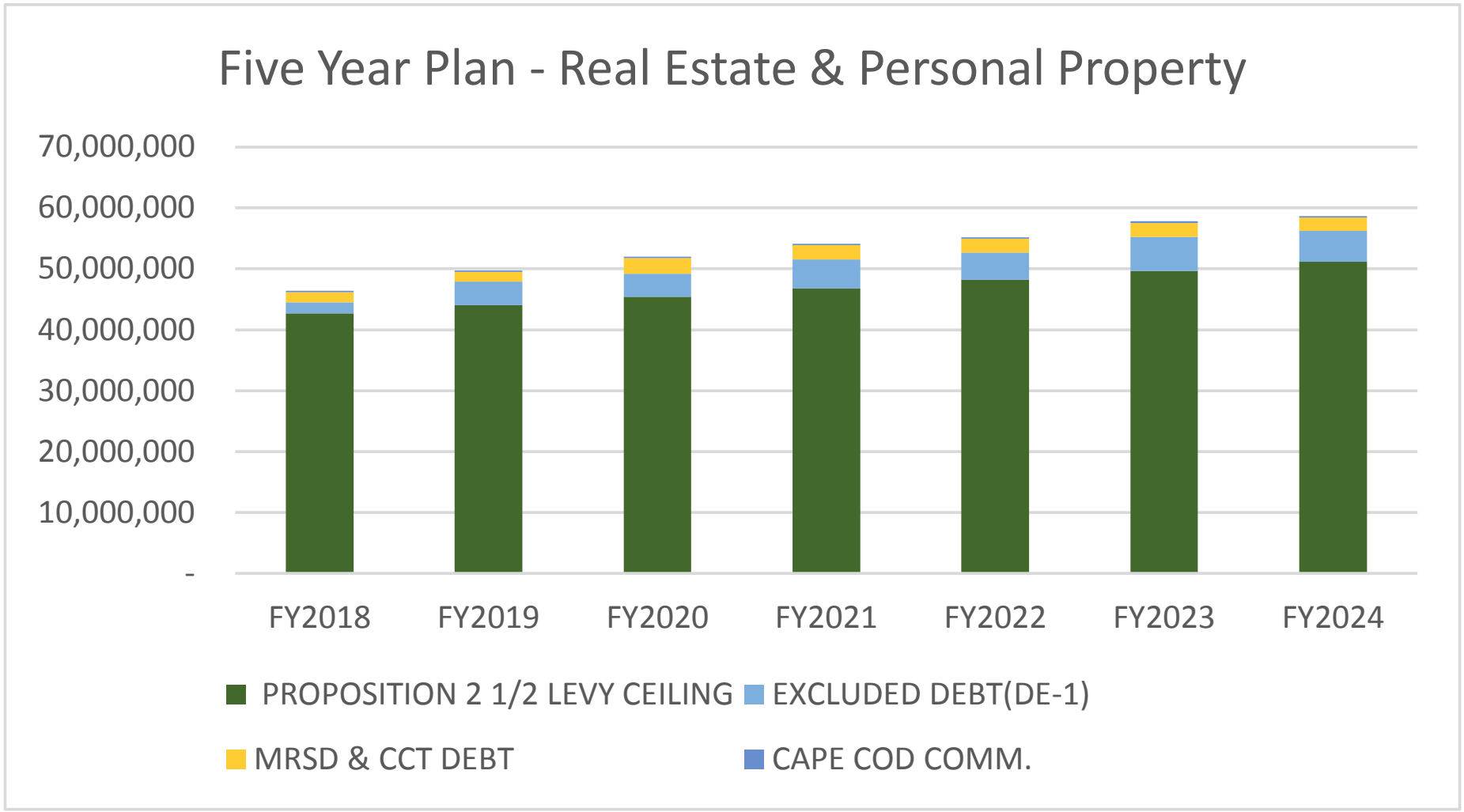
C.C. Technical High	***Per Ed Reform Calculation***	**Current projections are FY 19 plus 0 new students Budget + 3.25% 2020-2024**
C.C. Technical High - Debt Svc		**FY 2020 - 2024 Principal & Interest - New Construction**
		Total project cost = $127,062,881, Harwich Assessment FY 19 13.1%
		FY 20 Debt $998,103 and FY 21 Debt $809,040; declining balance
Monomoy Regional Schools		***Pending Information by Region***
MRSD-Operating	***Per Regional Agreement***	**Operating Budget increase by 3.25%**
MRSD-Capital	***Per Regional Agreement***	**Capital Budget $200,000**
MRSD-Debt Service- Middle Sch	***Per Regional Agreement***	***FY 19 Final Payment***
MRSD-Debt Service H.S. BAN	***Per Regional Agreement***	***$240,000 BAN outstanding, Harwich portion 72% to be paid over 3 yrs***
MRSD-Debt Service H.S.	***Per Regional Agreement***	***Debt Service 9/16/2014 2016-2040……Interest @ 3.07%…25Year……***
MRSD - Debt Service - Roof		***MRSD Debt FY 19 $1,636,241, FY 20 $1,620,367***
		Est 1.9M project anticipated 2022, FY 2023 first year Principal & Interest


Five Year Plan - Sources of Funds
$80,000,000
$70,000,000
$60,000,000
$50,000,000
$40,000,000
$30,000,000
$20,000,000
$10,000,000
$-
FY 2019
FY 2020
FY 2021
FY 2022
FY 2023
FY 2024
Real Estate & Personal Property
Local Receipts
State Aid/Overlay Surplus, Free Cash
Transfer from Other Funds

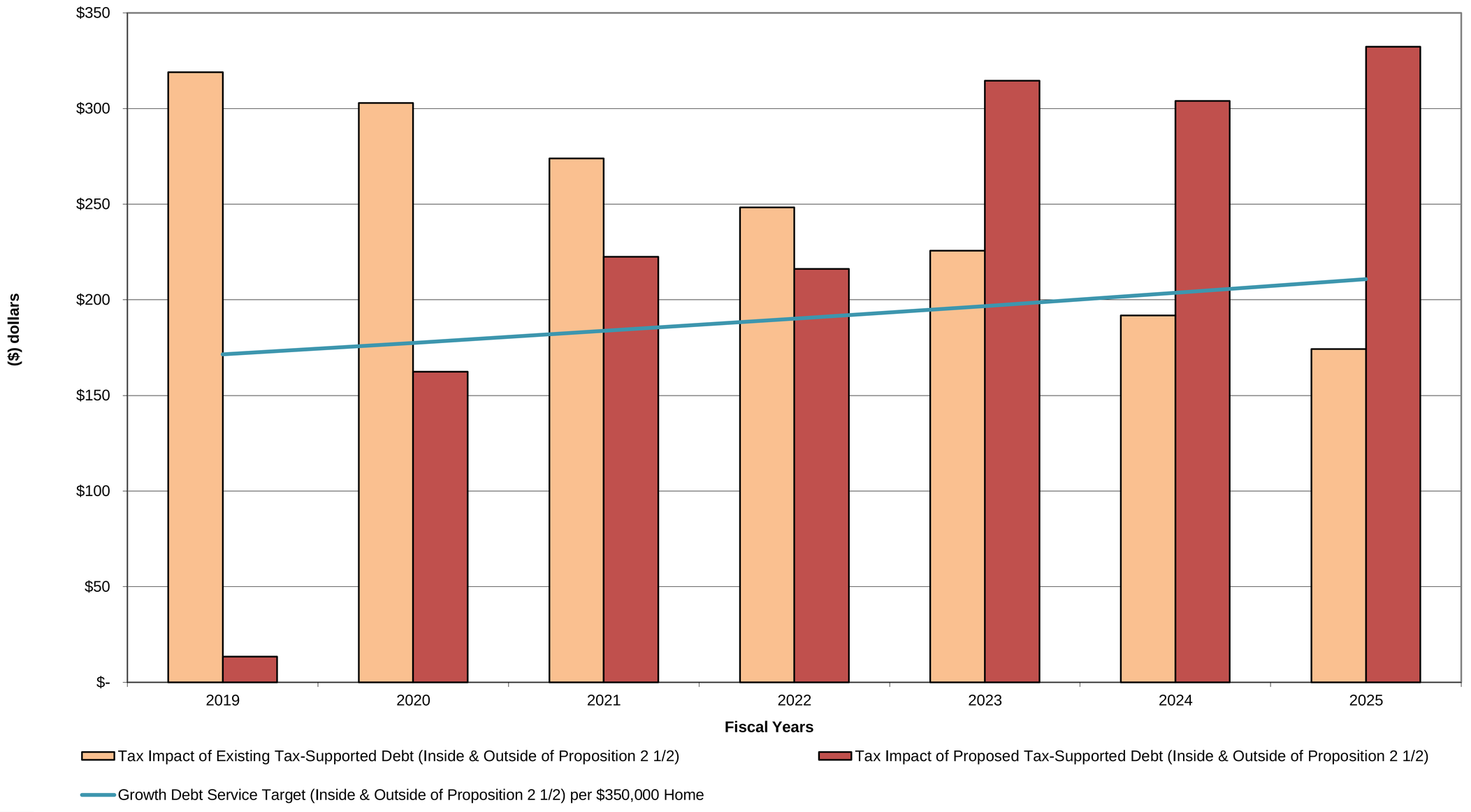

Five Year Plan - Use of Funds
100,000,000
90,000,000
80,000,000
70,000,000
60,000,000
50,000,000
40,000,000
30,000,000
20,000,000
10,000,000
-
FY 2019
FY 2020
FY 2021
FY 2022
FY 2023
FY 2024
State Charges
Operating Budget
Benefits & Insurance
Debt Service
Education



	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Revenue	$65,554,007	$68,270,901	$70,123,393	$71,279,433	$74,138,950	$75,176,093
Expenses	$65,352,580	$68,265,334	$70,656,553	$72,445,440	$75,872,514	$77,740,922
Projected Surplus (Deficit)	$201,427	$5,567	$(533,160)	$(1,166,007)	$(1,733,563)	$(2,564,830)

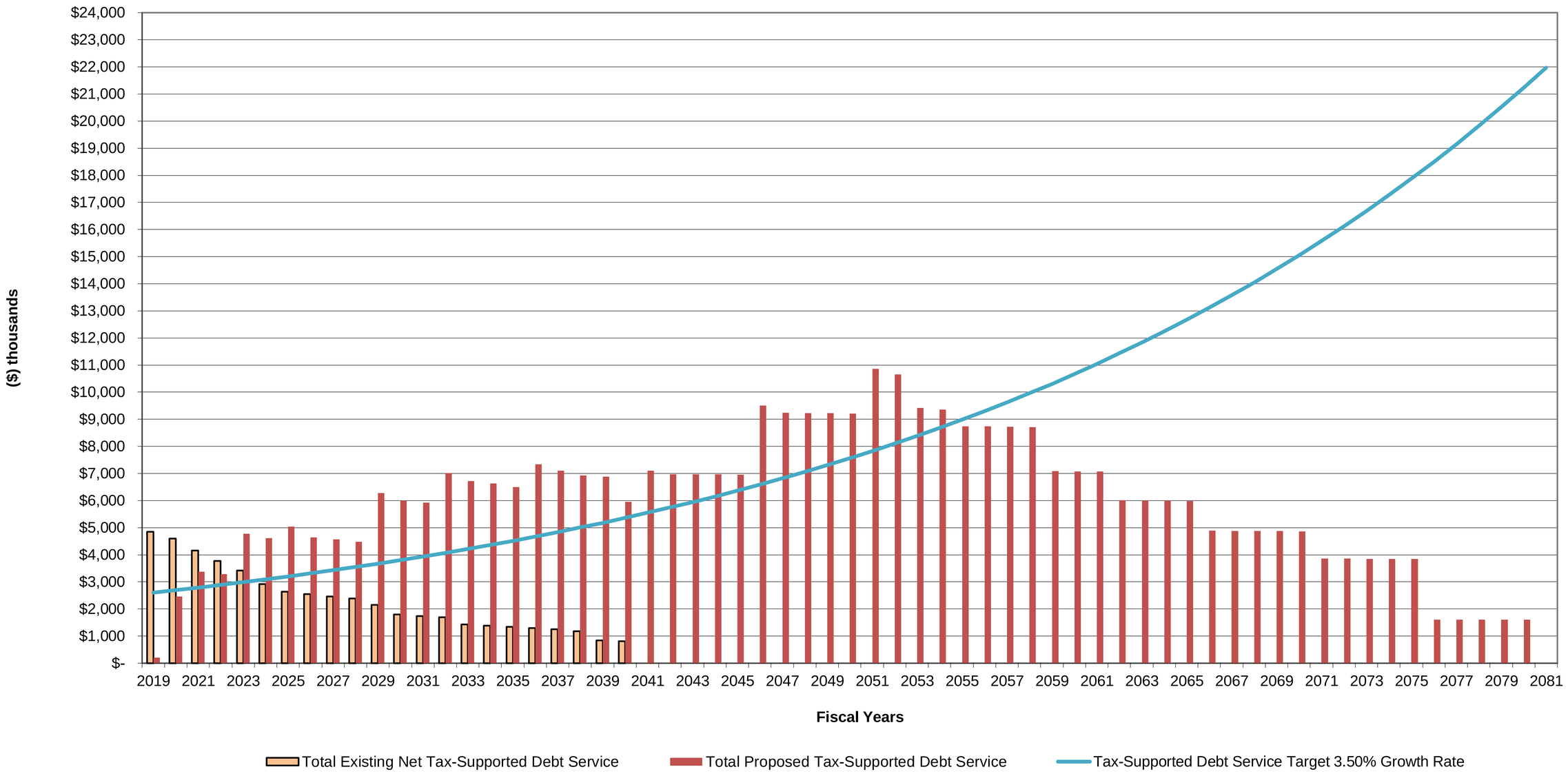

Five Year Plan - Real Estate & Personal Property
70,000,000
60,000,000
50,000,000
40,000,000
30,000,000
20,000,000
10,000,000
-
FY2018
FY2019
FY2020
FY2021
FY2022
FY2023
FY2024
PROPOSITION 2 1/2 LEVY CEILING
EXCLUDED DEBT(DE-1)
MRSD & CCT DEBT
CAPE COD COMM.

Town of Harwich, Massachusetts
Existing and Proposed Tax-Supported Debt Service* (i.e. Excludes Self-Supporting Debt)
Inside & Outside of Proposition 2 1/2:
Estimated Tax Impact on Average Single Family Home - $350,000 value



*Assumes estimated interest rates and fees; preliminary and subject to change.

Town of Harwich, Massachusetts
Existing and Proposed <u>Tax-Supported</u> Debt Service* (i.e. Excludes Self-Supporting Debt) by Category:
Includes MCWT Fees*



*Assumes estimated interest rates and fees; preliminary and subject

Questions?

…..

Line #	Town of Harwich Five Year Plan 2020-2024 SOURCES OF FUNDS	Five Year Plan FY 2019	Five Year Plan FY 2020	Five Year Plan FY 2021	Five Year Plan FY 2022	Five Year Plan FY 2023	Five Year Plan FY 2024
1	Levy Limit	$ 49,763,541	$ 52,016,733	$ 54,101,640	$ 55,157,636	$ 57,805,065	$ 58,699,166
2	Local Receipts	12,611,407	13,224,353	13,401,168	13,580,558	13,762,302	13,947,230
3	**Other Revenues**						
5	State Aid						
6	Cherry Sheet	680,299	686,980	693,760	700,643	707,629	714,719
7	Overlay Surplus	100,000	100,000	100,000	100,000	100,000	100,000
8	**OFS (Transfers in)**						
9	Free Cash	378,038	200,000	-	-	-	-
10	Cable (Comcast)	156,450	159,893	163,253	166,686	170,192	173,773
11	Septic Loan	17,358	16,950	17,171	6,121	6,121	6,121
12	Water Indirect	732,843	751,164	769,943	789,192	808,922	829,145
13	Harwich Emg. Mgt.	13,608	13,723	13,840	13,961	14,083	14,209
14	Golf Improvements	75,600	125,100	117,158	113,918	113,918	110,678
15	SAQ Harbor Waterways	70,125	155,623	150,174	109,440	109,440	105,687
16	SAQ Harbor Mooring	103,125	123,300	119,274	114,489	114,489	110,571
17	Road/ Harbor Betterments	247,278	143,382	134,261	193,739	193,739	143,271
18	Town Clerk	15,585					
19	CPA Funds (land bank)	588,750	553,700	341,750	233,050	233,050	221,525
20	**TOTAL SOURCES**	**$ 65,554,007**	**$ 68,270,901**	**$ 70,123,393**	**$ 71,279,433**	**$ 74,138,950**	**$ 75,176,093**
21							
22	**USES OF FUNDS**						
23	**Charges:**						
24	State-Cherry Sheet Charges	701,651	719,192	737,172	755,601	774,491	793,854
25	Overlay (Abatements- Taxes)	460,000	470,000	480,000	490,000	500,000	510,000
26	**TOTAL CHARGES**	**1,161,651**	**1,189,192**	**1,217,172**	**1,245,601**	**1,274,491**	**1,303,854**
27							
28	**NET AVAILABLE Sources**	**$ 64,392,356**	**$ 67,081,709**	**$ 68,906,221**	**$ 70,033,831**	**$ 72,864,459**	**$ 73,872,239**
29							
30	**Operating Plan Town**	**$ 23,804,025**	**$ 24,262,152**	**$ 24,370,988**	**$ 24,861,501**	**$ 25,365,644**	**$ 25,876,849**
31	**Fixed Cost**						
32	Barnstable County Retirement	2,763,836	2,909,767	3,063,402	3,225,150	3,395,438	3,574,717
33	**Debt Service**	**4,762,464**	**4,620,134**	**5,472,696**	**5,059,553**	**6,133,835**	**5,655,882**
34	Health Insurance	4,778,977	5,256,875	5,782,562	6,360,818	6,996,900	7,696,590
35	Property & Liab. Insurance	686,000	747,330	769,300	791,929	815,237	839,244
36	Transfer To Wastewater	70,000	150,000	250,000	300,000	300,000	300,000
37	OPEB	125,000	175,000	225,000	275,000	325,000	375,000
38	Unemployment Insurance	10,000	20,000	20,000	20,000	20,000	20,000
39	**Total Fixed Cost**	13,196,277	13,879,105	15,582,960	16,032,450	17,986,410	18,461,433
40	**Education**						
41	**Cape Cod Tech**	1,581,237	1,632,627	1,685,688	1,740,472	1,797,038	1,855,442
42	**Cape Cod Tech - Debt Service**		998,103	809,040	791,853	774,665	757,478
43	**Monomoy Regional School District**	23,973,149	24,683,787	25,479,510	26,301,094	27,149,380	28,025,235
44	**MRSD Debt Service**	1,636,241	1,620,367	1,511,195	1,472,468	1,524,886	1,460,632
45	**TOTAL USES**	**$ 65,352,580**	**$ 68,265,334**	**$ 70,656,553**	**$ 72,445,440**	**$ 75,872,514**	**$ 77,740,922**
46							
47	**NET SOURCES & USES**	**$ 201,427**	**$ 5,567**	**$ (533,160)**	**$ (1,166,007)**	**$ (1,733,563)**	**$ (2,564,830)**

Town of Harwich
Five Year Financial Plan
FY 2020 - 2024
Raise and Appropriate

Five Year Financial Plan

Raise & Appropriate

	Recap FY2018	Five Year Plan FY2019	Five Year Plan FY2020	Five Year Plan FY2021	Five Year Plan FY2022	Five Year Plan FY2023	Five Year Plan FY2024
BASE LEVY LIMIT	$ 41,283,806	$ 42,683,458	$ 44,050,047	$ 45,401,299	$ 46,786,331	$ 48,205,989	$ 49,661,139
PLUS 2.5% LEVY	1,033,372	1,067,086	1,101,251	1,135,032	1,169,658	1,205,150	1,241,528
PLUS GROWTH	366,280	250,000	250,000	250,000	250,000	250,000	250,000
Excess Levy Capacity	-	49,503					
SUBTOTAL	**42,683,458**	**44,050,047**	**45,401,299**	**46,786,331**	**48,205,989**	**49,661,139**	**51,152,668**
CAPITAL EXCLUSION	420,000						
EXCLUDED DEBT(DE-1)	1,853,615	3,879,279	3,767,513	4,759,886	4,446,258	5,597,280	5,068,784
MRSD & CCT DEBT	1,635,757	1,611,912	2,618,470	2,320,235	2,264,321	2,299,551	2,218,110
CAPE COD COMM.	217,944	222,303	229,452	235,188	241,068	247,095	259,604
SUBTOTAL	**4,127,316**	**5,713,494**	**6,615,435**	**7,315,309**	**6,951,647**	**8,143,926**	**7,546,498**
LEVY LIMIT	**$ 46,810,774**	**$ 49,763,541**	**$ 52,016,733**	**$ 54,101,640**	**$ 55,157,636**	**$ 57,805,065**	**$ 58,699,166**
Tax Increase	**4.02%**	**6.31%**	**4.53%**	**4.01%**	**1.95%**	**4.80%**	**1.55%**
Tax Increase in Dollars	**$ 1,810,646**	**$ 2,952,767**	**$ 2,253,192**	**$ 2,084,907**	**$ 1,055,996**	**$ 2,647,429**	**$ 894,101**

DRAFT

Harwich Board of Selectmen Resolution in Support of the Wequassett Inn and the Wychmere Beach Club

September 24, 2018

Whereas, the Wequassett Inn and the Wychmere Beach Club located in Harwich and important members of our economic and residential community

Whereas, the Wequassett Inn and the Wychmere Beach Club are significant contributors to the town's tax base and employment opportunities

Whereas, both are important drivers of the town town's vital tourist industry

Whereas, the Wequassett Inn and the Wychmere Beach Club continue to provide community support in hosting community meetings and discussion,

Whereas, the Wequassett Inn and the Wychmere Beach Club each have taken the extra step of building alternative septic systems for enhanced nitrogen removal,

Whereas, the Wequassett Inn and the Wychmere Beach Club each have wastewater permits from the Massachusetts Department of Environmental Protection

Whereas, the town has an approved Comprehensive Wastewater Management Plan to improve and protect the towns water resources

Whereas, Phase 1 of the CWMP, improving flushing of Muddy Creek, has been implemented and Phase 2, sewering of a significant portion of the Muddy Creek watershed, is underway with passage of ~ $25M article at the last Annual Town Meeting with construction scheduled for 2019

Whereas, the Wequassett Inn and the Wychmere Beach Club, although not specifically part of the plan, played an important role by adding enhanced nitrogen removal systems to their facilities

Therefore, **Be it Resolved** in recognition of the Wequassett Inn's and the Wychmere Beach Club's many contributions to the town and its role in the overall protection of Harwich's water resources that the Harwich Board of Selectmen fully support their position.

Selectmen:

Town Administrator:

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part I: General Conditions

General Information

Name of Municipality or Organization: Harwich | State: MA

EPA NPDES Permit Number (if applicable): MAR041120

Primary MS4 Program Manager Contact Information

Name: Robert Cafarelli, PE | Title: Town Engineer

Street Address Line 1: 732 Main Street

Street Address Line 2:

City: Harwich | State: MA | Zip Code: 02645

Email: rcafarelli@town.harwich.ma | Phone Number: (508) 430-7508

Fax Number:

Other Information

Stormwater Management Program (SWMP) Location (web address or physical location, if already completed): SWMP is under preparation.

Eligibility Determination

Endangered Species Act (ESA) Determination Complete? Yes

Eligibility Criteria (check all that apply): ☐ A ☒ B ☐ C

National Historic Preservation Act (NHPA) Determination Complete? Yes

Eligibility Criteria (check all that apply): ☒ A ☐ B ☐ C

☑ Check the box if your municipality or organization was covered under the 2003 MS4 General Permit

MS4 Infrastructure (if covered under the 2003 permit)

Estimated Percent of Outfall Map Complete? *(Part II, III, IV or V, Subpart B.3.(a.) of 2003 permit)*: 100%

If 100% of 2003 requirements not met, enter an estimated date of completion (MM/DD/YY):

Web address where MS4 map is published:

If outfall map is unavailable on the internet an electronic or paper copy of the outfall map must be included with NOI submission (see section V for submission options)

Outfall map included in Attachment B.

Regulatory Authorities (if covered under the 2003 permit)

Illicit Discharge Detection and Elimination (IDDE) Authority Adopted? *(Part II, III, IV or V, Subpart B.3.(b.) of 2003 permit)*: No

Effective Date or Estimated Date of Adoption (MM/DD/YY):

Construction/Erosion and Sediment Control (ESC) Authority Adopted? *(Part II,III,IV or V, Subpart B.4.(a.) of 2003 permit)*: Yes

Effective Date or Estimated Date of Adoption (MM/DD/YY): 05/11/10

Post- Construction Stormwater Management Adopted? *(Part II, III, IV or V, Subpart B.5.(a.) of 2003 permit)*: No

Effective Date or Estimated Date of Adoption (MM/DD/YY):

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part II: Summary of Receiving Waters

Please list the waterbody segments to which your MS4 discharges. For each waterbody segment, please report the number of outfalls discharging into it and, if applicable, any impairments.

Massachusetts list of impaired waters: *Massachusetts 2014 List of Impaired Waters-* http://www.mass.gov/eea/docs/dep/water/resources/07v5/14list2.pdf

Check off relevant pollutants for discharges to impaired waterbodies (see above 303(d) lists) without an approved TMDL in accordance with part 2.2.2.a of the permit. List any other pollutants in the last column, if applicable.

Waterbody segment that receives flow from the MS4	**Number of outfalls into receiving water segment**	**Chloride**	**Chlorophyll-a**	**Dissolved Oxygen/ DO Saturation**	**Nitrogen**	**Oil & Grease/ PAH**	**Phosphorus**	**Solids/ TSS/ Turbidity**	**E. coli**	**Enterococcus**	**Other pollutant(s) causing impairments**
Atlantic Ocean	5	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Herring River (MA96-22)	4	☐	☐	☐	☒	☐	☐	☐	☐	☐	*TMDLs for Fecal Coliform
Wychmere Harbor (MA96-96)	3	☐	☐	☐	☒	☐	☐	☐	☐	☐	
Saquatucket Harbor (MA96-23)	3	☐	☐	☐	☒	☐	☐	☐	☐	☐	*TMDLs for Fecal Coliform
Carding Brook	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Outlet stream from Skinequit Pond	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Grass Pond Bog	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
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Click to lengthen table

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary

Identify the Best Management Practices (BMPs) that will be employed to address each of the six Minimum Control Measures (MCMs). For municipalities/organizations whose MS4 discharges into a receiving water with an approved Total Maximum Daily Load (TMDL) and an applicable waste load allocation (WLA), identify any additional BMPs employed to specifically support the achievement of the WLA in the TMDL section at the end of part III.

For each MCM, list each existing or proposed BMP by category and provide a brief description, responsible parties/departments, measurable goals, and the year the BMP will be employed (public education and outreach BMPs also requires a target audience). **Use the drop-down menus in each table or enter your own text to override the drop down menu.**

MCM 1: Public Education and Outreach

BMP Media/Category (enter your own text to override the drop down menu)	**BMP Description**	**Targeted Audience**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal**	**Beginning Year of BMP Imple-mentation**
Brochures/Pamphlets	Flyers and mailers sent for hazardous waste days	Residents	Highways and Maintenance	Continue to distribute flyers and mailers to residents	2018
Web Page	Use outreach materials and guidance from various sources (Think Blue Massachusetts, MassDEP, Cape Cod Stormwater) for posting online. This will implement outreach for relevant impairments town wide. See: https://www.thinkbluemassachusetts.org/for-businesses	Businesses, Institutions and Commercial Facilities	Conservation, Planning, Building, Highways and Maintenance	Provide links to websites within town website. The links will be catered towards commercial facilities.	2020

Web Page	A web page containing stormwater education materials posted within the Town web site marked as "Important Stormwater Management Information for Developers" – with a collection of links to relevant educational material	Developers (construction)	Planning, Highways and Maintenance, Building	Create website with at least 3 links targeted to developers or the construction industry	2019
Web Page	Post web links and guidance from various sources (Think Blue Massachusetts, MassDEP, Cape Cod Stormwater, etc.) specific to industrial facilities to the town website. This will implement outreach for relevant impairments town wide.	Industrial Facilities	Conservation, Planning, Building, Highways and Maintenance	Provide links to websites within town website that are catered towards industrial facilities	2019
Web Page	Post homeowners guide to Town website that includes pollution reduction techniques for the homeowner	Residents	Planning Department, Building Department	Continue to offer homeowners guide on town website	2018
Brochures/Pamphlets	Use Think Blue Massachusetts outreach materials and guidance This will implement outreach for relevant impairments town wide. Example: https://www.thinkbluemassachusetts.org/for-businesses	Businesses, Institutions and Commercial Facilities	Conservation, Planning, Building, Highways and Maintenance	Distribute brochures to businesses Institutions and commercial facilities	2019

Meeting, Design Recommendations, Handou	Provide education on recommended stormwater / erosion control practices by providing fact sheets and diagrams and through meeting with applicants.	Developers (construction)	Planning Department, Building Department	Provide each developer that applies for a permit with printed brochures and/or advice regarding stormwater management guidelines	2019
Brochures/Pamphlets	Use outreach materials and guidance from various web sources (Think Blue Massachusetts, MassDEP, Cape Cod Stormwater) for posting online. This will implement outreach for relevant impairments town wide. Example: https://www.thinkbluemassachusetts.org/for-industry	Industrial Facilities	Conservation, Planning, Building, Highways and Maintenance	Distribute brochures to industrial facilities	2020

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 2: Public Involvement and Participation

BMP Categorization	Brief BMP Description (enter your own text to override the drop down menu)	Responsible Department/Parties (enter your own text to override the drop down menu)	Additional Description/ Measurable Goal	Beginning Year of BMP Imple-mentation
Public Review	SWMP available for review online and at Town Hall	Planning Department, Building Department, Highways and Maintenance	Allow annual review of stormwater management plan and posting of stormwater management plan on website	2019
Public Participation	Beach Clean-up Teams	Great Sand Lakes Association, Harwich Conservation Trust, Conservation Commis	Continue to clean two miles of beach annually	2018
Public Participation	Hazardous Waste Collection Days	Highways and Maintenance	Continue to sponsor at least 3 hazardous waste collection days annually	2018
Public Participation	Offer oil and antifreeze collection and recycling	Highways and Maintenance	Continue to offer collection and recycling	2018
Public Participation	Public hearings/meetings	Planning Department, Building Department	Continue to hold public hearings/meetings where rules and regulations are reviewed for compliance with stormwater regulations	2018

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 3: Illicit Discharge Detection and Elimination (IDDE)

BMP Categorization (enter your own text to override the drop down menu)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)	**Beginning Year of BMP Imple-mentation**
SSO inventory	Develop SSO inventory in accordance of permit conditions	Engineering, Consultant, Highways and Maintenance	There are no sanitary sewers in Harwich, this is not applicable	2018
Storm sewer system map	Create map and update during IDDE program completion	Engineering, Consultant, Highways and Maintenance	Update map within 2 years of effective date of permit and complete full system map 10 years after effective date of permit	2020
Written IDDE program	Create written IDDE program	Engineering, Consultant, Highways and Maintenance	Complete within 1 year of the effective date of permit and update as required	2019
Implement catchment investigations portion of IDDE program	Implement catchment investigations according to program and permit conditions	Engineering, Consultant, Highways and Maintenance	Complete catchment investigations in accordance with outfall screening procedure and permit conditions	2020
Employee training	Train employees on IDDE implementation	Engineering, Consultant, Highways and Maintenance	Train annually	2019
Conduct dry weather screening	Conduct in accordance with outfall screening procedure and permit conditions	Engineering, Consultant, Highways and Maintenance	Complete 3 years after effective date of permit	2020
Conduct wet weather screening	Conduct in accordance with outfall screening procedure	Engineering, Consultant, Highways and Maintenance	Complete in accordance with outfall screening procedure and permit conditions	2021
Ongoing screening	Conduct dry weather and wet weather screening (as necessary)	Engineering, Consultant, Highways and Maintenance	Complete ongoing outfall screening upon completion of IDDE program if needed	2022

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 4: Construction Site Stormwater Runoff Control

BMP Categorization (enter your own text to override the drop down menu or entered text)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)	**Beginning Year of BMP Imple-mentation**
Site inspection and enforcement of Erosion and Sediment Control (ESC) measures	Complete written procedures of site inspections and enforcement procedures	Building Department, Conservation, Planning	Complete within 1 year of the effective date of permit	2019
Site plan review	Complete written procedures of site plan review and begin implementation	Building Department, Conservation, Planning	Complete within 1 year of the effective date of permit	2019
Erosion and Sediment Control	Adoption of requirements for construction operators to implement a sediment and erosion control program	Building Department, Conservation, Planning	Complete within 1 year of the effective date of permit	2019
Waste Control	Adoption of requirements to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes	Building Department, Conservation, Planning	Complete within 1 year of the effective date of permit	2019

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 5: Post-Construction Stormwater Management in New Development and Redevelopment

BMP Categorization (enter your own text to override the drop down menu or entered text)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)	**Beginning Year of BMP Imple-mentation**
As-built plans for on-site stormwater control	The procedures to require submission of as-built drawings and ensure long term operation and maintenance will be a part of the SWMP	Planning Department, Building Department	The town will continue to require as-built plans for stormwater control	2018
Target properties to reduce impervious areas	Identify at least 5 permittee-owned properties that could be modified or retrofitted with BMPs to reduce impervious areas and update annually	Planning Department, Building Department	Complete 4 years after effective date of permit and report annually on retrofitted properties	2022
Allow green infrastructure	Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist	Planning Department, Building Department	Complete 4 years after effective date of permit and implement recommendations of report	2022
Street design and parking lot guidelines	Develop a report assessing requirements that affect the creation of impervious cover. The assessment will help determine if changes to design standards for streets and parking lots can be modified to support low impact design options.	Planning Department, Building Department	Complete 4 years after effective date of permit and implement recommendations of report	2022

Incorporate stormwater controls or management practices for new development and redevelopment that meet the retention or treatment requirements of the permit and all applicable requirements of the Massachusetts Stormwater Handbook	Adoption, amendment, or modification of a regulatory mechanism to meet permit requirements	Planning Department, Building Department	Complete 2 years after effective date of permit	2020

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 6: Municipal Good Housekeeping and Pollution Prevention

BMP Categorization (enter your own text to override the drop down menu or entered text)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)	**Beginning Year of BMP Imple-mentation**
O&M procedures	Create written O&M procedures including all requirements contained in 2.3.7.a.ii for parks and open spaces, buildings and facilities, and vehicles and equipment	Conservation, Highways and Maintenance, Parks, Recreation, Schools	Complete and implement 2 years after effective date of permit	2020
Inventory all permittee-owned parks and open spaces, buildings and facilities, and vehicles and equipment	Create inventory	Highways and Maintenance, Conservation, Parks and Recreation	Complete 2 years after effective date of permit and implement annually	2020
Infrastructure O&M	Establish and implement program for repair and rehabilitation of MS4 infrastructure	Highways and Maintenance	Complete 2 years after effective date of permit	2020
Stormwater Pollution Prevention Plan (SWPPP)	Create SWPPPs for maintenance garages, transfer stations, and other waste-handling facilities	Contractor, Planning, Highways and Maintenance, Building	Complete and implement 2 years after effective date of permit	2020
Catch basin cleaning	Establish schedule for catch basin cleaning such that each catch basin is no more than 50% full and clean catch basins on that schedule	Highways and Maintenance	Clean catch basins on established schedule and report number of catch basins cleaned and volume of material moved annually	2019
Street sweeping program	Sweep all streets and permitee-owned parking lots in accordance with permit conditions	Highways and Maintenance	Continue to sweep all streets and permitee-owned parking lots once per year in the spring	2018
Road salt use optimization program	Establish and implement a program to minimize the use of road salt	Highways and Maintenance	Continue to implement salt use optimization during deicing season	2018

Inspections and maintenance of stormwater treatment structures	Establish and implement inspection and maitenance procedures and frequencies	Highways and Maintenance	Continue to inspect and maintain treatment structures at least annually	2018

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Total Maximum Daily Load (TMDL) Requirements

Use the drop-down menus to select the applicable TMDL, action description to meet the TMDL requirements, and the responsible department/parties. If no options are applicable, or more than one, **enter your own text to override drop-down menus.**

Applicable TMDL	Action Description	Responsible Department/Parties (enter your own text to override the drop down menu)
Cape Cod (Bacteria/Pathogen)	Adhere to requirements in part A.III of Appendix F	Town Clerk, Board of Health, Highways and Maintenance
Allen, Wychmere, and Saquatucket Harbors (Nitrogen)	Adhere to requirements in part A.IV of Appendix F	Conservation, Planning, Building, Town Clerk, Engineering
Herring River (Nitrogen)	Adhere to requirements in part A.IV of Appendix F	Conservation, Planning, Building, Town Clerk, Engineering

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Requirements Related to Water Quality Limited Waters

Use the drop-down menus to select the pollutant causing the water quality limitation and enter the waterbody ID(s) experiencing excursions above water quality standards for that pollutant. Choose the action description from the dropdown menu and indicate the responsible party. If no options are applicable, or more than one, **enter your own text to override drop-down menus.**

Pollutant	Waterbody ID(s)	Action Description	Responsible Department/Parties (enter your own text to override the drop down menu)

Part IV: Notes and additional information

Use the space below to indicate the part(s) of 2.2.1and 2.2.2 that you have identified as not applicable to your MS4 because you do not discharge to the impaired water body or a tributary to an impaired water body due to nitrogen or phosphorus. Provide all supporting documentation below or attach additional documents if necessary. Also, provide any additional information about your MS4 program below.

Notes on Part I:
Endangered Species Determination-
The U.S. Fish and Wildlife Service's (Service) Information for Planning and Consultation (IPaC) species list (Attachment A) indicated these species may be present in the project area: northern long-eared bat (Myotis septentrionalis), piping plover (Charadrius melodus), roseate tern (Sterna dougallii dougallii), red knot (Calidris canutus rufa), and rusty patched bumble bee (Bombus affinis). [Note to Reviewer: AECOM submitted a project review request as a non-Federal representative of the EPA pursuant to the requirements of the EPA's process for NPDES/MS4 permits. The intent of the letter is for concurrence with our determination that the project may affect, but is not likely to adversely affect, all of the species listed above except for northern long-eared bat. The project review request was sent to USFWS Region 1 office for review on 8/1/18 and was received by their office on 8/2/18. We are currently waiting for their determination. They are inundated with these requests and are hoping to release determination letters before the NOI is due. AECOM has been following up with USFWS and will continue to do so.]
There are no known northern long-eared bat hibernaculums or roost trees within town boundaries as of the latest map published by NHESP (https://mass-eoeea.maps.arcgis.com/apps/Viewer/index.html?appid=de59364ebbb348a9b0de55f6febdfd52). The Town does not have any plans to remove any trees for stormwater related projects. The effect of the stormwater discharges and discharge related activities on the northern long-eared bat have been evaluated using the best scientific and commercial data available by EPA. Based on those evaluations, EPA has made a determination that the stormwater discharges and discharge related activities will have "no effect" on northern long-eared bat. Furthermore, the planned actions under the permit will have no effect on the northern long-eared bat. The town of Harwich will consult with US Fish and Wildlife as needed during the permit term on any future BMPs.

NHPA Determination-
Harwich's MS4 is covered under the 2003 Permit eligibility with the National Historic Preservation Act was previously determined. There is no expansion planned to the MS4 as part of this permit. Therefore Harwich is covered under Criterion A.

Regulatory Authorities-
The Illicit Discharge Detection and Elimination (IDDE) and the Post-Construction Stormwater Management Authorities have been developed, they will likely be adopted at the next town meeting in May 2019.

Part V: Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name:	Christopher Clark	Title:	Town Administrator
Signature:		Date:	

[To be signed according to Appendix B, Subparagraph B.11, Standard Conditions]

Note: When prompted during signing, save the document under a new file name

Attachment A

Official IPaC Species List

and

Endangered Species Determination Letter

(We are waiting for a Determination from USFWS, the project review request is here temporarily as a placeholder)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To:
Consultation Code: 05E1NE00-2018-SLI-2473
Event Code: 05E1NE00-2018-E-05740
Project Name: Harwich MS4 NOI

July 20, 2018

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2018-SLI-2473

Event Code: 05E1NE00-2018-E-05740

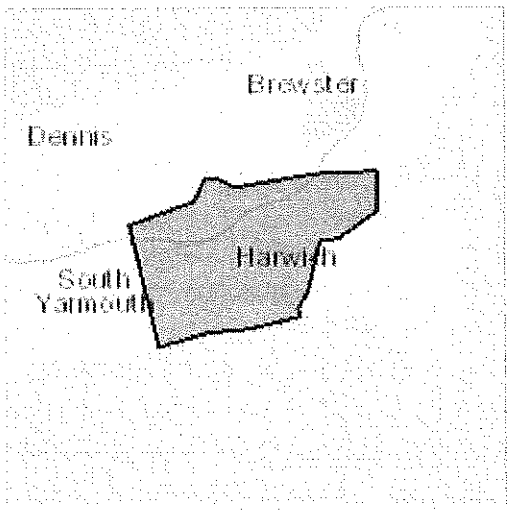
Project Name: Harwich MS4 NOI

Project Type: Regulation Promulgation

Project Description: This consultation is for the regulated discharges from the stormwater system in Harwich, MA in support of their 2018 MS4 NOI appplication. The location of this project is the rough extent of the town. The stormwater outfalls in this area are previously existing. The actual action areas are downstream from these discharge points but a larger area has been selected to be conservative. The map that is maintained by MassDEP/NHESP was also consulted (address: https://mass-eoeea.maps.arcgis.com/apps/Viewer/index.html?appid=de59364ebbb348a9b0de55f6febdfd52). There are no documented Northern Long-eared Bat Maternity roost sites or winter hibernacula in or near the project area. No illicit discharges have been found to these outfalls. Roost trees, hibernaculum, and other trees would not be significantly affected by the stormwater discharge. It is Harwich's opinion that there are no effects to Northern Long-eared Bats from these discharges.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/41.69206387828316N70.07881502437796W



Counties: Barnstable, MA

Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Roseate Tern *Sterna dougallii dougallii* Population: northeast U.S. nesting pop. No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2083	Endangered

Insects

NAME	STATUS
Rusty Patched Bumble Bee *Bombus affinis*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9383

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Project Review Request-

Submitted 8/01/18 to USFWS, included here as a placeholder for the Determination Letter

AECOM Imagine it. Delivered.

AECOM
250 Apollo Drive
Chelmsford, MA 01824
aecom.com

Sean Maxwell
AECOM
250 Apollo Dr.
Chelmsford, Ma 01824

U.S. Fish and Wildlife Service
Attn: David Simmons
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301

July 20, 2018

Re: Project Review Request, Harwich MS4 NOI, Bourne, MA, 05E1NE00-2018-SLI-2473

We have reviewed the referenced project using the Environmental Protection Agency's (EPA) project review process for our Municipal Separate Storm Sewer System (MS4) and have followed provided guidance and instructions in completing the review. We completed our review on July 20, 2018 and are submitting our project package in accordance with the instructions for further review. The U.S. Fish and Wildlife Service's (Service) Information for Planning and Consultation (IPaC) species list indicated these species may be present in the project area: northern long-eared bat (*Myotis septentrionalis*), piping plover (*Charadrius melodus*), roseate tern (*Sterna dougallii dougallii*), red knot (*Calidris canutus rufa*), and rusty patched bumble bee (*Bombus affinis*). We are submitting this letter as a non-Federal representative of the EPA pursuant to the requirements of the EPA's process for NPDES/MS4 permits.

Our proposed action consists of: permitting of stormwater utilities and associated allowable discharges, improved stormwater management through: public outreach and participation, illicit discharge detection and elimination, construction site erosion and sedimentation control, post construction stormwater management, good housekeeping, and actions to reduce pollutants to impaired waters.

The location action area is identified on the enclosed locus map. The Action area is the area within the Town of Harwich that is regulated under the Massachusetts 2016 Small MS4 permit.

Permit implementation will begin in the fall of 2018 and the permit has an expiration date of June 30, 2022.

This is a request for review by the Service pursuant to section 7 of the Endangered Species Act. EPA has determined that our proposed action will have no effect on the northern long-eared bat because clearing trees is not part of Harwich's stormwater program. EPA has also determined that our proposed action will have no effect on the rusty patched bumble bee because Harwich's stormwater program will not have any measureable effect on the bee or its grassland habitat. We determined that the project may affect, but is not likely to adversely affect the other above listed species, because:

- Discharges from the project may reach the estuarine and shoreline environments used by the piping plover. However, the project will implement BMPs to reduce pollutants to the extent that the discharges are not known to have measureable impacts on piping plover, their habitat, or the food they eat.
- Although discharges from the project may reach the marine environment used by the roseate tern, the project will implement BMPs to reduce pollutants to the extent that the discharges are not known to have measureable impacts on roseate terns, their habitat, or the fish they eat.
- Discharges from the project may reach the estuarine and shoreline environments used by red knot. However, the project will implement BMPs to reduce pollutants to the extent that the discharges are not known to have measureable impacts on red knot, their habitat, or the food they eat.

The enclosed project package provides the information about the species considered in our review, and we identified our determinations for the resources that may be affected by the project. We request you concur with our determination that the project may affect, but is not likely to adversely affect the species described above.

For additional information, please contact Sean Maxwell at the address listed above, by phone at (603) 674-0625, or Sean.Maxwell@aecom.com.

Kind regards,

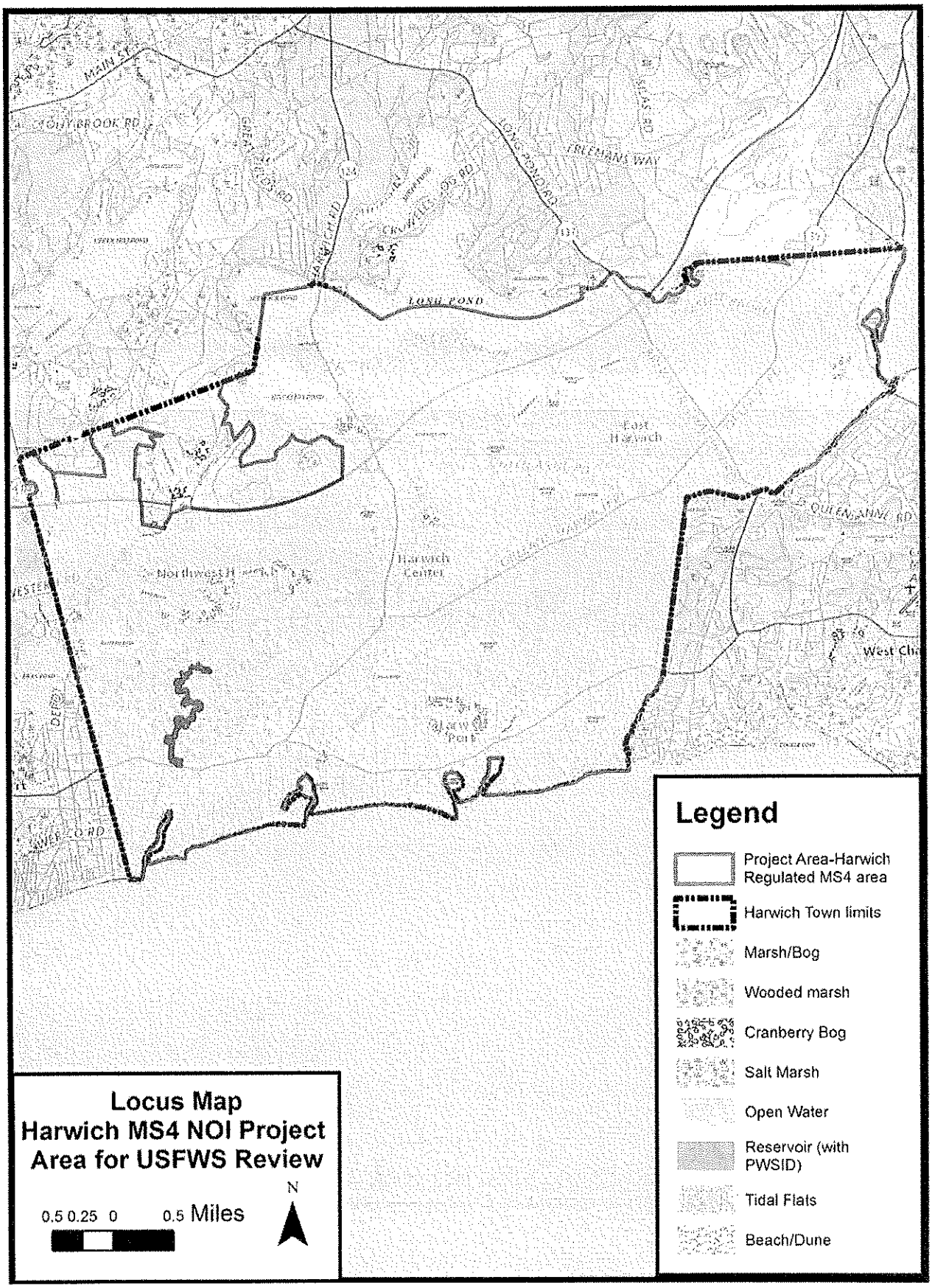
Sean Maxwell
Environmental Scientist IV
AECOM
T: 978-905-3141
M: 603-674-0625
E: Sean.Maxwell@aecom.com

Enclosures:

1) Locus Map of Action Area

2) IPaC Official Species List

3) Species information for listed species


MAIN ST
POLYBROOK RD
LONG POND
FREEMANS WAY
QUEEN ANNE RD
East Harwich
Harwich Center
Locus Map
Harwich MS4 NOI Project Area for USFWS Review
0.5 0.25 0 0.5 Miles
N
Legend
Project Area-Harwich Regulated MS4 area
Harwich Town limits
Marsh/Bog
Wooded marsh
Cranberry Bog
Salt Marsh
Open Water
Reservoir (with PWSID)
Tidal Flats
Beach/Dune

Official Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To:
Consultation Code: 05E1NE00-2018-SLI-2473
Event Code: 05E1NE00-2018-E-05740
Project Name: Harwich MS4 NOI

July 20, 2018

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

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The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

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If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2018-SLI-2473

Event Code: 05E1NE00-2018-E-05740

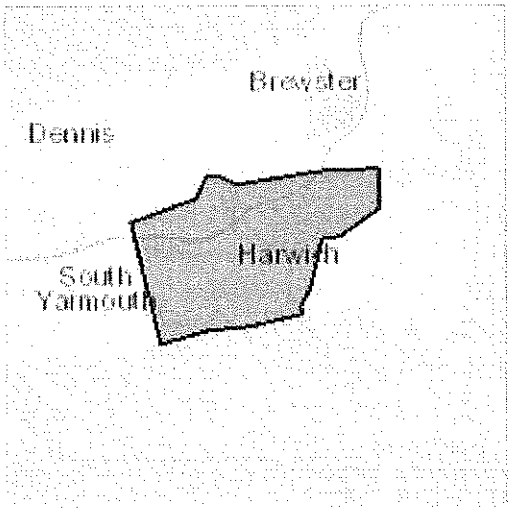
Project Name: Harwich MS4 NOI

Project Type: Regulation Promulgation

Project Description: This consultation is for the regulated discharges from the stormwater system in Harwich, MA in support of their 2018 MS4 NOI appplication. The location of this project is the rough extent of the town. The stormwater outfalls in this area are previously existing. The actual action areas are downstream from these discharge points but a larger area has been selected to be conservative. The map that is maintained by MassDEP/NHESP was also consulted (address: https://mass-eoeea.maps.arcgis.com/apps/Viewer/index.html?appid=de59364ebbb348a9b0de55f6febdfd52). There are no documented Northern Long-eared Bat Maternity roost sites or winter hibernacula in or near the project area. No illicit discharges have been found to these outfalls. Roost trees, hibernaculum, and other trees would not be significantly affected by the stormwater discharge. It is Harwich's opinion that there are no effects to Northern Long-eared Bats from these discharges.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/41.69206387828316N70.07881502437796W



Counties: Barnstable, MA

Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Roseate Tern *Sterna dougallii dougallii* Population: northeast U.S. nesting pop. No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2083	Endangered

Insects

NAME	STATUS
Rusty Patched Bumble Bee *Bombus affinis*	Endangered

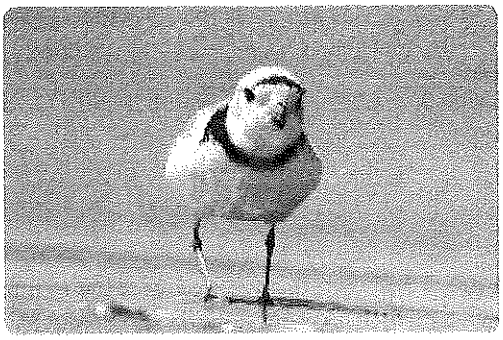
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9383

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Piping Plover ECOS Profile & Fact Sheet

Piping Plover (Charadrius melodus)



Range Information | Federal Register | Recovery | Critical Habitat | Conservation Plans | Petitions | Life History

Taxonomy: View taxonomy in ITIS

Listing Status: **Endangered** and **Threatened**

General Information

Size: 18 cm (7.25 in) in length. Color: Breeding season: Pale brown above, lighter below; black band across forehead; bill orange with black tip; legs orange; white rump. Male: Complete or incomplete black band encircles the body at the breast. Female: Paler head band; incomplete breast band. Winter coloration: Bill black; all birds lack breast band and head band.

The species historical range included Alabama, Colorado, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Puerto Rico, Rhode Island, South Carolina, South Dakota, Texas, Virginia, Virgin Islands, Wisconsin, Wyoming. See below for information about where the species is known or believed to occur.

Population detail

The FWS is currently monitoring the following populations of the Piping Plover

Current Listing Status Summary

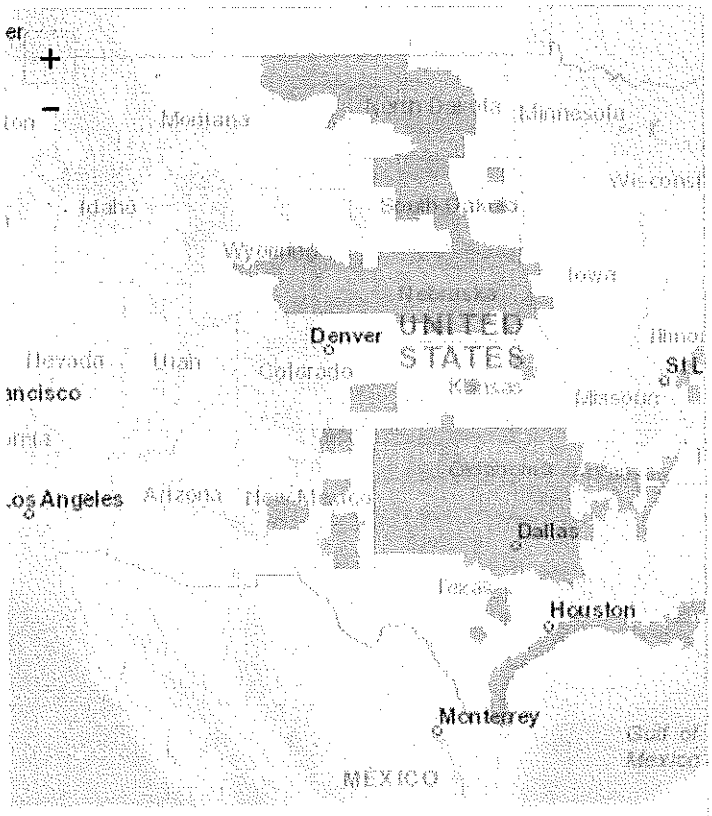
Status	Date Listed	Lead Region	Where Listed
Endangered	12/11/1985	Great Lakes-Big Rivers Region (Region 3)	[Great Lakes watershed DPS] - Great Lakes, watershed in States of IL, IN, MI, MN, NY, OH, PA, and WI and Canada (Ont.)
Threatened	12/11/1985	Northeast Region (Region 5)	[Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.

» Range Information

Current Range

☑ *[Great Lakes watershed DPS] - Great Lakes, watershed in States of IL, IN, MI, MN, NY, OH, PA, and WI and Canada (Ont.)*

☑ *[Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.*



Zoom in! Some species' locations may be small and hard to see from a wide perspective. To narrow-in on locations, check the state and county lists (below) and then use the zoom tool.

Want the FWS's current range for all species? Click here to download a zip file containing all individual shapefiles and metadata for all species.

- **[Great Lakes watershed DPS] - Great Lakes, watershed in States of IL, IN, MI, MN, NY, OH, PA, and WI and Canada (Ont.)**

  Listing status: Endangered

  - **States/US Territories** in which this population is known to or is believed to occur: Illinois , Indiana , Michigan , Minnesota , New York , Ohio , Pennsylvania , Wisconsin
  - **US Counties** in which this population is known to or is believed to occur: View All
  - **USFWS Refuges** in which this population is known to occur: Blackbeard Island National Wildlife Refuge, Cabo Rojo National Wildlife Refuge, Fergus Falls Wetland Management District, ... Show All Refuges
  - **Countries** in which this population is known to occur: Canada, United States

- **[Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.**

  Listing status: Threatened

  - **States/US Territories** in which this population is known to or is believed to occur: Alabama , Arkansas , Colorado , Delaware , Florida , Georgia , Iowa , Kansas , Louisiana , Maine , Maryland , Mississippi , Montana , Nebraska , New Jersey , New Mexico , New York , North Carolina , North Dakota , Oklahoma , Rhode Island , South Carolina , South Dakota , Texas , Virginia , Wyoming
  - **US Counties** in which this population is known to or is believed to occur: View All
  - **USFWS Refuges** in which this population is known to occur: Amagansett National Wildlife Refuge, Anahuac National Wildlife Refuge, Aransas National Wildlife Refuge, ... Show All Refuges
  - **Countries** in which this population is known to occur: Canada, Mexico, United States

» Federal Register Documents

Federal Register Documents

Show 10 entries

Date	Citation Page	Title
03/16/2016	81 FR 14121 14122	ETWP; Draft Revised Recovery Plan for the I
01/21/2016	81 FR 3450	Draft Environmental Assessment, Habitat Co Piping Plover, Massachusetts Division of Fish
07/08/2014	79 FR 38560 38562	Initiation of 5-Year Status Reviews of Nine Li
09/08/2011	76 FR 55638 55641	90-Day Finding on a Petition To List the Snov
05/19/2009	74 FR 23476 23600	Revised Designation of Critical Habitat for the Texas
10/21/2008	73 FR 62816 62841	Revised Designation of Critical Habitat for the North Carolina; Final Rule
09/30/2008	73 FR 56860 56862	Endangered and Threatened Wildlife and Pla information on the piping plover (Charadrius
06/09/2008	73 FR 32629	Correction to Revised Designation of Critical melodus) in Texas
05/20/2008	73 FR 29294 29321	Revised Designation of Critical Habitat for the

Showing 1 to 10 of 32 entries ‹ Previous 1 2 3 4 Next ›

» Recovery

- Recovery Plan Information Search
- Information Search FAQs

Current Recovery Plan(s)

Show 10 entries

Date	Title
03/16/2016	Volume II: Draft revised recovery plan for the wintering range of the piping plover (Charadrius melodus) and Comprehensive conservatic piping plover (Charadrius melodus) in its coastal migration and wint continental United States.
03/16/2016	Volume I: Draft Revised Recovery Plan for the Northern Great Plain (Charadrius melodus)
09/08/2003	Recovery Plan for the Great Lakes population of Piping Plovers
05/02/1996	Piping Plover Atlantic Coast Population Revised Recovery Plan

Showing 1 to 4 of 4 entries ‹ Previous 1 Next ›

Other Recovery Documents

Show 10 entries

Date	Citation Page	Title
03/16/2016	81 FR 14121 14122	ETWP; Draft Revised Recovery Plan for the I
07/08/2014	79 FR 38560 38562	Initiation of 5-Year Status Reviews of Nine Li Species
09/30/2008	73 FR 56860 56862	Endangered and Threatened Wildlife and Pla review; request for information on the piping
09/16/2003	68 FR 54241 54242	Approved Recovery Plan for the Great Lakes

Showing 1 to 8 of 8 entries ‹ Previous 1 Next ›

Five Year Review

Show 10 entries

Date	Title
09/29/2009	Piping Plover (Charadrius melodus) 5-Year Revie

Showing 1 to 1 of 1 entries ‹ Previous 1 Next ›

» Critical Habitat

Critical Habitat Spatial Extents

Population(s)

- ☑ *[Great Lakes watershed DPS] - Great Lakes, watershed in States of IL, IN, MI, MN, NY, OH, PA, and WI and Canada (Ont.)*
- ☑ *[Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.*

Show 10 entries

Date	Citation Page	Title

05/19/2009	74 FR 23476 23600	Revised Designation of Critical Habitat for the Plover (Charadrius melodus) in Texas
10/21/2008	73 FR 62816 62841	Revised Designation of Critical Habitat for the Plover (Charadrius melodus) in North Carolin
05/20/2008	73 FR 29294 29321	Revised Designation of Critical Habitat for the Plover (Charadrius melodus) in Texas: Propc
09/11/2002	67 FR 57638 57717	Endangered and Threatened Wildlife and Pla for the Northern Great Plains Breeding Popul
12/28/2001	66 FR 67165 67166	ETWP; Proposed Designation of Critical Hab Breeding Population of the Piping Plover; Re and Notice of Availability of Draft Economic A
07/10/2001	66 FR 36137 36143	ETWP; Final Determination of Critical Habitat 36137-36143)

Showing 1 to 10 of 12 entries ‹ Previous 1 2 Next ›

To learn more about critical habitat please see http://ecos.fws.gov/crithab

» Conservation Plans

Habitat Conservation Plans (HCP) (learn more)

Show 10 entries

HCP Plan Summaries

Volusia Beaches

Town of Orlean's Plover Low Effect HCP

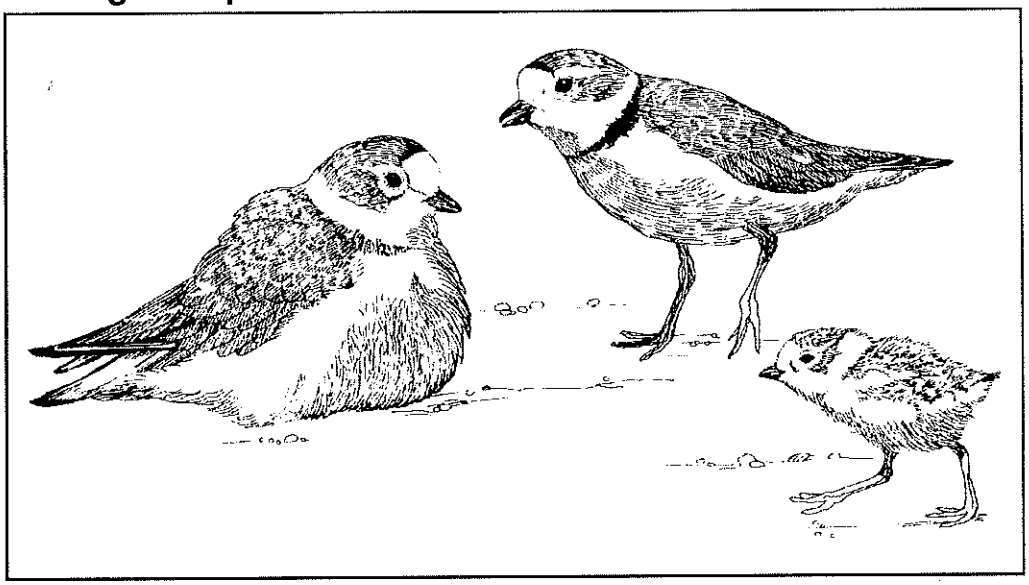
Piping Plover HCP (State of Massachusetts)

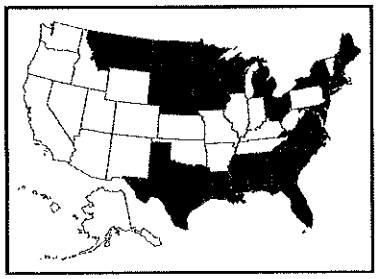
Magic Carpet Woods Association

Escambia County Beaches

U.S. Fish & Wildlife Service

Endangered Species Facts





States in which the piping plover is found. This map includes both summer and winter locations.

Piping Plover

The piping plover in the Great Lakes area is an *endangered species*. Endangered species are animals and plants that are in danger of becoming extinct. The Northern Great Plains and Atlantic Coast piping plovers are *threatened species*. Threatened species are animals and plants that are likely to become endangered in the foreseeable future. Identifying, protecting, and restoring endangered and threatened species is the primary objective of the U.S. Fish and Wildlife Service's endangered species program.

What is the Piping Plover?

Scientific Name - *Charadrius melodus*

Appearance - These small, stocky shorebirds have a sand-colored upper body, a white underside, and orange legs. During the breeding season, adults have a black forehead, a black breast band, and an orange bill.

Habitat - Piping plovers use wide, flat, open, sandy beaches with very little grass or other vegetation. Nesting territories often include small creeks or wetlands.

Reproduction - The female lays four eggs in its small, shallow nest lined with pebbles or broken shells. Both parents care for the eggs and chicks. When the chicks hatch, they are able to run about and feed themselves within hours.

Feeding Habits - The plovers eat insects, spiders, and crustaceans.

Range - Piping plovers are migratory birds. In the spring and summer they breed in the northern United States and Canada. There are three locations where piping plovers nest in North America: the shorelines of the Great Lakes, the shores of rivers and lakes in the Northern Great Plains, and along the Atlantic Coast. Their nesting range has become smaller over the years, especially in the Great Lakes area. In the fall, plovers migrate south and winter along the Gulf Coast or other southern locations.

The Great Lakes population of the piping plover is at a perilously low level. Since 1983, the number of nesting pairs has ranged from 12 to 32. In 2000, all of the Great Lakes pairs nested in Michigan.

Why is the piping plover endangered?

Habitat Loss or Degradation - Many of the coastal beaches traditionally used by piping plovers for nesting have been lost to commercial, residential, and recreational developments. Through the use of dams or other water control structures, humans are able to raise and lower the water levels of many lakes and rivers of plover inland nest sites. Too much water in the spring floods the plovers' nests. Too little water over a long period of time allows grasses and other vegetation to grow on the prime nesting beaches, making these sites unsuitable for successful nesting.

Nest Disturbance and Predation - Piping plovers are very sensitive to the presence of humans. Too much disturbance causes the parent birds to abandon their nest. People (either on foot or in a vehicle) using the beaches where the birds nest sometimes accidentally crush eggs or young birds. Dogs and cats often harass and kill the birds. Other animals, such as fox, gulls, and crows, prey on the young plovers or eggs.

What is being done to prevent extinction of the piping plover?

Listing - The Great Lakes population of the piping plover was listed as an endangered species in 1986, and the Northern Great Plains and Atlantic Coast populations were listed as threatened species that same year.

Recovery Plans - The U.S. Fish and Wildlife Service developed recovery plans that describe actions that need to be taken to help the bird survive and recover.

Research - Several cooperative research groups have been set up among federal and state agencies, university and private research centers, and the Canadian Wildlife Service. Studies are being conducted to determine where plovers breed and winter, estimate numbers, and monitor long-term changes in populations.

Habitat Protection - Measures to protect the bird's habitat are conducted each year (often by volunteers), including controlling human access to nesting areas, nest monitoring and protection, limiting residential and industrial development, and properly managing water flow. In Michigan, several landowners have formally agreed to protect plover nesting habitat.

Public Education - Many states and private agencies are running successful public information campaigns to raise awareness of the plover's plight. In Michigan, residents of coastal communities where the birds nest have been contacted by an "ambassador" and provided with information about the plight of the plover.

What can I do to prevent the extinction of species?

Learn - Learn more about the piping plover and other endangered and threatened species. Understand how the destruction of habitat leads to loss of endangered and threatened species and our nation's plant and animal diversity. Tell others about what you have learned.

Volunteer - If piping plovers live near you, join the "Plover Patrol" (information about the "Plover Patrol" is on the website to the right). Or volunteer your time at a nearby Nature Center, Wildlife Sanctuary or National Wildlife Refuge. Make sure you control pets, and always remove litter on beaches. Encourage others to do the same.

U.S. Fish & Wildlife Service
1 Federal Drive
Fort Snelling, Minnesota 55111
612/713-5337
http://midwest.fws.gov/eco_serv/endangrd

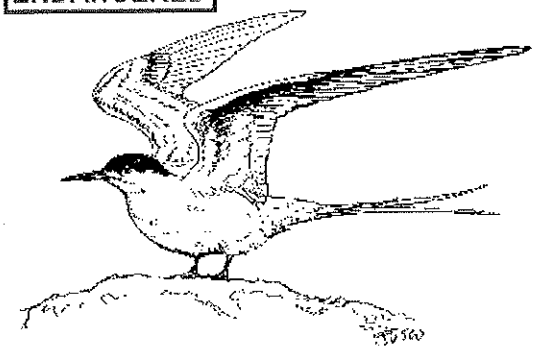
Roseate Tern ECOS Profile & Fact Sheet

Endangered Species

Endangered, Threatened and Special Concern Species in Connecticut
Species Fact Sheets
About NDDB Maps
Review/Data Requests
Contributing Data
Endangered Species Main Page
Main Menu

ROSEATE TERN
Sterna dougallii

ENDANGERED



Habitat: Strictly saltwater coastlines; almost never seen inland.
Weight: Approximately 4 ounces.
Length: 14-17 inches.
Wingspan: 30 inches.
Life Expectancy: Banding indicates 9 years of age.
Food: Small fish, occasionally mollusks.
Status: Federally and state endangered.

Identification: Adults have a white body and black head cap. The deeply forked tail measures 6 to 8 inches in length. The black bill is red at the base, varying with the season and the age of the bird; as the breeding season progresses from incubation to the care and feeding of chicks, more and more of the base turns pinkish-red. The rosy tint on the breast is rarely visible in summer, but the bird's bright orange-red legs and feet are easy to distinguish. Both sexes are similar. Chicks and fledglings have black bills, legs and feet. The voice is a high-pitched, rasping "aaak" and soft "chivy."

Range: Roseate terns nest in colonies on sand/gravel beaches or pebbly/rocky offshore islands along the Atlantic coast from Nova Scotia south to Long Island, New York, and on the southern tip of Florida. Roseates that nest in the northeastern United States appear to winter primarily in the waters off Trinidad and northern South America from the Pacific coast of Columbia to eastern Brazil.

Reproduction: Roseate terns arrive in Connecticut in late April and early May. The first eggs are laid by the third week of May in shallow scrapes, or depressions, sometimes lined with dried vegetation. Nests are often concealed by vegetation or rocks. The 1 to 2 eggs are pale buff with small dots of brown. The adults take turns incubating the eggs and bringing small fish to the chicks. The eggs hatch in 23 to 24 days, and the young fledge about 26 to 30 days after hatching. Birds that lose their nests or young will produce new nests into late July and occasionally into early August. Roseate terns usually breed and nest at 3 years of age.

Reason for Decline: Historically, the roseate tern population suffered losses due to the millinery trade. Roseate tern productivity has also been affected by increased human recreation and disturbance in coastal areas, as well as by predation by great black-backed and herring gulls, owls and nocturnal-feeding mammals. Increasing numbers of gulls and human activity on or near coastal barrier islands have greatly reduced available nesting habitat for the roseate tern population in northeastern North America. Many traditional nesting sites in southern New England were abandoned during the 1940s and 1950s when great black-backed and herring gulls rapidly expanded their nesting ranges. These large, aggressive gulls stake out nesting territories in early spring before the terns return from their wintering areas. Gulls have taken over most of the outer islands preferred by nesting terns.

History in Connecticut: In the late 1800s, unrestricted market hunting for the millinery trade devastated the roseate tern population on the Atlantic coast. After harvest for commercial purposes was prohibited by law, the population recovered and at times equaled the number of common terns. Roseate tern numbers declined again in the 1970s and 1980s when gull populations increased.

The third largest roseate tern colony in North America exists in Connecticut at Falkner Island, which is now part of the Stewart B. McKinney National Wildlife Refuge. Approximately 175 to 200 pairs of terns breed there every year. This population has been studied in detail since 1978. Other colony sites that have been used in

Connecticut during 1989 include Tuxis Island near Madison and Duck Island near Clinton. Several small islands in the New London area were occupied by roseate terns in the 1970s.

Approximately one-fourth of the roseate tern breeding population in a given year at Falkner Island does not return the following year. Presently, it is not known if this loss is due to mortality or emigration to other colony sites.

Interesting Facts: According to the U.S. Fish and Wildlife Service (USFWS), islands with manned lighthouses were favorite nesting areas for roseates because the human presence deterred large gulls from nesting. Since the automation of almost all lighthouses, gulls have moved in and displaced the terns. The USFWS officially listed the northeastern breeding population of the roseate tern as endangered in December, 1987.

Adult terns are mainly preyed on by avian species such as owls, gulls and raptors. Eggs and young are also vulnerable to predation, as well as to adverse weather conditions and disturbance. Predation may completely wipe out production in a given colony. The combination of adult mortality, delayed maturity and low productivity can, in a short time, result in serious population declines unless they are offset by subsequent years of high productivity.

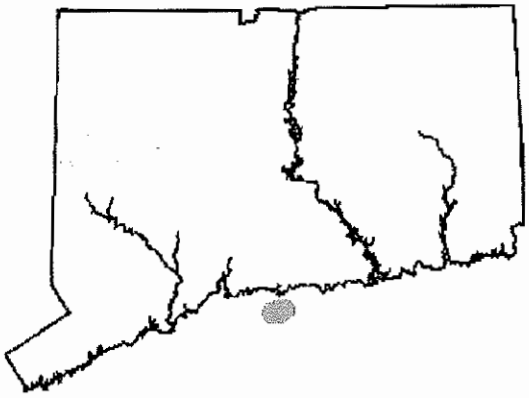
Roseate terns catch their prey by diving headfirst into the water. Their diet of small fish may have led to the alias mackerel gull, which also reflects their membership in the gull family. Graceful tern was another common name given to this adept flier.

In 1975, studies on Gull Island, New York, reported the hybridization of common terns and roseate terns. Similar crosses have not been documented since.

Protective Legislation: *Federal* - Endangered Species Act of 1973, Migratory Bird Treaty Act of 1918. *State* - Connecticut General Statutes Sec. 26-311.

What You Can Do: Respect all roseate tern nesting areas that are fenced or posted for the birds' protection. Do not approach or linger near roseate terns or their nests. Avoid landing vessels at offshore islands inhabited by terns.

Connecticut Range



The production of this Endangered and Threatened Species Fact Sheet Series is made possible by donations to the Endangered Species-Wildlife Income Tax Checkoff Fund. (rev. 12/99)

Printable Version

79 Elm Street, Hartford, CT 06106-5127 / Phone: 860-424-3000

Red Knot ECOS Profile & Fact Sheet

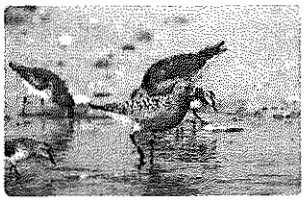
U.S. Fish & Wildlife Service

Search ECOS

ECOS Environmental Conservation Online System

Conserving the Nature of America

Red knot (Calidris canutus rufa)



Range Information | Federal Register | Recovery | Critical Habitat | Conservation Plans | Petitions | Life History

Taxonomy: View taxonomy in ITIS

Listing Status: Threatened

Where Listed: WHEREVER FOUND

General Information

Length: 25-28 cm. Adults in spring: Above finely mottled with grays, black and light ochre, running into stripes on crown; throat, breast and sides of head cinnamon-brown; dark gray line through eye; abdomen and undertail coverts white; uppertail coverts white, barred with black. Adults in winter: Pale ashy gray above, from crown to rump, with feathers on back narrowly edged with white; underparts white, the breast lightly streaked and speckled, and the flanks narrowly barred with gray. Adults in autumn: Underparts of some individuals show traces of the "red" of spring.

The species historical range included Alabama, Arkansas, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Puerto Rico, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, Virgin Islands, West Virginia, Wisconsin, Wyoming. See below for information about where the species is known or believed to occur.

Current Listing Status Summary

Status	Date Listed	Lead Region	Where Listed
Threatened	01/12/2015	Northeast Region (Region 5)	Wherever found Additional species information

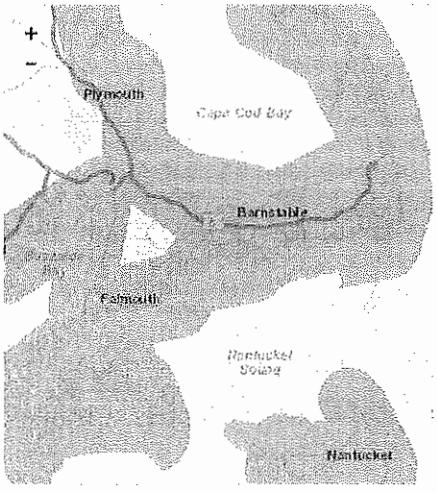
» Range Information

Current Range

☑ *Wherever found*

Zoom in! Some species' locations may be small and hard to see from a wide perspective. To narrow-in on locations, check the state and county lists (below) and then use the zoom tool.

Want the FWS's current range for all species? Click here to download a zip file containing all individual shapefiles and metadata for all species.



- **Wherever found**

  Listing status: Threatened

- **States/US Territories** in which this population is known to or is believed to occur: Alabama , Arkansas , Connecticut , Delaware , Florida , Georgia , Illinois , Indiana , Kansas , Louisiana , Maine , Maryland , Massachusetts , Michigan , Minnesota , Mississippi , Missouri , Montana , Nebraska , New Hampshire , New Jersey , New York , North Carolina , North Dakota , Ohio , Oklahoma , Pennsylvania , Rhode Island , South Carolina , South Dakota , Texas , Virginia , West Virginia , Wisconsin
- **US Counties** in which this population is known to or is believed to occur: View All
- **USFWS Refuges** in which this population is known to occur: Amagansett National Wildlife Refuge, Back Bay National Wildlife Refuge, Big Boggy National Wildlife Refuge, ... Show All Refuges
- **Countries** in which this population is known to occur: Argentina, Aruba, Bahamas, Barbados, Belize, Brazil, British Virgin Islands, Canada, Cayman Islands, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, El Salvador, French Guiana, Guadeloupe, Guatemala, Guyana, Haiti, Jamaica, Mexico, Panama, Paraguay, Suriname, Trinidad and Tobago, United States, Uruguay, U.S. Virgin Islands, Venezuela

» Federal Register Documents

Federal Register Documents

Show 10 entries

Date	Citation Page	Title
12/11/2014	79 FR 73705 73748	Threatened Species Status for the Rufa Red Knot
05/14/2014	79 FR 27548 27550	Proposed Threatened Status for the Rufa Red Knot (Ca
04/04/2014	79 FR 18869 18870	Proposed Threatened Status for the Rufa Red Knot (Ca
09/30/2013	78 FR 60023 60098	Proposed Threatened Status for the Rufa Red Knot (Ca
11/21/2012	77 FR 69993 70060	Review of Native Species That Are Candidates for Listi on Resubmitted Petitions; Annual Description of Progre
10/26/2011	76 FR 66370 66439	Review of Native Species That Are Candidates for Listi on Resubmitted Petitions; Annual Description of Progre
11/10/2010	75 FR 69222 69294	Review of Native Species That Are Candidates for Listi on Resubmitted Petitions; Annual Description of Progre
11/09/2009	74 FR 57804 57878	Review of Native Species That Are Candidates for Listi on Resubmitted Petitions; Annual Description of Progre
12/10/2008	73 FR 75176 75244	Review of Native Species That Are Candidates for Listi on Resubmitted Petitions; Annual Description of Progre

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» Recovery

- Recovery Plan Information Search
- Information Search FAQs

No recovery information is available for the Red Knot.

» Critical Habitat

No critical habitat rules have been published for the Red Knot.

» Conservation Plans

Candidate Conservation Agreements (CCA): (learn more)

Show 10 entries

CCA Plan Summaries

Red Knot Cooperative Agreement

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» Petitions

Show 10 ▾ entries

Showing 1 to 4 of 4 entries ‹ Previous 1 Next ›

» Life History

No Life History information has been entered into this system for this species.

» Other Resources

NatureServe Explorer Species Reports -- NatureServe Explorer is a source for authoritative conservation information on more than 50,000 plants, animals and ecological communtities of the U.S and Canada. NatureServe Explorer provides in-depth information on rare and endangered species, but includes common plants and animals too. NatureServe Explorer is a product of NatureServe in collaboration with the Natural Heritage Network.

ITIS Reports -- ITIS (the Integrated Taxonomic Information System) is a source for authoritative taxonomic information on plants, animals, fungi, and microbes of North America and the world.

FWS Digital Media Library -- The U.S. Fish and Wildlife Service's National Digital Library is a searchable collection of selected images, historical artifacts, audio clips, publications, and video.

U.S. Fish & Wildlife Service

Red knot

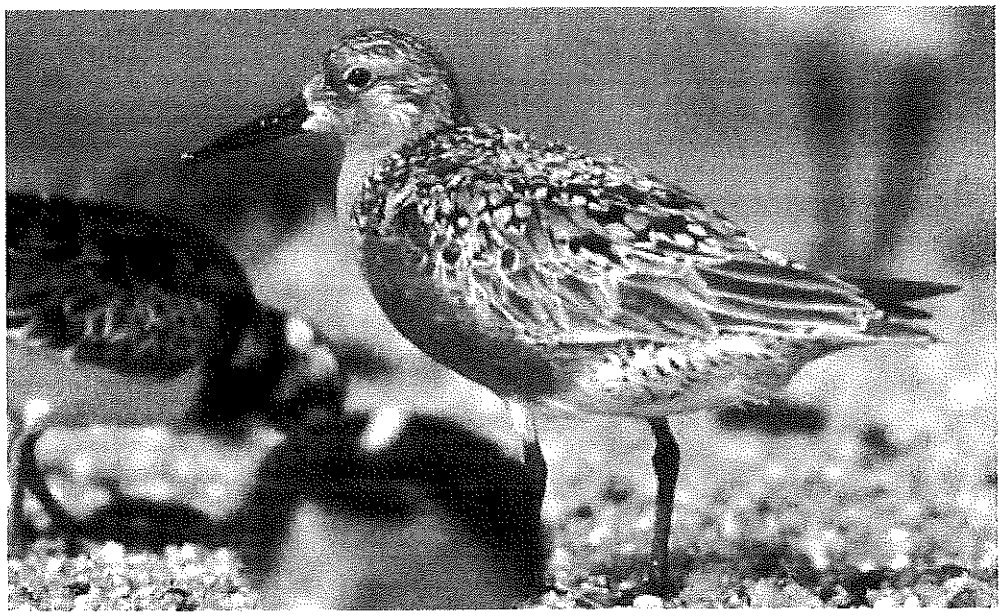
Calidris canutus rufa

Skilled aviator Rear Admiral Richard E. Byrd flew over both the North and South poles. But what this renowned man accomplished with the help of sled dogs, ships and airplanes, a little shorebird weighing less than a cup of coffee completes every year of its life. The red knot is truly a master of long-distance aviation.

On wingspans of 20 inches, red knots fly more than 9,300 miles from south to north every spring and repeat the trip in reverse every autumn, making this bird one of the longest-distance migrants in the animal kingdom. About 9 inches long, red knots are among the largest of the small sandpipers. Biologists have identified five races of red knot, three of them living in the Western Hemisphere: *C.c. islandica*, *C.c. rogersi*, and *C.c. rufa*. This last, the red knot known as rufa, winters at the tip of South America in Tierra del Fuego and breeds on the mainland and islands above the Arctic Circle.

Surveys of wintering knots along the coasts of southern Chile and Argentina and during spring migration in Delaware Bay on the U.S. coast indicate a serious population decline. Biologists from the U.S. Fish and Wildlife Service, state natural resource agencies, and non-profit organizations all share a concern for this race of red knot and are pooling efforts to identify what needs to be done to prevent further losses.

A red knot banded in May 1987 was seen on Delaware Bay in May 2000. During those 13 years, the bird had flown about 242,350 miles, a distance farther than from the earth to the moon.



Strength in numbers

Red knots migrate in larger flocks than do most other shorebirds. They break their spring and fall migrations into non-stop segments of 1,500 miles and more, ending at stopover sites called staging areas. Flocks of red knots converge on staging areas along the entire Atlantic coast. Red knots are faithful to these specific sites, stopping at the same location year after year.

While we can guess at some of the benefits of traveling in large flocks, we can also see the downside - susceptibility to habitat change and loss, susceptibility to toxins and diseases, and susceptibility to hunting. Red knots were heavily hunted in the early 20th century, and have never recovered in eastern Canada. They are still hunted in Barbados, the Guianas and other regions in South America. When wintering, the flocking of red knots may protect them from attack by birds of prey. Red knots under attack from falcons perform evasive maneuvers in dense flocks. These flock movements provide very successful protection for individual birds.

Eating like a bird

In order to endure their long journeys, red knots undergo extensive physiological changes. Flight muscle mass increases, while leg muscle mass decreases. Stomach and gizzard masses decrease, while fat mass increases by more than 50 percent. For much of the year red knots eat small mussels and other mollusks, shell and all. When red knots stop to eat during their migration, they eat fewer hard foods because of their shrunken gizzards, and in spring they seek the soft eggs of the horseshoe crab. In fact, the birds' spring migration is timed with the release of horseshoe crab eggs, the perfect food for a traveling red knot. The abundance of these nutritious eggs also makes them a quick and easily found food, saving the birds' energy. Red knots arrive at staging areas very thin, sometimes emaciated. They eat constantly to increase their fat mass to continue the trip, gaining up to 10 percent of their body weight each day and essentially doubling their body weight during their stopover stay.

Red knots often arrive in their arctic breeding areas before the snow cover has melted, and before insects are active and available to eat. The birds then eat plant seeds, grass shoots and other vegetable foods. Once insects hatch, chicks eat them almost exclusively, and adult red knots increase their consumption of insects along with plant materials.

Requirements for survival

Red knots' unique and impressive life history depends for its success, and the species' survival, on certain conditions. One of the most important is the continued availability of billions of horseshoe crab eggs at major North Atlantic staging areas, notably the Delaware Bay and Cape May peninsula. The increase in taking of horseshoe crabs for bait in commercial fisheries that occurred in the 1990s may be a major factor in the decline in red knots. Another necessary condition for red knots' survival is the continued existence of middle- and high-arctic habitat for breeding. Red knots could be particularly affected by global climate change, which may be greatest at the latitudes where this species breeds and winters.

Red knots fascinate biologists, bird watchers and people who appreciate the complex beauty of the natural world. Together with these partners, the U.S. Fish and Wildlife Service is dedicated to working to conserve this extraordinary bird.

Northeast Region
U.S. Fish and Wildlife Service
300 Westgate Center Drive
Hadley, MA 01035
413/253 8200
http://northeast.fws.gov

Federal Relay Service
for the deaf and hard-of-hearing
1 800/877 8339

U.S. Fish and Wildlife Service
http://www.fws.gov
1 800/344 WILD

August 2005

Rusty Patched Bumble Bee ECOS Profile & Fact Sheet

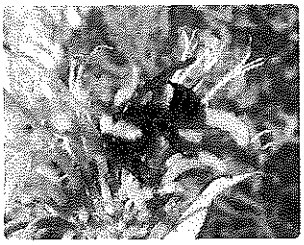
U.S. Fish & Wildlife Service

Search ECOS

ECOS Environmental Conservation Online System

Conserving the Nature of America

Rusty patched bumble bee (Bombus affinis)



Range Information | Federal Register | Recovery | Critical Habitat | Conservation Plans | Petitions | Life History

Taxonomy: View taxonomy in ITIS

Listing Status: Endangered

Where Listed: WHEREVER FOUND

General Information

Historically, the rusty patched bumble bee was broadly distributed across the eastern United States, Upper Midwest, and southern Quebec and Ontario in Canada. Since 2000, this bumble bee has been reported from only 13 states and 1 Canadian province: Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Minnesota, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, Wisconsin and Ontario, Canada.

Rusty patched bumble bees live in colonies that include a single queen and female workers. The colony produces males and new queens in late summer. Queens are the largest bees in the colony, and workers are the smallest. All rusty patched bumble bees have entirely black heads, but only workers and males have a rusty reddish patch centrally located on the back.

See www.fws.gov/midwest/endangered/insects/rpbb for more.

The species historical range included Connecticut, Delaware, District of Columbia, Georgia, Illinois, Indiana, Iowa, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New York, North Carolina, North Dakota, Ohio, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, Virginia, West Virginia, Wisconsin. See below for information about where the species is known or believed to occur.

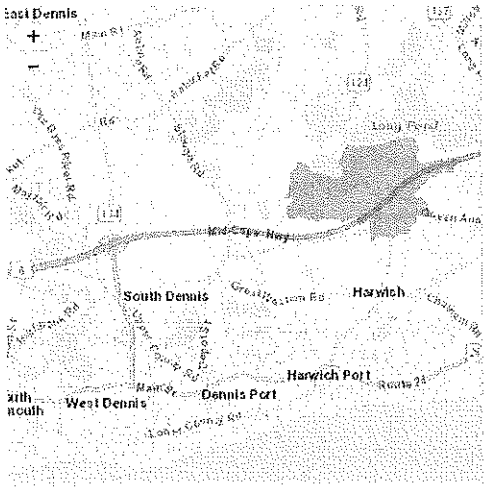
Current Listing Status Summary

Status	Date Listed	Lead Region	Where Listed
Endangered	03/21/2017	Great Lakes-Big Rivers Region (Region 3)	Wherever found Additional species information

» Range Information

Current Range

Wherever found



Zoom in! Some species' locations may be small and hard to see from a wide perspective. To narrow-in on locations, check the state and county lists (below) and then use the zoom tool.

Want the FWS's current range for all species? Click here to download a zip file containing all individual shapefiles and metadata for all species.

- **Wherever found**

Listing status: Endangered

- **States/US Territories** in which this population is known to or is believed to occur: Illinois , Indiana , Iowa , Maine , Massachusetts , Minnesota , Ohio , Virginia , West Virginia , Wisconsin
- **US Counties** in which this population is known to or is believed to occur: View All

» Federal Register Documents

Federal Register Documents

Show 10 ▾ entries

Date	Citation Page	Title
02/10/2017	82 FR 10285 10286	Endangered Species Status for Rusty Patched Bu
01/11/2017	82 FR 3186 3209	Endangered Species Status for Rusty Patched Bu
09/22/2016	81 FR 65324 65334	Endangered Species Status for Rusty Patched Bu
09/18/2015	80 FR 56423 56432	Endangered and Threatened Wildlife and Plants;

Showing 1 to 4 of 4 entries ‹ Previous 1 Next ›

» Recovery

- Recovery Plan Information Search
- Information Search FAQs

No recovery information is available for the Rusty patched bumble bee.

» Critical Habitat

No critical habitat rules have been published for the Rusty patched bumble bee.

» Conservation Plans

No conservation plans have been created for Rusty patched bumble bee.

» Petitions

Show 10 ▾ entries

Showing 1 to 1 of 1 entries ‹ Previous 1 Next ›

» Life History

Habitat Requirements

Rusty patched bumble bees once occupied grasslands and tallgrass prairies of the Upper Midwest and Northeast, but most grasslands and prairies have been lost, degraded, or fragmented by conversion to other uses. Bumble bees need areas that provide nectar and pollen from flowers, nesting sites (underground and abandoned rodent cavities or clumps of grasses), and overwintering sites for hibernating queens (undisturbed soil).

Food Habits

Bumble bees gather pollen and nectar from a variety of flowering plants. The rusty patched emerges early in spring and is one of the last species to go into hibernation. It needs a constant supply and diversity of flowers blooming throughout the colony's long life, April through September.

Reproductive Strategy

Rusty patched bumble bee colonies have an annual cycle. In spring, solitary queens emerge and find nest sites, collect nectar and pollen from flowers and begin laying eggs, which are fertilized by sperm stored since mating the previous fall. Workers hatch from these first eggs and colonies grow as workers collect food, defend the colony, and care for young. Queens remain within the nests and continue laying eggs. In late summer, new queens and males also hatch from eggs. Males disperse to mate with new queens from other colonies. In fall, founding queens, workers and males die. Only new queens go into diapause (a form of hibernation) over winter - and the cycle begins again in spring.

» Other Resources

NatureServe Explorer Species Reports -- NatureServe Explorer is a source for authoritative conservation information on more than 50,000 plants, animals and ecological communtities of the U.S and Canada. NatureServe Explorer provides in-depth information on rare and endangered species, but includes common plants and animals too. NatureServe Explorer is a product of NatureServe in collaboration with the Natural Heritage Network.

ITIS Reports -- ITIS (the Integrated Taxonomic Information System) is a source for authoritative taxonomic information on plants, animals, fungi, and microbes of North America and the world.

FWS Digital Media Library -- The U.S. Fish and Wildlife Service's National Digital Library is a searchable collection of selected images, historical artifacts, audio clips, publications, and video.

U.S. Fish & Wildlife Service

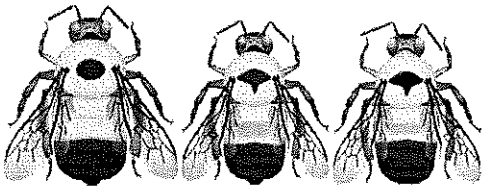
Rusty Patched Bumble Bee
Bombus affinis

The U.S. Fish and Wildlife Service listed the rusty patched bumble bee as endangered under the Endangered Species Act. Endangered species are animals and plants that are in danger of becoming extinct. Identifying, protecting and recovering endangered species is a primary objective of the U.S. Fish and Wildlife Service's endangered species program.

What is a rusty patched bumble bee?

Appearance: Rusty patched bumble bees live in colonies that include a single queen and female workers. The colony produces males and new queens in late summer. Queens are the largest bees in the colony, and workers are the smallest. All rusty patched bumble bees have entirely black heads, but only workers and males have a rusty reddish patch centrally located on the back.

Habitat: Rusty patched bumble bees once occupied grasslands and tallgrass prairies of the Upper Midwest and Northeast, but most grasslands and prairies have been lost, degraded, or fragmented by conversion to other uses. Bumble bees need areas that provide nectar and pollen from flowers, nesting sites (underground and abandoned rodent cavities or clumps of grasses), and overwintering sites for hibernating queens (undisturbed soil).



Illustrations of a rusty patched bumble bee queen (left), worker (center), and male (right) by Elaine Evans, The Xerces Society.

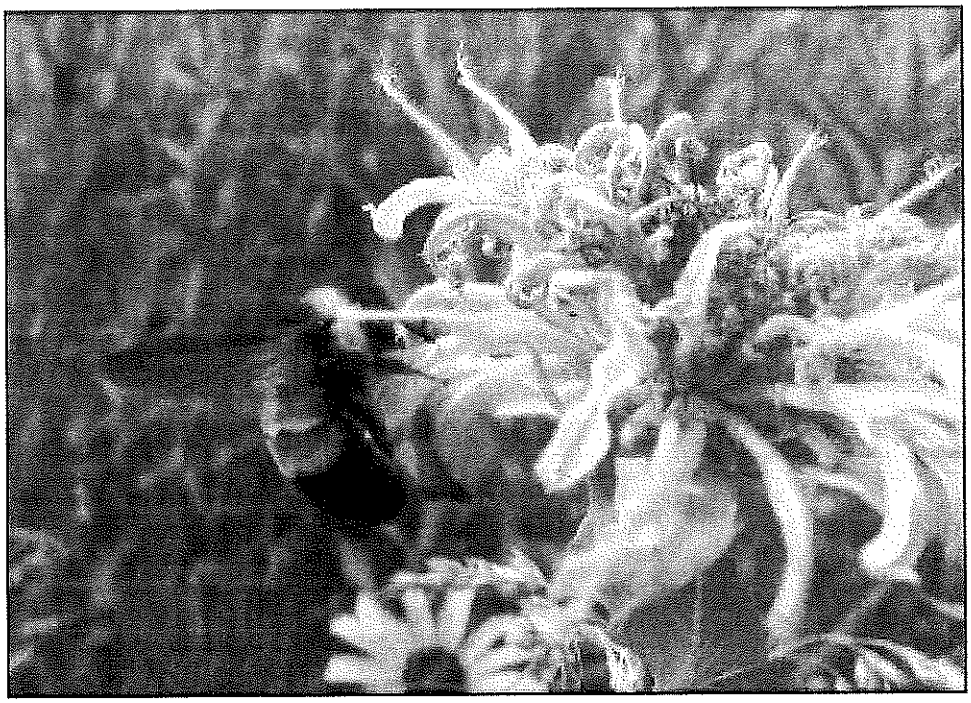


Photo courtesy of Christy Stewart

Reproduction: Rusty patched bumble bee colonies have an annual cycle. In spring, solitary queens emerge and find nest sites, collect nectar and pollen from flowers and begin laying eggs, which are fertilized by sperm stored since mating the previous fall. Workers hatch from these first eggs and colonies grow as workers collect food, defend the colony, and care for young. Queens remain within the nests and continue laying eggs. In late summer, new queens and males also hatch from eggs. Males disperse to mate with new queens from other colonies. In fall, founding queens, workers and males die. Only new queens go into diapause (a form of hibernation) over winter - and the cycle begins again in spring.

Feeding Habits: Bumble bees gather pollen and nectar from a variety of flowering plants. The rusty patched emerges early in spring and is one of the last species to go into hibernation.

Why conserve rusty patched bumble bees?

As pollinators, rusty patched bumble bees contribute to our food security and the healthy functioning of our ecosystems. Bumble bees are keystone species in most ecosystems, necessary not only for native wildflower reproduction, but also for creating seeds and fruits that feed wildlife as diverse as songbirds and grizzly bears.

Bumble bees are among the most important pollinators of crops such as blueberries, cranberries, and clover and almost the only insect pollinators of tomatoes. Bumble bees are more effective pollinators than honey bees for some crops because of their ability to "buzz pollinate." The economic value of pollination services provided by native insects (mostly bees) is estimated at $3 billion per year in the United States.

It needs a constant supply and diversity of flowers blooming throughout the colony's long life, April through September.

Range: Historically, the rusty patched bumble bee was broadly distributed across the eastern United States and Upper Midwest, from Maine in the U.S. and southern Quebec and Ontario in Canada, south to the northeast corner of Georgia, reaching west to the eastern edges of North and South Dakota. Its range included 28 states, the District of Columbia and 2 provinces in Canada. Since 2000, this bumble bee has been reported from only 13 states and 1 province: Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Minnesota, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, Wisconsin – and Ontario, Canada.

Why is the rusty patched bumble bee declining?

Habitat loss and degradation: Most prairies and grasslands of the Upper Midwest and Northeast have been converted to monoculture farms or developed areas, such as cities and roads. Grasslands that remain tend to be small and isolated.

Intensive farming: Increases in farm size and technology advances improved the operating efficiency of farms but have led to practices that harm bumble bees: increased use of pesticides, loss of crop diversity resulting in flowering crops being available for only a short time, loss of hedgerows with flowering plants, and loss of legume pastures.

Disease: Pathogens and parasites may pose a threat, although their prevalence and effects in North American bumble bees are not well understood.

Pesticides: The rusty patched bumble bee may be vulnerable to pesticides. Pesticides are used widely on farms and in cities and have both lethal and sublethal toxic effects. Bumble bees can absorb toxins directly through their exoskeleton and through contaminated nectar and pollen. Rusty patched bumble bees nest in the ground and may be susceptible to pesticides that persist in agricultural soils, lawns and turf.

Global climate change: Climate changes that may harm bumble bees include increased temperature and precipitation extremes, increased drought, early snow melt and late frost events. These changes may lead to more exposure to or susceptibility to disease, fewer flowering plants, fewer places for queens to hibernate and nest, less time for foraging due to high temperatures, and asynchronous flowering plant and bumble bee spring emergence.

What is being done to conserve rusty patched bumble bees?

U.S. Fish and Wildlife Service: Several Service programs work to assess, protect, and restore pollinators and their habitats. Also, the Service works with partners to recover endangered and threatened pollinators and pollinator-dependent plants. Concern about pollinator declines prompted formation of the North American Pollinator Protection Campaign, a collaboration of people dedicated to pollinator conservation and education. The Service has a Memorandum of Understanding with the Pollinator Partnership to work together on those goals. The Service is a natural collaborator because our mission is to work with others to conserve, fish, wildlife, and plants and their habitats.

Other Efforts: Trusts, conservancies, restoration groups and partnerships are supporting pollinator initiatives and incorporating native plants that support bees and other pollinators into their current activities. For example, the USDA Natural Resource Conservation Service is working with landowners in Michigan, Minnesota, Montana, North Dakota, South Dakota, and Wisconsin to make bee-friendly conservation improvements to their land. Improvements include the practices of planting cover crops, wildflowers, or native grasses and improved management on grazing lands.

Research: Researchers are studying and monitoring the impacts of GMO crops and certain pesticides on pollinators. Efforts by citizen scientists and researchers to determine the status of declining bee species are underway throughout the United States.

What can I do to help conserve the rusty patched bumble bee?

Garden: Grow a garden or add a flowering tree or shrub to your yard. Even small areas or containers on patios can provide nectar and pollen for native bees.

Native plants: Use native plants in your yard such as lupines, asters, bee balm, native prairie plants and spring ephemerals. Don't forget spring blooming shrubs like ninebark and pussy willow! Avoid invasive non-native plants and remove them if they invade your yard. For more information on attracting native pollinators, visit www.fws.gov/pollinators/pdfs/PollinatorBookletFinalrevWeb.pdf.

Natural landscapes: Provide natural areas - many bumble bees build nests in undisturbed soil, abandoned rodent burrows or grasss clumps. Keep some unmowed, brushy areas and tolerate bumble bee nests if you find them. Reduce tilling soil and mowing where bumble bees might nest. Support natural areas in your community, county and state.

Minimize: Limit the use of pesticides and chemical fertilizer whenever possible or avoid them entirely. Pesticides cause lethal and sublethal effects to bees and other pollinators.

Northern Long-eared Bat Fact Sheet

Northern Long-Eared Bat

Myotis septentrionalis

The northern long-eared bat is federally listed as a threatened species under the Endangered Species Act. ***Endangered*** species are animals and plants that are in danger of becoming extinct. ***Threatened*** species are animals and plants that are likely to become endangered in the foreseeable future. Identifying, protecting and restoring endangered and threatened species is the primary objective of the U.S. Fish and Wildlife Service's Endangered Species Program.

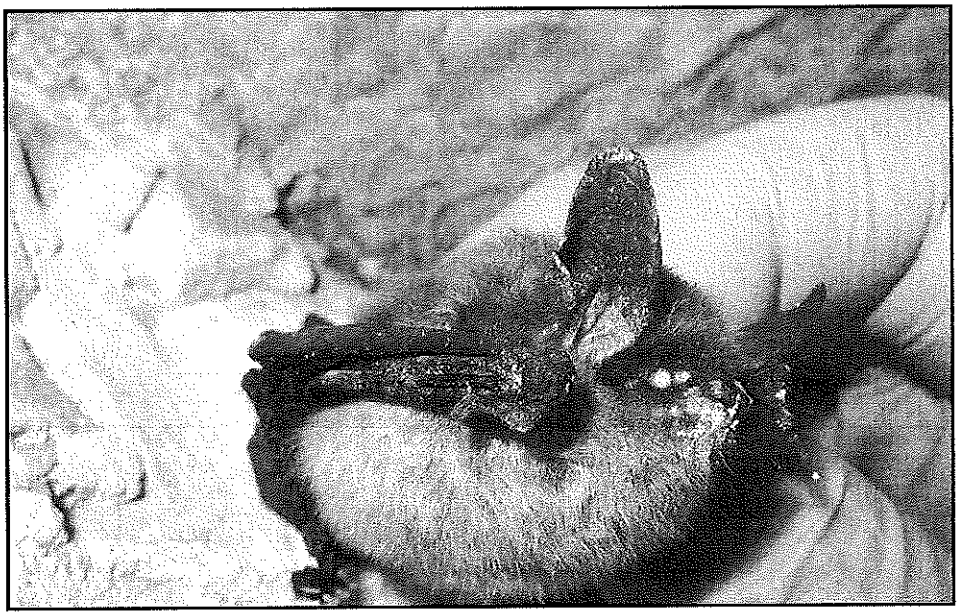


Photo by Steve Taylor: University of Illinois

This northern long-eared bat, observed during an Illinois mine survey, shows visible symptoms of white-nose syndrome.

What is the northern long-eared bat?

Appearance: The northern long-eared bat is a medium-sized bat with a body length of 3 to 3.7 inches and a wingspan of 9 to 10 inches. Their fur color can be medium to dark brown on the back and tawny to pale-brown on the underside. As its name suggests, this bat is distinguished by its long ears, particularly as compared to other bats in its genus, *Myotis*.

Winter Habitat: Northern long-eared bats spend winter hibernating in caves and mines, called hibernacula. They use areas in various sized caves or mines with constant temperatures, high humidity, and no air currents. Within hibernacula, surveyors find them hibernating most often in small crevices or cracks, often with only the nose and ears visible.

Summer Habitat: During the summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities or in crevices of both live trees and snags (dead trees). Males and non-reproductive females may also roost in cooler places, like caves and mines. Northern long-eared bats seem to be flexible in selecting roosts, choosing roost trees based on suitability to retain bark or provide cavities or crevices. They rarely roost in human structures like barns and sheds.

Reproduction: Breeding begins in late summer or early fall when males begin to swarm near hibernacula. After copulation, females store sperm during hibernation until spring. In spring, females emerge from their hibernacula, ovulate and the stored sperm fertilizes an egg. This strategy is called delayed fertilization.

After fertilization, pregnant bats migrate to summer areas where they roost in small colonies and give birth to a single pup. Maternity colonies of females and young generally have 30 to 60 bats at the beginning of the summer, although larger maternity colonies have also been observed. Numbers of bats in roosts typically decrease from the time of pregnancy to post-lactation. Most bats within a maternity colony give birth around the same time, which may occur from late May or early June to late July, depending where the colony is located within the species' range. Young bats start flying by 18 to 21 days after birth. Maximum lifespan for the northern long-eared bat is estimated to be up to 18.5 years.

Feeding Habits: Like most bats, northern long-eared bats emerge at dusk to feed. They primarily fly through the understory of forested areas feeding on moths, flies, leafhoppers, caddisflies, and beetles, which they catch while in flight using echolocation or by gleaning motionless insects from vegetation.

Range: The northern long-eared bat's range includes much of the eastern and north central United States, and all Canadian provinces from the Atlantic Ocean west to the southern Yukon Territory and eastern British Columbia. The species' range includes 37 States and the District of Columbia: Alabama, Arkansas, Connecticut, Delaware, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, Virginia, West Virginia, Wisconsin, and Wyoming.

Why is the northern long-eared bat in trouble?

White-nose Syndrome: No other threat is as severe and immediate as

this. If this disease had not emerged, it is unlikely that northern long-eared bat populations would be experiencing such dramatic declines. Since symptoms were first observed in New York in 2006, white-nose syndrome has spread rapidly from the Northeast to the Midwest and Southeast; an area that includes the core of the northern long-eared bat's range, where it was most common before this disease. Numbers of northern long-eared bats (from hibernacula counts) have declined by up to 99 percent in the Northeast. Although there is uncertainty about the rate that white-nose syndrome will spread throughout the species' range, it is expected to continue to spread throughout the United States in the foreseeable future.

Other Sources of Mortality:

Although no significant population declines have been observed due to the sources of mortality listed below, they may now be important factors affecting this bat's viability until we find ways to address WNS.

Impacts to Hibernacula: Gates or other structures intended to exclude people from caves and mines not only restrict bat flight and movement, but also change airflow and microclimates. A change of even a few degrees can make a cave unsuitable for hibernating bats. Also, cave-dwelling bats are vulnerable to human disturbance while hibernating. Arousal during hibernation causes bats to use up their energy stores, which may lead to bats not surviving through winter.

Loss or Degradation of Summer Habitat: Highway construction, commercial development, surface mining, and wind facility construction permanently remove habitat and are activities prevalent in many areas of this bat's range. Many forest management activities benefit bats by keeping areas forested rather than converted to other uses. But, depending on type and timing, some forest management activities can cause mortality and temporarily remove or degrade roosting and foraging habitat.

Wind Farm Operation: Wind turbines kill bats, and, depending on the species, in very large numbers. Mortality from windmills has been documented for northern long-eared bats, although a small number have been found to date. However, there are many wind projects within a large portion of the bat's range and many more are planned.

What Is Being Done to Help the Northern Long-Eared Bat?

Disease Management: Actions have been taken to try to reduce or slow the spread of white-nose syndrome through human transmission of the fungus into caves (e.g. cave and mine closures and advisories; national decontamination protocols). A national plan was prepared by the Service and other state and federal agencies that details actions needed to investigate and manage white-nose syndrome. Many state and federal agencies, universities and non-governmental organizations are researching this disease to try to control its spread and address its affect. See www.whitenosesyndrome.org/ for more.

Addressing Wind Turbine Mortality: The Service and others are working to minimize bat mortality from wind turbines on several fronts. We fund and conduct research to determine why bats are susceptible to turbines, how to operate turbines to minimize mortality and where important bird and bat migration routes are located. The Service, state natural resource agencies, and the wind energy industry are developing a Midwest Wind Energy Habitat Conservation Plan, which will provide wind farms a mechanism to continue operating legally while minimizing and mitigating listed bat mortality.

Listing: The northern long-eared bat is listed as a threatened species under the federal Endangered Species Act. Listing a species affords it the protections of the Act and also increases the priority of the species for funds, grants, and recovery opportunities.

Hibernacula Protection: Many federal and state natural resource agencies and conservation organizations have protected caves and mines that are important hibernacula for cave-dwelling bats.

What Can I Do?

Do Not Disturb Hibernating Bats: To protect bats and their habitats, comply with all cave and mine closures, advisories, and regulations. In areas without a cave and mine closure policy, follow approved decontamination protocols (see http://whitenosesyndrome.org/topics/decontamination). Under no circumstances should clothing, footwear, or equipment that was used in a white-nose syndrome affected state or region be used in unaffected states or regions.

Leave Dead and Dying Trees Standing: Like most eastern bats, the northern long-eared bat roosts in trees during summer. Where possible and not a safety hazard, leave dead or dying trees on your property. Northern long-eared bats and many other animals use these trees.

Install a Bat Box: Dead and dying trees are usually not left standing, so trees suitable for roosting may be in short supply and bat boxes may provide additional roost sites. Bat boxes are especially needed from April to August when females look for safe and quiet places to give birth and raise their pups.

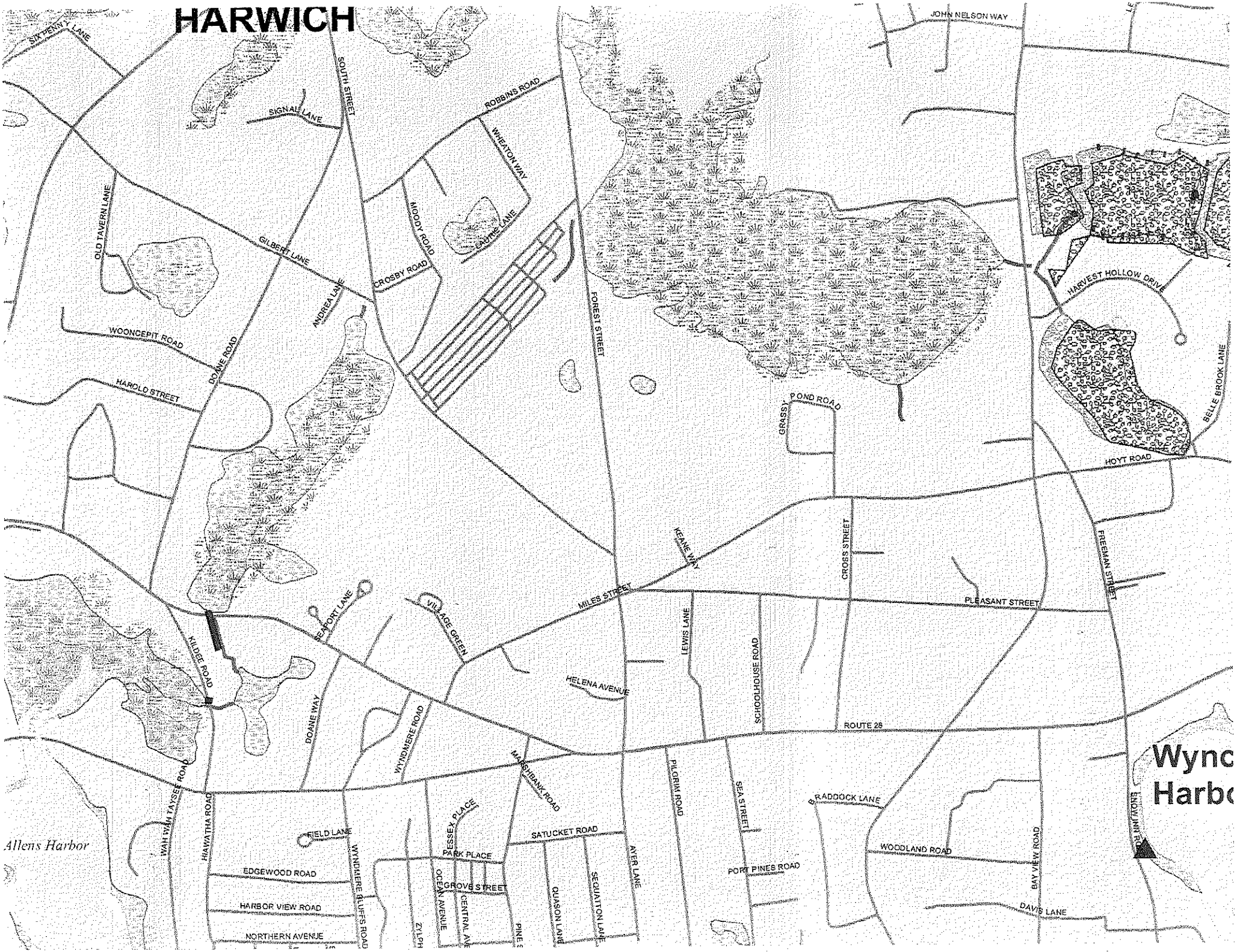
Support Sustainability: Support efforts in your community, county and state to ensure that sustainability is a development goal. Only through sustainable living will we provide rare and declining species, like the northern long-eared bat, the habitat and resources they need to survive alongside us.

Spread the Word: Understanding the important ecological role that bats play is a key to conserving the northern long-eared and other bats. Helping people learn more about the northern long-eared bat and other endangered species can lead to more effective recovery efforts. For more information, visit www.fws.gov/midwest/nleb and www.whitenosesyndrome.org

Join and Volunteer: Join a conservation group; many have local chapters. Volunteer at a local nature center, zoo, or national wildlife refuge. Many state natural resource agencies benefit greatly from citizen involvement in monitoring wildlife. Check your state agency websites and get involved in citizen science efforts in your area.

Attachment B

Outfall Map


HARWICH
SIX PENNY LANE
SOUTH STREET
SIGNAL LANE
ROBBINS ROAD
WHEATON WAY
MOODY ROAD
EASTMAN LANE
OLD TAVERN LANE
GILBERT LANE
CROSBY ROAD
ANDREA LANE
FOREST STREET
JOHN NELSON WAY
HARVEST HOLLOW DRIVE
BELLE BROOK LANE
WOONCEPIT ROAD
DOANE ROAD
HAROLD STREET
GRASSY POND ROAD
HOYT ROAD
KEANE WAY
CROSS STREET
FREEMAN STREET
MILES STREET
PLEASANT STREET
SEAPORT LANE
VILLAGE GREEN
KILDEE ROAD
LEWIS LANE
SCHOOLHOUSE ROAD
HELENA AVENUE
ROUTE 28
DOANE WAY
WYNDMERE ROAD
MARSHPANK ROAD
PILGRIM ROAD
SEA STREET
RADDOCK LANE
WAH WAM TAYSEE ROAD
HIAWATHA ROAD
FIELD LANE
ESSEX PLACE
SATUCKET ROAD
PARK PLACE
AYER LANE
WOODLAND ROAD
BAY VIEW ROAD
EDGEWOOD ROAD
WYNDMERE BLUFFS ROAD
OCEAN AVENUE
GROVE STREET
CENTRAL AVE
QUASON LANE
SEQUATTON LANE
PORT PINES ROAD
HARBOR VIEW ROAD
NORTHERN AVENUE
DAVIS LANE
Allens Harbor
Wync
Harbo

Comprehensive Stormwater and Illicit Discharge Regulations

Section 1: Authority

These Stormwater and Illicit Discharge Regulations (the "Regulations") have been adopted by the Town of Harwich Board of Selectmen acting in their capacity as the Sewer Governance Board which shall hereafter also act as the Town of Harwich Stormwater Authority. These regulations are enacted pursuant to G.L. c. 83, §10 and Chapter 295 of the Code of the Town of Harwich. Nothing in these Regulations is intended to replace or be in derogation of the requirements of the Town of Harwich Zoning Bylaw, Wetlands Protection Bylaw, Subdivision of Land and Site Plan Special Permits Regulation, or any other Regulations adopted thereunder.

Section 2: Purpose

The purpose of these Regulations is to protect, maintain and enhance the public health, safety, environment, and general welfare by establishing minimum requirements and procedures to control the adverse effects of increased runoff, decreased ground water recharge, erosion and sedimentations, nonpoint source pollution associated with new development and redevelopment of land.

These Regulations have been established to provide reasonable guidance for the regulation of design, construction and post-development stormwater runoff for the purpose of protecting local water resources from degradation. It is in the public interest to regulate construction and post-development stormwater runoff discharges in order to control and minimize increases in stormwater runoff rates and volumes, soil erosion and sedimentation, stream channel erosion, and nonpoint source pollution associated with construction site and post-development stormwater runoff.

These Regulations are also intended to eliminate non-stormwater discharges to the Town of Harwich's Municipal Separate Storm Sewer System (MS4). Regulation of illicit connections and discharges to the storm drain system is necessary for the protection of the Town of Harwich's natural resources, municipal facilities, general health, safety, welfare and the environment.

Section 3: Definitions

Abutter - The owner(s) of land abutting the activity.

Agriculture - The normal maintenance or improvement of land in agricultural or aquaculture use, as defined by the Massachusetts Wetlands Protection Act and its implementing regulations.

Alteration of Drainage Characteristics - Any activity on an area of land that changes the water quality, force, direction, timing or location of runoff flowing from the area. Such changes include: change from distributed runoff to confined, discrete discharge, change in the volume of runoff from the area; change in the peak rate of runoff from the area; and change in the recharge to

groundwater on the area.

Applicant - Any person, individual, partnership, association, firm, company, corporation, trust, authority, agency, department, or political subdivision, of the Commonwealth or the Federal government to the extent permitted by law requesting a soil erosion and sediment control permit for proposed land-disturbance activity.

Best Management Practice (BMP) - An activity, procedure, restraint, or structural improvement that helps to reduce the quantity or improve the quality of stormwater runoff.

Certificate of Completion (COC) - A document issued by the Storm Water Authority after all construction activities have been completed, which states that all conditions of an issued Local Stormwater Management Permit have been met and that a project has been completed in compliance with the conditions set forth in the Stormwater Regulations.

Certified Professional in Erosion and Sediment Control (CPESC) - A certified specialist in soil erosion and sediment control. This certification program, sponsored by the Soil and Water Conservation Society in cooperation with the American Society of Agronomy, provides the public with evidence of professional qualifications.

Construction and Waste Materials - Excess or discarded building or site materials, including but not limited to concrete truck washout, chemicals, litter and sanitary waste at a construction site that may adversely impact water quality.

Clean Water Act - The Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.) as hereafter amended.

Clearing - Any activity that removes the vegetative surface cover.

Development - The modification of land to accommodate a new use or expansion of use, usually involving construction.

Discharge of Pollutants - The addition from any source of any pollutant or combination of pollutants into the municipal storm drain system or into the waters of the United States or Commonwealth from any source.

Disturbance of Land - Any action that causes a change in the position, location, or arrangement of soil, sand rock, gravel of similar earth material; results in an increased amount of runoff or pollutants; measurably changes the ability of a ground surface to absorb waters, involves clearing and grading, or results in an alteration of drainage characteristics.

Drainage Easement - A legal right granted by a landowner to a grantee allowing the use of private land for stormwater management purposes.

Erosion - The wearing away of the land surface by natural or artificial forces such as wind, water, ice, gravity, or vehicle traffic and the subsequent detachment and transportation of soil particles.

Erosion and Sedimentation Control Plan - A document containing narrative, drawings and details developed by a qualified professional engineer (PE) or a Certified Professional in Erosion and Sedimentation Control (CPESC), which includes best management practices, or equivalent measures designed to control surface runoff, erosion and sedimentation during pre-construction and construction related land disturbance activities.

Erosion Control - The prevention or reduction of the movement of soil particles or rock fragments due to stormwater runoff.

Estimated Habitat of Rare Wildlife and Certified Vernal Pools - Habitats delineated for state-protected rare wildlife and certified vernal pools for use with the Wetlands Protection Act Regulations (310 CMR 10.00) and the Forest Cutting Practices Act Regulations (304 CMR 11.00).

Flooding - A local and temporary inundation or rise in the surface of a body of water, such that covers land not usually under water.

Grading - Changing the level or shape of the ground surface.

Groundwater - Water beneath the surface of the ground in the cracks and spaces in soil, sand, and rock.

Illicit Connection - A surface or subsurface drain or conveyance which allows an illicit discharge into the municipal storm drain system, including without limitation sewage, process wastewater, or wash water, and any connections from indoor drains, sinks, or toilets, regardless of whether said connection was previously allowed, permitted, or approved before the effective date of these Regulations.

Illicit Discharge - Direct or indirect discharge to the municipal storm drain system or into a watercourse or the waters of the Commonwealth that is not composed entirely of stormwater. The term does not include a discharge in compliance with an NPDES stormwater discharge permit or resulting from fire-fighting activities.

Impervious Surface - Any material or structure on or above the ground that prevents water infiltrating the underlying soil. "Impervious surface" includes without limitation roads, paved parking lots, sidewalks, and rooftops.

Impoundment - A stormwater pond created by either constructing an embankment or excavating a pit which retains a permanent pool of water.

Infiltration - The act of conveying surface water into the ground to permit groundwater recharge and the reduction of stormwater runoff from a project site.

Land Disturbing Activity - Any activity that causes a change in the position or location of soil, sand, rock, gravel, or similar earth material; results in an increased amount of runoff or pollutants; measurably changes the ability of a ground surface to absorb waters, involves clearing and grading, or results in an alteration of drainage characteristics.

Land Use of Higher Potential Pollutant Load (LUHPPL) - Land uses or activities with higher potential pollutant loadings, such as auto salvage yards, auto fueling facilities, exterior fleet storage yards, vehicle service and equipment cleaning areas, commercial parking lots with high intensity use, road salt storage areas, outdoor storage and loading areas of hazardous substances, confined disposal facilities and disposal sites, and marinas or boat yards, as defined under Massachusetts Stormwater Standards Section 5.

Massachusetts Endangered Species Act - G.L. c. 131A and its implementing regulations at (321 CMR 10.00) which prohibit the "taking" of any rare plant or animal species listed as Endangered, Threatened, or of Special Concern.

Massachusetts Stormwater Management Standards - The Standards as further defined by the Massachusetts Stormwater Handbook, issued by the Department of Environmental Protection, and as amended, that coordinates the requirements prescribed by state regulations promulgated under the authority of the Massachusetts Wetlands Protection Act G.L. c. 131 §. 40 and Massachusetts Clean Waters Act G.L. c. 21, §. 23-56. The Standards address stormwater impacts through implementation of performance standards to reduce or prevent pollutants from reaching water bodies and control the quantity of runoff from a site.

Municipal Separate Storm Sewer System (MS4) - The system of conveyances designed or used for collecting or conveying stormwater, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the Town of Harwich.

National Pollutant Discharge elimination System (NPDES) Stormwater Discharge Permit - A permit issued by United States Environmental Protection Agency or jointly with the Commonwealth of Massachusetts that authorizes the discharge of pollutants to waters of the United States.

Non-Stormwater Discharge - Discharge to the municipal storm drain system not composed entirely of stormwater.

Operation and Maintenance Plan - A plan setting up the functional, financial and organizational mechanisms for the ongoing operation and maintenance of a stormwater management system to insure that it continues to function as designed.

Outfall - The point at which stormwater flows out from a point source discernible, confined and

discrete conveyance into waters of the Commonwealth.

Outstanding Resource Waters (ORWs) - Waters designated by Massachusetts Department of Environmental Protection as ORWs. These waters have exceptional sociologic, recreational, ecological and/or aesthetic values and are subject to more stringent requirements under both the Massachusetts Water Quality Standards (314 CMR 4.00) and the Massachusetts Stormwater Management Standards. ORWs include vernal pools certified by the Natural Heritage Program of the Massachusetts Department of Fisheries and Wildlife and Environmental Law Enforcement, all Class A designated public water supplies with their bordering vegetated wetlands, and other waters specifically designated.

Owner - A person with a legal or equitable interest in property.

Person - An individual, partnership, association, firm, company, trust, corporation, agency, authority, department or political subdivision of the commonwealth or the federal government, to the extent permitted by law, and any officer, employee, or agent of such person.

Point Source - Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, or container from which pollutants are or may be discharged.

Pre-Construction - All activity in preparation for construction.

Pollutant - Any element or property of sewage, agricultural, industrial or commercial waste, runoff, leachate, heated effluent, or other matter, whether originating at a point or nonpoint source, that is or may be introduced into any sewage treatment works or waters of the commonwealth. Pollutants shall include without limitation:

A. Paints, varnishes, and solvents;
B. Oil and other automotive fluids;
C. Nonhazardous liquid and solid wastes and yard wastes;
D. Refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordnance, accumulations and floatables;
E. Pesticides, herbicides, and fertilizers;
F. Hazardous materials and wastes; sewage, fecal coliform and pathogens;
G. Dissolved and particulate metals;
H. Animal wastes;
I. Rock; sand; salt; soils;
J. Construction wastes and residues; and
K. Noxious or offensive matter of any kind.

Priority Habitat of Rare Species - Habitats delineated for rare plant and animal populations protected pursuant to the Massachusetts Endangered Species Act and its regulations.

Process Wastewater - Water which, during manufacturing or processing, comes into direct

contact with or results from the production or use of any material, intermediate product, finished product, or waste product.

Recharge - The process by which groundwater is replenished by precipitation through the percolation of runoff and surface water through the soil.

Redevelopment - Development, rehabilitation, expansion, demolition or phased projects that disturb the ground surface, including impervious surfaces, on previously developed sites. The creation of new areas of impervious surface or new areas of land disturbance on a site constitutes development, not redevelopment, even where such activities are part of a common plan which also involves redevelopment. Redevelopment includes maintenance and improvement of existing roadways including widening less than a single lane, adding shoulders, correcting substandard intersections, improving existing drainage systems and repaving; and remedial projects specifically designed to provide improved stormwater management such as projects to separate storm drains and sanitary sewers and stormwater retrofit projects.

Runoff - Rainfall, snowmelt, or irrigation water flowing over the ground surface.

Sediment - Mineral or organic soil material that is transported by wind or water, from its origin to another location; the product of erosion processes.

Sedimentation - The process or act of deposition of sediment.

Site - Any lot or parcel of land or area of property where land-disturbing activities are, were, or will be performed.

Slope - The incline of a ground surface expressed as a ratio of horizontal distance to vertical distance.

Soil - Any earth, sand, rock, gravel, or similar material.

Stabilization - The use, singly or in combination, of mechanical, structural, or vegetative methods, to prevent or retard erosion.

Stormwater Authority – The Town of Harwich Board of Selectmen or its authorized agent(s) shall act as the Town's Stormwater Authority.

Stormwater - Runoff from precipitation or snow melt and surface water runoff and drainage.

Stormwater Management Plan - A plan required as part of the application for a Stormwater Management Permit.

Strip - Any activity which removes the vegetative ground surface cover, including tree removal, clearing, grubbing or removing roots or stumps, and storage or removal of topsoil.

Toxic or Hazardous Material or Waste - Any material which, because of its quantity, concentration, chemical, corrosive, flammable, reactive, toxic, infectious or radioactive characteristics, either separately or in combination with any substance or substances, constitutes a present or potential threat to human health, safety, welfare, or to the environment. Toxic or hazardous materials include any synthetic organic chemical, petroleum product, heavy metal, radioactive or infectious waste, acid and alkali, and any substance defined as "toxic" or "hazardous" under MGL c. 21C and c. 21E, and the regulations at 310 CMR 30.000 and 310 CMR 40.0000.

TSS - Total Suspended Solids.

Vernal Pools - Temporary bodies of freshwater which provide critical habitat for a number of vertebrate and invertebrate wildlife species.

Watercourse - A natural or man-man channel through which water flows or a stream of water, including a river, brook, or underground stream.

Wastewater - Any sanitary waste, sludge, or septic tank or cesspool overflow, and water that during manufacturing, cleaning or processing comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, by-product or waste product.

Watercourse - A natural or man-made channel through which water flows or a stream of water, including a river, brook or underground stream.

Waters of the Commonwealth - All waters within the jurisdiction of the commonwealth, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, coastal waters, and groundwater.

Wetland Resource Area - Areas specified in the Massachusetts Wetlands Protection Act G.L. c. 131, § 40 and in the Town of Harwich Wetlands Protection Bylaw.

Wetlands - Tidal and non-tidal areas characterized by saturated or nearly saturated soils most of the year that are located between terrestrial (land-based) and aquatic (water-based) environments, including freshwater marshes around ponds and channels (rivers and streams), brackish and salt marshes; common names include marshes, swamps and bogs.

Section 4: Administration

A. The Town of Harwich and its Stormwater Authority shall administer, implement, and enforce these Regulations. Any powers granted to or duties imposed upon the Stormwater Authority may be delegated in writing by the Stormwater Authority to its employees or agents.

B. Prior to the issuance of any Special Permit, Site Plan Approval, or Building Permit for any proposed development listed below, a Local Stormwater Permit must be approved by the Stormwater Authority. No person shall, on or after the effective date of the by-law, initiate any vegetation clearing, land grading, earth moving or development activities without first complying with these Regulations.

C. Waiver. Following a public hearing on a waiver request, the Stormwater Authority may waive strict compliance with any requirement of these Regulations promulgated hereunder:

1. Where such action is:

   a. Allowed by federal, state and local statutes and/or regulations;
   b. In the public interest; and
   c. Not inconsistent with the purpose and intent of these Regulations.

2. Any applicant must submit a written request to be granted such a waiver. Such a request shall be accompanied by an explanation or documentation supporting the waiver request and demonstrating that strict application of these Regulations does not further the purposes or objectives of these Regulations.

3. All waiver requests shall be discussed and voted on at the public hearing for the project.

D. If in the Stormwater Authority's opinion, additional time or information is required for review of a waiver request, the Stormwater Authority may continue a hearing to a certain date announced at the meeting. In the event the applicant objects to a continuance, or fails to provide requested information, the waiver request shall be denied.

E. Stormwater Authority may amend rules and regulations after holding a public hearing. Notice of the time, place and subject matter shall be published in a newspaper of general circulation in Harwich once, not less than 14 days before the day of such a hearing.

F. Approval by the Stormwater Authority under these Regulations does not exempt the applicant from meeting the requirements of the federal National Pollutant Discharge Elimination System (NPDES) program, which requires a Notice of Intent be filed with the EPA and a Stormwater Pollution Prevention Plan (SWPPP) be prepared and maintained on site, and compliance with the Massachusetts Stormwater Standards, nor does it supersede compliance with the requirements of the Harwich Conservation Commission and the Massachusetts Department of Environmental Protection

Section 5: Applicability

A. These Regulations shall apply to land disturbances that drain to the municipal storm drain

system or, directly or indirectly, into a watercourse or water of the Commonwealth. Except as authorized by the Stormwater Authority in a Local Stormwater Permit, no person shall perform any activity that results in a land disturbance above the threshold contained in this subsection, below.

B. The following uses and activities shall be regulated under this by-law:

1. Subdivisions and construction activities of any kind disturbing an area equal to or greater than one (1) acre (43,560 square feet); and

2. Development or redevelopment involving multiple separate activities in discontinuous locations or on different schedules if the activities are part of a larger common plan of development or sale that would disturb area equal to or greater than one (1) acre (43,560 square feet).

C. These regulations do not apply to single family residential uses that are not part of a larger subdivision of one (1) acre (43,560 square feet) or greater.

D. The following activities are exempt from the provisions of Section 5(B) above.

1. Any agricultural activity which is consistent with an approved soil conservation plan prepared or approved by the NRCS;

2. Any logging which is consistent with a timber management plan already approved under the Forest Cutting Practices Act by the Massachusetts Department of Conservation and Recreation;

3. Maintenance of existing landscaping, gardens or lawn areas associated with a single family dwelling conducted in such a way as not to cause a nuisance;

4. Any emergency activity that is immediately necessary for the protection of life, property or the environment, as determined by the Stormwater Authority; and

5. Construction of utilities other than drainage (gas, water, electric, telephone, etc.) which will not alter terrain or drainage patters or result in discharge of sediment to the municipal storm drain.

6. Disturbance of land, or redevelopment, subject to jurisdiction under the Wetlands Protection Act so long as the project has demonstrated compliance with the Massachusetts Stormwater Management Standards as further defined by the Massachusetts Stormwater Handbook, and with the requirements of these Regulations as reflected in a valid Order of Conditions issued by the Conservation Commission.

Section 6: Local Stormwater Permit Procedures

A. A complete application for a Local Stormwater Permit shall be filed with the Stormwater Authority. The application package shall include:

1. A completed application form with original signatures of all owners.

2. A list of abutters within 300 feet of the property, certified by the Assessor's Office.

3. ## copies of the:

   a. Stormwater Management Plan that complies with Section 7 and 8;
   b. Erosion and Sediment Control Plan that complies with Sections 9 and 10; and
   c. Operation and Maintenance Plan (Section 11)

4. Payment of the application and review fees.

5. One (1) copy of each of the application form and the list of abutters filed with the Town Clerk.

6. One (1) copy of the NPDES Notice of Intent (NOI) and the SWPPP.

   a. The SWPPP shall include sufficient information to evaluate the environmental characteristics of the affected areas, the potential impacts of the proposed development on water resources, and the effectiveness and acceptability of measures proposed for managing stormwater runoff. The SWPPP shall be designed to meet the Massachusetts Stormwater Management Standards as set forth in the DEP/CZM Stormwater Management Handbook Volumes I and II. The applicant shall certify on the drawings that all clearing, grading, drainage, construction, and development shall be conducted in accordance with the SWPPP.

   b. The Stormwater Authority may require additional information or data deemed appropriate and may impose such conditions as may be deemed necessary to ensure compliance with the provisions of this by-law, or to protect public health and safety

B. Information requests. The applicant shall submit all additional information requested by Stormwater Authority to issue a decision on the application.

C. Determination of Completeness. The Stormwater Authority shall make a determination as to the completeness of the application and adequacy of the materials submitted. No review shall take place until the application has been found to be complete.

D. Fee Structure. The fee for review of any Local Stormwater Management Permit application shall be based on the amount of land to be disturbed at the site and the fee structure established by the Stormwater Authority. Stormwater Authority is authorized to retain a Registered Professional Engineer or other professional consultant to advise Stormwater Authority on any or all aspects of the Application.

E. Entry. Filing an application for a permit grants the Stormwater Authority, or its agent, permission to enter the site to verify the information in the application and to inspect for compliance with permit conditions.

F. Other Boards. The Stormwater Authority shall notify the Town Clerk of receipt of the application, and shall give one copy of the application package to the Planning Board, the Engineering Department, the Conservation Commission, and the Department of Public Works.

G. Public Hearing. Stormwater Authority shall hold a public hearing within twenty-one (21) days of the receipt of a complete application and shall take final action within twenty-one (21) days from the time of the close of the hearing, unless such time is extended by agreement between the applicant and Stormwater Authority. Notice of the public hearing shall be given by publication and posting and by first-class mailings to abutters at least seven (7) days prior to the hearing. Stormwater Authority shall make the application available for inspection by the public during business hours at the Harwich Town Hall.

H. The Stormwater Authority may take the following actions:

1. Approve the Local Stormwater Permit Application and issue a permit if it finds that the proposed plan will protect water resources and meets the objectives and requirements of this by-law.

2. Approve the Local Stormwater Permit Application and issue a permit with conditions, modifications or restrictions that Stormwater Authority determines are required to ensure that the project will protect water resources and meets the objectives and requirements of this by-law.

3. Disapprove the Local Stormwater Permit Application and deny the permit if it finds that the proposed plan will not protect water resources or fails to meet the objectives and requirements of this by-law.

4. Disapprove the Local Stormwater Permit Application "without prejudice" where an applicant fails to provide requested additional information or review fees that in the Stormwater Authority's opinion are needed to adequately describe or review the proposed project.

I. Final Approval. Final approval, if granted, shall be endorsed on the Stormwater Management Permit by the signature of the majority of the Stormwater Authority (or by the signature of the person officially authorized by the Stormwater Authority).

J. Project Changes. The permittee, or their agent, must notify Stormwater Authority in writing of any change or alteration of a land-disturbing activity authorized in a Local Stormwater Permit before any change or alteration occurs. If Stormwater Authority determines that the change or alteration is significant, based on the design requirements and accepted construction practices, Stormwater Authority may require that an amended Local Stormwater Permit application be filed and a public hearing held. If any change or alteration from the Local Stormwater Permit occurs during any land disturbing activities, Stormwater Authority may require the installation of interim erosion and sedimentation control measures before approving the change or alteration.

Section 7: Stormwater Management Plan Submission Requirements

A. A Stormwater Management Plan containing sufficient information to evaluate the environmental impact, effectiveness, and acceptability of the site planning process and measures proposed by the applicant to reduce adverse impacts from construction and on a long-term basis shall be submitted as part of the application for a Local Stormwater Management Permit.

B. The Stormwater Management Plan shall fully comply with the Standards in Section 9.

C. The Stormwater Management Plan shall fully describe the project in narrative, drawings, and calculations. It shall include at a minimum:

1. Contact Information. The name, address, and telephone number of all persons having a legal interest in the property and the Assessor's map and parcel numbers of the property or properties affected.

2. Narrative describing the following elements:

    a. Purpose
    b. Methodologies and assumptions
    c. Existing and proposed uses and conditions
    d. Project impacts and mitigation techniques including:
        i. Summary of proposed land area to be cleared, proposed impervious area, work within proximity of regulated wetland resources, aquifer protection zones, earthwork within four (4) feet of seasonal high groundwater elevations, and other sensitive environmental areas.
        ii. Low impact development (LID) techniques considered for this project and an explanation as to why they were included or excluded from the project.
        iii. Best management practices proposed for this project.
        iv. Identifying the immediate down gradient waterbody(s) that stormwater

runoff from the project site discharges to, the LIDs and BMPs included in the project to address the pollutant(s) of concern, and EPA's waterbody assessment and TMDL status of the waterbody(s) http://www.epa.gov/region1/npdes/stormwater/ma.html.

e. Summary of pre- and post-development peak rates and volumes of stormwater runoff to show no adverse impacts to down-gradient properties, stormwater management systems and wetland resources.
f. Conclusions

3. Plans

a. Portion of the USGS Map indicating the site locus and properties within a minimum of 500 feet of project property line.
b. Existing conditions and proposed design plans showing:
    i. Buildings and/or structures including materials and approximate height
    ii. Utilities including size, material, and invert data
    iii. Regulated wetland resource areas within proximity of the site
c. Stormwater management design plan(s) and details showing:
    i. Location, size, material, inverts data and details for all existing and proposed stormwater management system components including structures, pipes, swales, detention, retention, and infiltration systems and any other LID techniques or BMPs.
    ii. Profiles of drainage trunk lines
    iii. Drainage easements
d. Separate Pre- and Post-Condition Watershed Plans indicating:
    i. Structures, pavements, surface vegetation and other ground cover materials
    ii. Topography sufficient to delineate watershed areas
    iii. Point(s) of analysis
    iv. Watershed areas, including upgradient areas that contribute stormwater flow onto the project site, labeled to be easily identified in calculations – total pre and post watershed areas should be equivalent.
    v. Breakdown summary of various surface conditions by soil hydrologic group rating
    vi. Flow path for time of concentration (Tc) calculation

4. Calculations

a. Hydrologic calculation to determine pre and post peak rates and volumes of stormwater runoff for 2, 10, 25, and 100 year, 24-hour storm events
b. Groundwater recharge calculations and BMP drawdown
c. Water quality calculations including (if applicable):
    vii. TSS removal calculation for each watershed
    viii. Specified BMPs utilized in critical areas
    ix. Specific Treatment for pollutant causing impairment of down-gradient

waterbody identified by EPA and MassDEP

d. Hydraulic calculations to size drainage pipes, swales and culverts
e. Supplemental calculations for sizing LID and BMPs and addressing impairments to water bodies

5. Soil mapping and test data.

6. MassDEP Checklist for Stormwater Report completed, stamped and signed by a Professional Engineer (PE) licensed in the Commonwealth of Massachusetts to certify that the Stormwater Management Plan is in accordance with the criteria established in the MassDEP Stormwater Management Standards, Harwich Stormwater Management By-law and these Regulations.

7. Any other information requested by the Stormwater Authority.

Section 8: Stormwater Management Plan Standards

A. The Plan shall be designed to meet the Massachusetts Stormwater Management Standards as further defined in the Massachusetts Stormwater Handbook and any additional standards required by these Regulations.

B. To the extent that any project within the jurisdiction of these Regulations is located in an area subject to one or more pollutant-specific Total Maximum Daily Loads (TMDLs), such project is required to implement structural and non-structural stormwater best management practices (BMPs) that are consistent with each such TMDL and its associated Waste Load Allocation (for point sources) and Load Allocation (for nonpoint sources). The Stormwater Authority may develop, publish and periodically revise one or more pollutant-specific guidance documents describing the geographic applicability of each TMDL and identifying BMPs that individually or in combination are considered to be consistent with the TMDL(s).

C. Low Impact Development (LID) site planning and design strategies must be used to the maximum extent feasible.

D. The Plan shall be designed to meet the requirements contained in the latest version of EPA's MS4 General Permit for Massachusetts section on Post-Construction Stormwater management:

1. The following standards apply to new development:

a. Stormwater management systems shall fully comply with the standards of the Massachusetts Stormwater Management Standards listed in Section 9(D)(3) below, and as updated or amended.

b. Stormwater management systems shall:

i. Retain the volume of runoff equivalent to, or greater than, one (1.0) inch multiplied by the total post-construction impervious surface area on the site, and/or

ii. Remove 90% of the average annual load of Total Suspended Solids (TSS) generated from the total post-construction impervious surface area on the site (average removal over a year) and 50% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site. Pollutant removal shall be calculated consistent with EPA Region 1 BMP Performance Extrapolation Tool or other BMP performance evaluation tool provided by EPA Region 1. If EPA Region 1 tools do not address the planned or installed BMP performance, any federally or State approved BMP design guidance or performance standards may be used to calculated BMP performance.

2. The following standards apply to redevelopment:

a. Stormwater management systems shall comply to the maximum extent feasible with the standards listed in the Massachusetts Stormwater Management Standards listed in Section 9(D)(3) below, and as updated or amended.

b. Stormwater management systems shall

i. Retain the volume of runoff equivalent to, or greater than, eight-tenths (0.8) inch multiplied by the total post-construction impervious surface area on the site and/or

ii. Remove 80% of the average annual load of Total Suspended Solids (TSS) generated from the total post-construction impervious surface area on the site (average removal over a year) and 50% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site. Pollutant removal shall be calculated consistent with EPA Region 1 BMP Performance Extrapolation Tool or other BMP performance evaluation tool provided by EPA Region 1. If EPA Region 1 tools do not address the planned or installed BMP performance, any federally or State approved BMP design guidance or performance standards may be used to calculated BMP performance.

c. Stormwater management systems on redevelopment sites may utilize offsite mitigation within the same USGS Hydrologic Unit Code (HUC) 10 watershed as the redevelopment site to meet the equivalent retention or pollutant removal requirements in Section 9(D)(2).

3. Requirements of the Massachusetts Stormwater Management Standards:

   a. Conveyances. No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to, or cause erosion in, wetlands or waters of the Commonwealth.

   b. Peak Runoff. Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

   c. Groundwater Recharge. Loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

   d. Discharge of Pollutants. For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

   e. Protection of Zone II or Interim Wellhead Protection Areas. Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into

account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "storm water discharge" as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply.

f. Long Term Maintenance. A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed

Section 9: Erosion and Sediment Control Plan Submission Requirements

A. An Erosion and Sediment Plan containing sufficient information to evaluate compliance with these Regulations and, if applicable, the NPDES General Permit for Stormwater Discharges from Construction Activates, shall be submitted as part of the application for a Local Stormwater Management Permit.

B. The Erosion and Sediment Control Plan shall fully comply with the standards in Section 11.

C. If the project requires a SWPPP, the permittee is required to submit a complete copy of the SWPPP, including the signed Notice of Intent (NOI) and approval letter. If the SWPPP meets the requirements of the General Permit, it will be considered equivalent to the Erosion and Sediment Control Plan described in this section.

D. The Erosion and Sediment Control Plan shall contain the following information:

1. Names, addresses, and telephone numbers of the owner, applicant, and person(s) or firm(s) preparing the plan;
2. Title, date, north arrow, names of abutters, scale, legend, and locus map;
3. Location and description of natural features including:
   a. Watercourses and water bodies, wetland resource areas and all floodplain information, including the 100-year flood elevation based upon the most recent Flood Insurance Rate Map, or as calculated by a professional engineer for areas not assessed on these maps;
   b. Existing vegetation including tree lines, canopy layer, shrub layer, and ground cover, and trees with a caliper twelve (12) inches or larger, noting specimen trees and forest communities; and
   c. Habitats mapped by the Massachusetts Natural Heritage & Endangered Species Program as Endangered, Threatened or of Special Concern, Estimated Habitats of Rare Wildlife and Certified Vernal Pools, and Priority Habitats of Rare Species within five hundred (500) feet of any construction activity.

4. Lines of existing abutting streets showing drainage and driveway locations and curb cuts;
5. Existing soils, volume and nature of imported soil materials;
6. Topographical features including existing and proposed contours at intervals no greater than two (2) feet with spot elevations provided when needed;
7. Surveyed property lines showing distances and monument locations, all existing and proposed easements, rights-of-way, and other encumbrances, the size of the entire parcel, and the delineation and number of square feet of the land area to be disturbed;
8. Drainage patterns and approximate slopes anticipated after major grading activities (Construction Phase Grading Plans);
9. Location and details of erosion and sediment control measures with a narrative of the construction sequence/phasing of the project, including both operation and maintenance for structural and non-structural measures, interim grading, and material stockpiling areas;
10. Path and mechanism to divert uncontaminated water around disturbed areas, to the maximum extent practicable;
11. Location and description of industrial discharges, including stormwater discharges from dedicated asphalt plants and dedicated concrete plants, which are covered by this permit;
12. Stormwater runoff calculations in accordance with the Department of Environmental Protection's Stormwater Management Standards;
13. Location and description of and implementation schedule for temporary and permanent seeding, vegetative controls, and other stabilization measures;
14. A description of construction and waste materials expected to be stored on-site. The Plan shall include a description of controls to reduce pollutants from these materials, including storage practices to minimize exposure of the materials to stormwater, and spill prevention and response;
15. A description of provisions for phasing the project where one acre of area or greater is to be altered or disturbed;
16. Plans must be stamped and certified by a qualified Professional Engineer registered in Massachusetts or a Certified Professional in Erosion and Sediment Control; and
17. Such other information as is required by the Stormwater Authority.

E. The Erosion and Sediment Control Plan shall remain on file with the Stormwater Authority.

Section 10: Erosion Control Performance Standards

A. The Erosion and Sediment Control Plan shall contain sufficient information to describe the nature and purpose of the proposed development, pertinent conditions of the site and the adjacent areas, and proposed erosion and sedimentation controls which include BMPs appropriate to site conditions, including efforts to minimize the areas of land disturbance. The plan shall also describe measures to control construction wastes including but not limited to construction materials, concrete truck wash out chemicals, litter, and sanitary waste.

B. Stormwater systems shall be designed to avoid disturbances of areas susceptible to erosion and sediment loss. This means avoiding to the greatest extent practicable: the damaging of large forest stands; building on steep slopes (15% or greater); and disturbing land in wetland buffer zones and floodplains.

Section 11: Operation, Maintenance, and Inspection Plan

A. An Operation and Maintenance Plan shall be submitted as part of the application for a Local Stormwater Management Permit for all projects with constructed stormwater BMPs and stormwater management practices.

B. The Operation and Maintenance Plan shall be designed to ensure compliance with the Local Stormwater Management Permit and these Regulations in all season and throughout the life of the system.

C. The Operation and Maintenance Plan shall remain on file with the Stormwater Authority.

D. The Applicant shall provide copies of the Operations and Maintenance Plan to all persons responsible for maintenance and repairs.

E. The Operations and Maintenance Plan shall include:

1. The name(s) of the owner(s) for all components of the system;
2. A map showing the location of the systems and facilities including all structural and nonstructural stormwater best management practices (BMPs), catch basins, manholes/access lids, pipes, and other stormwater devices. The plan showing such systems and facilities to be privately maintained, including associated easements shall be recorded with the Registry of Deeds prior to issuance of a Certificate of Compliance by the Conservation Commission.
3. Maintenance Agreement with the Stormwater Authority that specifies:
    a. The names and addresses of the person(s) responsible for operation and maintenance.
    b. The person(s) financially responsible for maintenance and emergency repairs.
    c. An Inspection and Maintenance Schedule for all stormwater management facilities including routine and non-routine maintenance tasks to be performed. Where applicable, this schedule shall refer to the Maintenance Criteria provided in the Stormwater Handbook or the EPA National Menu of Stormwater Best Management Practices or equivalent.
    d. Instructions for routine and long-term operation and maintenance shall have sufficient detail for responsible parties to perform necessary maintenance activities and prevent actions that may adversely affect the performance of each structural and/or nonstructural stormwater BMP.
    e. A list of easements with the purpose and location of each.

f. The signature(s) of the owner(s) and all persons responsible for operation and maintenance, financing, and emergency repairs, as defined in the Maintenance Agreement, if maintenance is to be performed by an entity other than the owner.

4. Stormwater Management Easement(s)

g. Stormwater Management easements shall be provided by the property owner(s) as necessary for:

i. Access for facility inspections and maintenance;

ii. Preservation of stormwater runoff conveyance, infiltration, and detention areas and facilities, including flood routes for the 100-year storm event; and

iii. Direct maintenance access by heavy equipment to structures requiring maintenance.

h. The purpose of each easement shall be specified in the Maintenance Agreement signed by the property owner.

i. Stormwater Management easements are required for all areas used for permanent stormwater control, unless a waiver is granted by the Board of Health.

j. Easements shall be recorded with the Registry of Deeds prior to issuance of a Certificate of Compliance by the Board of Health.

4. Changes to Operation and Maintenance Plans

a. The owner(s) of record of the Stormwater Management system must notify the Stormwater Authority of changes in ownership, assignment of Operation and Maintenance responsibilities, or assignment of financial responsibility within 30 days of the change in ownership. The owner of record shall be responsible for Operation and Maintenance activities until a copy of the updated Operation and Maintenance Plan has been furnished to the Stormwater Authority signed by the new owner or any new responsible person.

b. The maintenance schedule in the Maintenance Agreement may be amended to achieve the purposes of the Stormwater Management By-law by mutual agreement of the Stormwater Authority and the Responsible Parties. Amendments must be in writing and signed by all Responsible Parties. Responsible Parties shall include owner(s), persons with financial responsibility, and persons with operational and/or maintenance responsibility.

Section 12: Inspection and Site Supervision

A. Pre-construction Meeting. Prior to starting the clearing, excavation, construction, redevelopment or land disturbing activity, the applicant, the applicant's technical representative, the general contractor or any other person with authority to make changes to the project, may be required to meet with the Stormwater Authority, to review the

approved plans and their implementation. The need for a pre-construction meeting shall be determined by the Stormwater Authority based on the project scope.

B. Stormwater Authority Inspection. The Stormwater Authority or its designated agent shall make inspections as hereinafter required and shall either approve that portion of the work completed or shall notify the applicant wherein the work fails to comply with the Erosion and Sedimentation Control Plan or the Stormwater Management Plan as approved. The approved Erosion and Sediment Control Plan and associated plans for grading, stripping, excavating, and filling work, bearing the signature of approval of the Stormwater Authority, shall be maintained at the site during the progress of the work. In order to obtain inspections, the applicant shall notify the Stormwater Authority at least two (2) working days before each of the following events:

    1. Erosion and sedimentation control measures are in place and stabilized;
    2. Site Clearing has been substantially completed;
    3. Rough Grading has been substantially completed;
    4. Final Grading has been substantially completed;
    5. Close of the Construction Season; and,
    6. Final Landscaping (permanent stabilization) and project final completion.

C. Applicant Inspections. The applicant or his/her agent shall conduct and document inspections of all control measures no less than weekly or as specified in the permit, and prior to and following anticipated storm events. The purpose of such inspections will be to determine the overall effectiveness of the Erosion and Sediment Control Plan, and the need for maintenance or additional control measures as well as verifying compliance with the Stormwater Management Plan. The applicant or his/her agent shall submit monthly reports to the Stormwater Authority or designated agent in a format approved by the Stormwater Authority.

Section 13: As-Built Plans

Permittees shall submit as-built plans prepared and certified by a Professional Land Surveyor (P.L.S) no later than one (1) year after completion of construction projects. The as-built plans must depict all on site structural and non-structural controls design to manage stormwater associated with the completed site. The plan set must include design specifications of all stormwater management controls prepared and certified by a Professional Engineer (P.E.). The Stormwater Authority shall issue a Certificate of Completion once all requirements have been met.

Section 14: Performance Bond

A. The Town or its agents may require from the developer a surety or cash bond or other means of security acceptable to the Town prior to the issuance of any building permit for the construction of a development requiring a stormwater management facility. The bond

so required in this section shall include provisions relative to forfeiture for failure to complete work specified in the approved stormwater management plan, compliance with all the provisions of this By-law and other applicable laws and regulations, and any time limitations. The company providing the performance bond to the developer shall submit a bond of the highest grade as rated by Moody's or Standard and Poor's.

B. A Certificate of Completion signed by the town, submission of "As-built" plans, and the Town's final inspection are required prior to full release of the bond.

Section 15: Illicit Discharges to the Municipal Storm Drain System and to Watercourses or Waters of the Commonwealth

A. Prohibited Activities

1. Illicit Discharges - No person shall dump, discharge, spill, cause or allow to be discharged any pollutant or non-stormwater discharge into the municipal storm drain, onto an impervious surface directly connected to the municipal storm drain or directly or indirectly, into a watercourse or waters of the Commonwealth.

2. Illicit Connections - No person shall construct, use, allow, maintain or continue any illicit connection to the municipal storm drain system, regardless of whether the connection was permissible under applicable law, regulation or custom at the time of connection.

3. Obstruction of the Municipal Storm Drain System - No person shall obstruct or interfere with the normal flow of stormwater into or out of the municipal storm drain system without prior approval from the Stormwater Authority.

B. Exemptions

1. Discharge or flow resulting from fire-fighting activities.

2. The following non-stormwater discharges or flows are considered exempt from the prohibitions of Section 15 provided that the source is not a significant contributor of pollution to the municipal storm drain system or, directly or indirectly, to a watercourse or waters of the Commonwealth:

   a. Waterline flushing;
   b. Flow from potable water sources;
   c. Springs;
   d. Natural flow from riparian habitats and wetlands;
   e. Diverted stream flow;
   f. Rising groundwater;
   g. Uncontaminated groundwater infiltrating as defined in 40 CFR 35.2005(20), or uncontaminated pumped groundwater

h. Water from exterior foundation drains, footing drains (not including active groundwater dewatering systems), crawl space pumps, or air conditioning condensation;
i. Discharge from landscape irrigation or lawn watering;
j. Water from individual residential car washing;
k. Discharge from dechlorinated swimming pool water (less than one ppm chlorine) provided the water is allowed to stand for one week prior to draining and the pool is drained in such a way as not to cause a nuisance;
l. Discharge from street sweeping;
m. Dye testing, provided verbal notification is given to the Stormwater Authority prior to the time of the test;
n. Non-stormwater discharge permitted under an NPDES permit, waiver, or waste discharge order administered under the authority of the US Environmental Protection Agency, provided that the discharge is in full compliance with the requirements of the permit, waiver, or order and applicable laws and regulations; and
o. Discharge for which advanced written approval is received from the Engineering Department as necessary to protect public health, safety, welfare, and the environment.

C. Additional Prohibited Pollutants

1. Pet Waste: Waterbodies in the Town of Harwich are subject to a Bacterial TMDL. Because dog feces are a major component of stormwater pollution, it shall be the duty of each person who owns, possesses, or controls a dog to remove and properly dispose of any feces left by the dog on any public or private property neither owned nor occupied by said person. This provision is not applicable to a person using a helping dog or other helping animal registered as such (Refer to Harwich Code Part I General Bylaws Chapter 26).

2. Pavement Sealers: Coal tar based driveway and pavement sealers have been identified as a primary source of poly-aromatic hydrocarbons affecting streams in developed areas. Poly-aromatic hydrocarbons are classified by the US Environmental Protection Agency as a probable human carcinogen and are highly toxic to aquatic life. Asphalt-based driveway and pavement sealers contain low concentrations of poly-aromatic hydrocarbons. Therefore, application of coal tar based driveway and pavement sealers is prohibited for all paved areas directly connected to the storm drain.

D. Emergency Suspension of Storm Drain System Access

The Stormwater Authority may suspend municipal storm drain system access to any person or property without prior written notice when such suspension is necessary to stop an actual or threatened discharge of pollutants that presents imminent risk of harm to public health, safety, welfare or the environment. In the event any person fails to comply with an emergency suspension

order, the Authorized Enforcement Agency may take all reasonable steps to prevent or minimize harm to the public health, safety, welfare, or the environment.

E. Notification of Spills

1. Notwithstanding other requirements of local, state or federal law, as soon as a person responsible for a facility or operation, or responsible for emergency response for a facility or operation, has information of or suspects a release of materials at that facility or operation resulting in or which may result in discharge of pollutants to the municipal drainage system or waters of the Commonwealth, the person shall take all necessary steps to ensure containment and cleanup of the release.

2. In the event of a release of oil or hazardous materials, the person shall immediately notify the [Municipal Fire and Police Departments] and MassDEP's Emergency Response.

3. In the event of a release of nonhazardous material, the reporting person shall notify the [authorized enforcement agency] no later than the next business day. The reporting person shall provide to the Stormwater Authority written confirmation of all telephone, facsimile or in-person notifications within three business days thereafter.

4. If the discharge of prohibited materials is from a commercial or industrial facility, the facility owner or operator of the facility shall retain on site a written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

F. Transitional Provisions

Residential property owners shall have 60 days from the effective date [Date] of these Regulations to comply with its provisions provided good cause is shown for the failure to comply with these Regulations during that period.

G. Enforcement of Prohibitions on Illicit Discharges and Connections

The Stormwater Authority may order anyone responsible for an illicit connection or discharge to an MS4 to:

1. Eliminate it;
2. Take measure to minimize the discharge of pollutants until such time as the illicit connection or discharge shall be eliminated; and
3. Remediate the contamination.

Section 16: Violations and Penalties

In addition to the $5,000 per day civil penalties set forth in G.L. c. 83, §10, any violation of these Regulations may be enforced by noncriminal disposition pursuant to Chapter 1, Article I,

Violations and Penalties, of the Code of the Town of Harwich. When enforced through the noncriminal disposition procedures set forth in §1-2 of said Code, the penalty for each violation of these Regulations shall be $300 per violation.

Section 17: Severability

If any provision, paragraph, sentence, or clause, of these Regulations shall be held invalid for any reason, all other provisions shall continue in full force and effect.

OFFICE OF THE TOWN ADMINISTRATOR

Evan N. Melillo
Assistant Town Administrator

Phone (508) 430-7513
Fax (508) 432-5039

732 MAIN STREET, HARWICH
02645

MEMO

TO: Board of Selectmen

FROM: Evan N. Melillo
Assistant Town Administrator

RE: Desk Audit Reclassification to HEA Program Specialist 1

CC: Chris Clark
Town Administrator

DATE: September 19, 2018

I am providing the following information to you regarding a regrade of the Volunteer Coordinator\Outreach Assistant (VCOA) to a Program Specialist 1 in the HEA Union:

1. A desk audit was accomplished for the VCOA by the Council On Aging Director Judi Wilson. The desk audit confirmed that the new job description included new duties and responsibilities for the position.
2. The VCOA and Town Administrator Christopher Clark have both met and confirmed the new duties.
3. I have attached the new job description for the reclassified position.
4. I have attached the proposed Personnel Action Form reclassifying from a PT-3 Step 8 with an hourly rate of $16.97 to an HEA4 Step 1 with an hourly rate of $21.20.

Do not make changes on payroll until you are in receipt of a fully-executed Personnel Action Form.

TOWN OF HARWICH

REQUEST FOR PERSONNEL ACTION

Employee Richard Anderson

Department Council on Aging Bargaining Unit (If applicable N/A

New/Current Title Volunteer Coord/Outreach Asst. Grade PT-3 Step 8

Salary/Hourly Rate 16.97

Proposed Title Program Specialist 1 Grade HEA4 Step 1

Salary/Hourly Rate 21.20

Effective Date* September 17, 2018 **Pay From Account (Org/Obj)** 12105411 / 511800

* Date of Hire (1st day worked); Effective date of Step; Last day worked; etc.

Required

Employee is (check one): ☐ full time ☑ part-time ☐ seasonal ☐ temporary

27 PLEASE NOTE # OF HOURS EMPLOYEE WILL BE REGULARLY SCHEDULED TO WORK PER WEEK

ACTION REQUESTED - Check appropriate box(es)

☐ Appointment	☐ Change: Part-time to Full Time	☐ ____ % COLA	☐ Demotion
☐ Discharge	☐ Hire above first step	☐ Promotion	☐ Reassignment
☑ Reclassification	☐ Retirement	☐ Resignation	☐ Step-Increase*
☐ Suspension	☐ Temporary Promotion	☑ Other:	
☐ Longevity Calculation:		☐ Other Bonus / Stipend:	

**** Step Increase - Please attach Supervisor's Evaluation***

Remarks: Updated job description to accurately reflect job functions. Position paid with state grant funds.

Judi LaPan	Director, COA	9.12.18
Requested by	Title	Date
Reviewed by	Title	Date
Approved by	Title	Date
	Town Administrator	9/19/18
Approved by	Title	Date

For use by Town Accountant

Posted by: _____ Date _____

Revised 8/2017

Payroll Use: Initials: _____ Date entered: _____

PT-3 (FY19)	Substitute Custodian Transfer Station Attendant Assistant Outreach Worker Program Aide Clerical Aide Circulation Assistant	**14.27**	**14.64**	**14.99**	**15.37**	**15.76**	**16.14**	**16.56**	**16.97**	**17.39**	**17.83**

4	Field Appraiser Program Specialist I Sr. Library Technician	1	20.78	21.20	21.62
		2	21.71	22.14	22.58
		3	22.70	23.15	23.61
		4	23.72	24.19	24.67
		5	24.79	25.29	25.80
		6	25.90	26.42	26.95
			FY 18	FY19	FY20

Town of Harwich, Massachusetts

Position Title: Program Specialist I Grade HEA4 27hrs (grant funded)

Department: Council on Aging

Statement of Duties
Working under the general supervision of the COA Director, responsible for assisting with the planning, organizing, and scheduling of the transportation and volunteer programs, while providing support with related administrative work for the Council on Aging.

Essential Functions
The essential functions or duties listed below are intended only as *Illustration of the various types of work that may be performed. The omission of specific statements of duties does not exclude them from the position if work is similar, related, or a logical assignment to the position.*

1. Answer phones, arrange rides for clients, maintain precise records, and create organized daily van schedules utilizing departmental transportation software, providing accurate and timely communication with clients, drivers, volunteers, community resources, and pertinent departmental staff.
2. Participate in the preparation and processing of all transportation-related information including client registration, transportation schedules, brochures, reports, applications, and participant notices.
3. Oversee volunteer efforts at COA including volunteer recruitment and scheduling, and assist departmental staff with identifying volunteer needs and coordinating volunteer appreciation activities.
4. Maintain required departmental documentation including confidential files and records, van emergency books, resource information, schedules, activity reports and statistics, and any required expense reports.
5. Document unmet transportation needs and provide appropriate information and referral regarding available community resources, seeking the involvement of departmental staff for support with challenging situations.
6. Assist with the coordination of vehicle maintenance and repair appointments, and maintain accurate organized maintenance files for vehicles.
7. Compose and submit information for the bimonthly departmental newsletter as requested.
8. Communicate promptly and efficiently with COA staff members involved in transportation programs to facilitate the provision of quality services and report regularly to the COA Director.
9. Attend all staff meetings.
10. Perform similar or related work as required.

Supervision
The Coordinator reports to the COA Director, following departmental rules, regulations, and policies.

Minimum Qualifications

Education and Experience
Associate's Degree in Business Administration or a related field, and three (3) to five (5) years of experience in a professional office setting; or an equivalent combination of education and administrative experience. Experience working with older adults and knowledge of elder issues preferred.

Licenses and Certifications
Valid Massachusetts motor vehicle operator's license required in order to attend required meetings and trainings. Must obtain and maintain CPR/AED and First Aid certification. Must be CORI certified.

Knowledge, Skills and Abilities
A candidate for this position should have:
Knowledge:

- Thorough knowledge of office practices and procedures.
- Thorough knowledge of the needs of older adults.
- Knowledge of the main roads in the community in order to facilitate transportation schedules.

Skills:

- Exceptional organizational skills.
- Ability to work with elders in a sensitive and effective manner.
- Competent and effective written and oral communication skills.
- Considerable judgment in the handling of individual problems and issues.
- Strong customer service skills and attention to detail required.
- Proficiency in the use of computers including skills in word processing, spreadsheets, data input, and publication software.

Abilities:

- Ability to assess situations and problem solve to coordinate efficient services and accommodate individual needs.
- Ability to work capably with confidential information.
- Ability to prioritize work and perform multiple tasks in a detailed and organized manner to meet deadlines.
- Ability to communicate appropriately with older adults, departmental employees, the general public, and especially clients with disabilities.
- Ability to maintain accurate and detailed records.
- Ability to operate a keyboard and standard office equipment at efficient speed.
- Ability to exhibit courtesy, compassion, respect, patience, empathy, sensitivity and flexibility while working with vulnerable individuals.
- Ability to work effectively as a member of a team.

Tools and Equipment Used
Equipment operated includes general office equipment.

Physical Demands
The work requires intellectual abilities and light physical activity throughout the typical work day. At various times work will require strength and agility with the ability to stoop, bend, reach, stand, walk, and occasionally lift and/or move items up to 30 pounds while assisting with programs and assisting clients with mobility. Employee must be able to climb stairs and independently conduct home visitation in a variety of community settings. Vision and hearing must be correctable to "normal" ranges for routine use of equipment, including computers and phones, and the reading of documents for understanding, as well as communicating with vulnerable clients.

Work Environment
The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Work is conducted both in a typical office setting, with frequent interruptions, under quiet to moderate noise levels.

Operates standard office equipment including telephone, computer, copier, and fax machine. Occasionally operates motor vehicle.

Makes frequent telephone contacts with senior citizens with physical and cognitive impairments, caregivers and family members, community organizations and vendors. Contacts are in generally made by phone, but occasionally in person and in writing.

Performs responsible duties of a sensitive nature with access to confidential client information requiring judgment and initiative in the implementation of delivery of services.

Errors could result in hardship to the Town's older adults, delay of service delivery, and adverse public relations.

Requires occasional evening or weekend work.

External and Internal applicants, as well as position incumbents who become disabled as defined under the American With Disabilities Act, must be able to perform the essential job functions (as listed) either unaided or with the assistance of a reasonable accommodation to be determined by management on a case by case basis.

Ann Steidel

From:	Charleen Greenhalgh
Sent:	Tuesday, September 18, 2018 12:46 PM
To:	Town Administrator Office
Cc:	Raymond Chesley
Subject:	Agenda Item - Draft Sign Code Amendments
Attachments:	Sign Code Working Document - 9-18-18.docx

Ann spoke with Ray about drafting up some ideas for addressing A-Frame Signs. Attached please find a document that I was working on for the Planning Board's consideration. It is a draft working document and is intended for discussion purposes. Ray has reviewed it and at this time we would await input and comments from others.

Charleen Greenhalgh
Town Planner
Town of Harwich
732 Main Street
Harwich, MA 02645
508-430-7511
508-430-4703
cgreenhalgh@town.harwich.ma.us
Town Hall Hours – Mon: 8:30am-8:00pm; Tues-Thurs: 8:30am-4:00pm; Fri: 8:30am-Noon

PLEASE NOTE: *Beginning January 2, 2019 Town Hall Hours will be Monday – Friday 8:30am – 4:00pm*

DRAFT SIGN CODE CHANGES
9-18-18
This is a working document

Existing Definition, Pursuant to §325-25:

> "A-FRAME/EASEL/SANDWICH SIGNS" - Usually a double-faced, freestanding, portable sign.

Recommended/Suggested Definition:

> "A-FRAME/EASEL/SANDWICH SIGNS" – Usually a double-faced, freestanding, portable sign made of wood, cardboard, plastic, or other lightweight and rigid material having the capability to stand on its own support(s), with no moving parts or lights.

Add a new §325-29.H to read:

H. A-Frame/Easel/Sandwich Signs.
(1) A sign permit from the Building Department shall be required;
(2) The sign shall be six (6) square feet or less per side, with the height not exceeding 3 feet;
(3) The sign area sign area (one side only) shall count towards the total allowable sign square footage for the business;
(4) The sign may indicate only the name of the business, the special event, the hours of operation or sale of a product and price;
(5) Only one (1) double-faced sign per business may be located on a property; a business with street frontage on two streets, may have one (1) such sign on each street front; however, if there are multiple businesses on a property there shall be no more than one (1) such sign allowable regardless of the street frontage;
(6) The sign may be displayed only when the business is open to the general public;
(7) The sign shall comply with the requirements of §325-26.

Ann Steidel

From: Julie Kavanagh
Sent: Wednesday, September 05, 2018 3:58 PM
To: Town Administrator Office
Subject: Fwd: Agenda

Please add sandwich board signs & bylaw info to agenda for discussion for 9/17 since we have finalized agenda for 9/10.

Thanks,

Julie
Sent from my iPhone

Begin forwarded message:

> **From:** "Michael D. MacAskill" <mmacaskill@townofharwich.us>
> **Date:** August 30, 2018 at 10:25:10 AM EDT
> **To:** Julie Kavanagh <jkavanagh@townofharwich.us>
> **Subject: Agenda**
>
> Julie-
>
> Two Agenda items I'd like to request are use of sign boards for businesses facing rt 28 in Harwichport. and I would like to understand the Amy Raise thing better. Including the time line on the negotiating for the new contract, the compensation study showing she wasn't do a raise, and all information..
>
> the other thing is tax collection update.. what lawyer is doing what? for how much?
>
> Thank you,
>
> Michael

Town of Harwich, MA
Thursday, September 6, 2018

Chapter 325. Zoning

Article VII. Sign Regulations

§ 325-23. Purpose and scope.

A. The purpose of this article is to regulate signs which facilitate communication, promote the safety of motorists and pedestrians by preventing distractions and obstructions of public ways and walks that may be caused by signage, prevent visual clutter, and encourage economic development by allowing the siting of signage that identifies businesses and other land uses in ways that complement and enhance our community's character.

B. This sign regulation provides a permitting system to govern the placement of advertising and other informational signs both outdoors and in windows within the Town of Harwich.

§ 325-24. Relationship to other bylaws.

A. Nothing in this bylaw shall be construed as exempting an applicant from any other applicable Town, county, state, or federal bylaws.

B. To the extent that the requirements of this bylaw differ from or are not in accordance with any other applicable requirements, the more restrictive requirements shall apply.

C. All signs erected within the Historic District shall conform to all Historic District requirements.

§ 325-25. Definitions.

A-FRAME/EASEL/SANDWICH SIGNS
Usually a double-faced, freestanding, portable sign.

BUILDING OFFICIAL
The Harwich Building Commissioner or Building Inspector.

BUSINESS OPERATIONS SIGNS
Any on-premises sign used in the day-to-day operations of a business such as:

A. **BUSINESS HOUR SIGNS**

"Open/closed" and related hours-of-operation signs which do not exceed one square foot.

B. **DIRECTIONAL SIGNS**
Any on-premises sign that directs the movement or placement of pedestrian or vehicular traffic without reference to or inclusion of the name of a product sold or services performed.

C. **"OPEN" FLAG**
One "open" flag per business establishment shall be allowed and shall not exceed 24 square feet in size.

CAUTIONARY SIGNS
Signs warning of prohibited activities such as trespassing, hunting, fishing, or swimming. For regulations, see § **325-29A(1)**.

CLUSTER SIGN
A ground sign which provides space for identifying multiple tenants or uses within a project or premises having more than one tenant or use such as a business, commercial or industrial development.

ELECTION/TOWN MEETING SIGN
Any sign erected by the Town of Harwich to alert the public to an election or a Town Meeting.

FLYERS
Flyers for special events measuring not more than two square feet in total area.

GROUND SIGN
A sign supported by poles, uprights or braces extending from the ground but not attached to any part of a building.

HOME OCCUPATION SIGNS
Signs identifying any home occupation as defined by the Harwich Zoning Bylaw. For regulations see § **325-29A(2)**.

MUNICIPAL PROPERTY
Any land owned and/or controlled by the Town of Harwich, including public rights-of-way. Municipal-owned property, for purposes of this regulation, shall be determined by the road layout as maintained by the Highway Department with the assumption that the road is properly located. For ease of determination, any property located between the edge of the municipal-owned road surface and the greater distance to any of the following shall be considered municipal owned or controlled: street sign, utility pole, fire hydrant and/or sidewalk.

MUNICIPAL SIGNS
Permanent signs posted for more than 60 consecutive days by a Town entity and placed on Town property or within the municipal property right-of-way required or authorized for a public purpose by law or statute. For regulations, see § **325-30**.

MUNICIPAL SIGNS, TEMPORARY
Signs posted for 60 or fewer days by a Town entity and placed on municipal property for the purpose of promoting a Town-sponsored event or alerting the public to a public safety matter or event. For regulations, see § **325-30**.

OFF-PREMISES SIGN

Signs placed on property separate from where a business is located. For regulations, see § **325-29A(3)**.

ON-PREMISES SIGN

Signs placed on the same property where a business is located. The sum of all signage on a property shall not exceed that allowed in §§ **325-27** and **325-29** unless otherwise exempted.

QUARTERBOARD, RESIDENTIAL

A decoratively carved and painted wood sign fashioned after those traditionally used on sailing vessels. For regulations, see § **325-29A(5)**.

REAL ESTATE SIGNS

A temporary wall or ground sign advertising the sale, rental, or lease of a designated structure or land area for a permitted use on which the signs are located. For regulations, see § **325-29A(6)**.

SIGN

Includes every advertising message, announcement, declaration, demonstration, illustration, insignia, surface or space erected or maintained in view of the observer thereof primarily for identification, advertisement, or promotion of the interest of any person, entity, product, or service. The definition of a sign shall also include the sign structure, supports, lighting system, and any attachments, flags, ornaments or other features used to draw the attention of observers and shall further include collection boxes. Indoor or outdoor displays of merchandise for sale at retail on the premises shall not be considered a sign for the purposes of this bylaw. The definition does not include decorations or ornamentation that is not integral to the nature of the business or the purpose of the sign.

SIGN PERMIT

A permit issued by the Building Department for the erection, construction, enlargement, alteration, repair, or improvement of any sign requiring a permit. Such permit shall be permanently displayed and available. At the option of the Building Official, temporary and/or off-premises signs may require a special sticker.

SUBDIVISION SIGNS

A sign placed at the street entrance to a subdivision. For regulations, see § **325-29A (7)**.

TEMPORARY SIGNS

Temporary signs may not exceed nine square feet in area and may not be more than four feet in height. Temporary signs may be placed on commercial properties no more than twice a year, 10 days in succession each time. Temporary signs may advertise special sales, anniversaries, grand openings, and other similar special events.

UMBRELLA SIGNS

Signage as part of an umbrella that advertises the name of a particular establishment or a product for sale on the premises. For regulations, see § **325-29D**.

VENDING MACHINES

The portion of any internally illuminated vending machine which advertises a product. For regulations, see § **325-29E**.

WALL SIGN

A sign attached to, painted on, or erected against a wall or roof of a building or structure whose display surface is either parallel or perpendicular to the face of the building. For regulations, see § **325-29F**.

WATER DEPARTMENT SIGN

A municipal sign that includes any sign erected by the Town of Harwich Water Department to alert the public to any drinking water related event, including but not limited to flushing of pipes and water use restrictions.

§ 325-26. General requirements.

A. Before a nonexempt sign (see § **325-31**) is erected, constructed, structurally altered or moved, it shall conform to all applicable requirements contained in this bylaw, including Historic District requirements when applicable, and shall be approved and shall have received a permit from a Building Official unless the sign is expressly exempted herein from the provisions of this bylaw.

B. Before any sign receives a permit from a Building Official the application shall be reviewed by Planning Department staff.

C. A preapplication conference with the Building Department is encouraged in order for the applicant to become acquainted with application procedures, design standards, and related Town ordinances.

D. Sign placement shall not create a hazard or interfere with snow removal or vision or movement of motorists, pedestrians and bicyclists.

E. All signs shall be reasonably placed so as to not obscure other signs.

F. No signs shall be located in a public right-of-way nor shall they be located so as to block a public or private sidewalk, stairway, driveway or parking lot or impair sight distances for motorists or pedestrians.

G. No sign shall be affixed to or posted in front of any guardrails located in a public right-of-way.

H. Signs shall be externally lit or backlit only and shall be designed, installed and maintained so as to eliminate or minimize upward-directed light and glare and so that lights illuminate only the sign and not property which adjoins or is nearby.

I. Nonmunicipal developments having more than one tenant or use within a project or premises shall provide a master sign plan for the entire structure or project for review and approval by the Planning Department staff prior to any sign permit approval by a Building Official.

J. Luminous tube/neon/internally illuminated signs are permitted to be displayed in windows or on vending machine(s) only. The total area of all luminous tube/neon/internally illuminated signs shall not exceed six square feet. No animated signs are permitted.

§ 325-27. Sign area measurement.

A. Unless otherwise specified in the definition, all signs shall meet the area measurement requirements of this section.

B. The area of a sign face shall be computed by measurement of the smallest square, circle, rectangle, triangle, or combination thereof that will encompass the extreme limits of the writing, representation, emblem, or other display. This shall include any material or color forming an integral part of the background of the display or used to differentiate the sign from the backdrop or structure against which it is placed. The area calculation shall not include structural supporting framework, bracing or wall. If any advertising is present on the supports of a sign, the area of the supports will count towards the total allowable signage. Where there are two faces back to back, the total area of the largest face shall determine the area of the sign.

C. No ground sign may exceed 12 feet in height unless otherwise specified.

D. For single-tenant, nonmunicipal business accessed directly from a street, right-of-way or parking area, the maximum permitted area of all nonexempt signs shall be 48 square feet per respective public entrance facade. Nonexempt signs counting towards the 48 square feet include any sign on a property at any time, including but not limited to signs put out and taken in on a daily basis, and signs in windows.

E. Nonmunicipal developments having more than one tenant or use within a project or premises may construct one cluster sign containing the name of the development and/or listings of individual businesses, products or services within the development of up to 60 square feet.

   (1) Each tenant may have signage at the location of its business of up to 48 square feet per public entrance facade. Nonexempt signs counting towards the 48 square feet include any sign on a property at any time, including but not limited to signs put out and taken in on a daily basis, and signs in windows.

   (2) Total sign area within the master sign plan is subject to the size limitations of this section. Sign area cannot be transferred to a single building or facade from other buildings in the project. In addition, the amount of signage assigned to a specific space in a building shall be tied to that space through the lease or purchase agreement. Under no circumstances may the sign area designated for an individual space be transferred to another space in the same building or complex.

F. Additional cluster signs may be allowed by special permit from the Planning Board. Signage in excess of 48 square feet and/or allocation of total allowed square footage over entry and nonentry facades, as referenced above in Subsections **D** and **E(1)**, may also be allowed by special permit from the Planning Board.

§ 325-28. Construction and maintenance.

A. All signs and sign structures shall be constructed of materials of sufficient strength and quality to withstand weathering or deterioration by wind, moisture and other natural elements and shall be maintained in a state of good repair with all braces,

bolts, supporting framework, fastenings, lettering and design work free from deterioration.

B. Old signs and related hardware/structural supports shall be removed before any new sign is erected unless the old sign and related hardware/structural supports have been incorporated into the overall design or structural support of the new sign and approved pursuant to this article.

C. A Building Official shall have the authority to order the repair, alteration or removal of any sign or structure which constitutes a hazard to public health and safety or which is otherwise not in compliance with this bylaw.

D. If an immediate public safety concern so requires, the Building Official may take any necessary action, including removal of a sign.

§ 325-29. Additional requirements for specific signage.

A. On private and commercial properties.

(1) Cautionary signs may be posted on each lot line; however, no signs may be within 100 feet of each other. Cautionary signs are limited to one square foot or less per sign.

(2) Home occupation signs shall be limited to a wall or a ground sign. The total square footage of any home occupation sign shall not exceed nine square feet in area and may be illuminated in commercial zones per § **325-26** of this bylaw. Wall signs may be attached to any structure and/or fence. A person seeking to erect a home occupation sign shall be required to complete the home occupation worksheet with the Building Department.

(3) Off-premises sign.

(a) Any business wishing to place a sign on property other than its own shall obtain written permission from the property owner where the sign will be posted and shall provide said written permission to the Building Official with the permit application or notification materials, except for those public locations listed in this section.

(b) An off-premises business sign shall only be posted within a commercial or industrial district, except for agricultural uses as defined in Article **II** (Definitions) of this bylaw which may be posted within a residential district and opposite the exit ramps for Route 6 on Routes 124 and 137.

(c) Entities wishing to place off-premises signage on state-owned property or within state rights-of-way not listed above such as Route 28 and the off-ramps at Route 6 on Routes 124 and 137 shall seek permission from the state, in addition to meeting local requirements.

(d) An off-premises sign shall be included in the calculation of total allowable signage for the property or business it is placed upon and shall not be in addition to allowable signage as specified in this article unless otherwise exempted.

(e) No permanent, noncommercial, nonmunicipal sign shall be allowed on any municipal property, except in accordance with all of the requirements set forth herein.

(4) Political signs. Political signs are allowed in all zoning districts on private property with the authorization of the owner of the property on which the sign is to be displayed. The signs must be removed within 60 days of posting or one week following the date of the election for which they are posted.

(5) Quarterboard, residential. A residential quarterboard shall not advertise a business or profession and shall not exceed 18 inches in height or 10 feet in length and shall be wall mounted.

(6) Real estate sign. One sign of not more than nine square feet shall be allowed per street frontage, shall not be illuminated, shall not be located within the public right-of-way, and shall be removed immediately once the property is rented or leased or sale is completed.

(7) Subdivision sign. One externally illuminated sign may appear at each street entrance and is limited to a maximum of 20 square feet per sign and may not exceed six feet in height.

(8) Parking signs shall be limited to one square foot per parking space.

B. Temporary signs on municipal property. A temporary, noncommercial, nonmunicipal sign may be located on municipal property if all of the requirements set forth herein are satisfied:

(1) The sponsoring organization of any temporary on- or off-premises signs shall be required to file a notice with a Building Official prior to display.

(2) Temporary signs shall be erected for no more than 60 days and removed within 72 hours after the event.

(3) Temporary signs shall conform to all applicable requirements.

(4) Temporary signs may be posted in the designated municipal areas after notice has been filed with the Building Official. Temporary, noncommercial, nonmunicipal signs on municipal property shall be permitted only at the following locations:
[Amended 5-8-2012 STM by Art. 5]

(a) East Harwich: the intersection of Routes 39/137, at the Fire Station 2, on the corner at the so-called "flagpole parcel."

(b) North Harwich: facing Queen Anne Road in the grass area east of the entrance to the transfer station.

(c) Doane Park on the north side of the park on Route 28.

(5) The Town shall not be responsible to maintain or safeguard any nonmunicipal sign on municipal property and such placement shall be entirely at the sign owner's risk.

(6)

Any sign placed on any municipal property, other than as specified herein, may be removed by the Building Official. Such sign shall be retained by him for 14 days and may be reclaimed with a payment of $10 per sign. After 14 days, such sign shall be disposed of without any prior notice to the sign owner or liability for damages by the Town.

(7) No temporary, noncommercial, nonmunicipal sign shall be allowed at the above-specified locations unless it satisfies the following requirements:

(a) It shall not exceed nine square feet in size and shall not exceed six feet in height, except that it shall not exceed four feet in height at Doane Park on Route 28.
[Amended 5-8-2012 STM by Art. 5]

(b) It shall not be in place for more than 60 days.

(c) It shall not be chained, locked or permanently affixed to any surface, structure or landscape feature.

(d) It shall not block a public sidewalk, stairway, driveway or parking lot, nor shall it impair sight distances for motorists.

(e) It shall not be placed so as to block any other sign already in place.

(8) Entities wishing to place off-premises signage on municipal property not listed above shall seek permission from the Board of Selectmen during a scheduled public hearing.

(9) No sign exempted under § **325-31** shall be allowed on the above-referenced municipal properties.

C. Flyers. For those flyers not displayed in windows, they shall not be attached to trees, utility poles or be located within a public right-of-way. Such flyers may be posted for no more than 60 days and must be removed within one week after the event. Flyers posted in violation of this bylaw shall be subject to removal by the Building Official without liability to the Town.

D. Umbrella signs. Umbrellas containing the name of a particular establishment shall count against the establishment's total signage. Umbrellas containing the name of a product for sale on the premises shall not count against the establishment's total signage.

E. Vending machines. Vending machines shall be counted against the total allowable signage unless exempted under § **325-31** or internally located and shielded from public view.

F. Wall sign. Projecting wall sign shall extend no more than 36 inches from the surface upon which it is attached, shall not exceed the height of the building on which it is mounted and must have at least eight feet of ground clearance.

G. Construction signs. One temporary wall or ground sign not more than eight square feet indicating the construction, remodeling or rebuilding of a certain structure for a permitted use shall be allowed on the parcel on which the structure is located

with written permission of the property owner. The sign shall not be illuminated and shall be removed immediately upon final inspection.
[Added 5-2-2016 ATM by Art. 47]

§ 325-30. Additional requirements for municipal signs.

A. A temporary or permanent municipal sign may be placed on municipal property, provided all of the requirements set forth herein are satisfied.

B. Municipal signs that announce water system information or municipal traffic signs, as approved by the Harwich police and Harwich Department of Highways and Maintenance, shall be permitted in a public right-of-way as a matter of right.

C. Permanent municipal signs shall not exceed 60 square feet for ground signs or cluster signs or 48 square feet for wall signs. Only one cluster sign shall be permitted per property or premises, unless more than one cluster sign is expressly allowed by the Planning Board.
[Amended 5-8-2012 STM by Art. 5]

D. Town departments shall have authority over any sign placed on the land and/or buildings under their control, including signs placed by other Harwich municipal entities. Signs may remain in place as needed, at the discretion of the entity with authority over the property. Notice of such signs shall be required to be filed by the Town entity with a Building Official prior to display. Note that this does not apply to the following: election/Town Meeting signage and Water Department signage.

§ 325-31. Exemptions from permit requirements.

The following signs do not count towards the total permitted signage unless otherwise indicated and do not require a permit or notification to the Building Official:

A. Business hour signs.

B. Cautionary signs.

C. Home occupation signs.

D. Municipal signs.

E. Municipal signs, temporary.

F. Political campaign signs.

G. Real estate signs.

H. Residential quarterboard.

I. Special event flyers.

J. Umbrella signs.

K. Vending machines: one per premises unless more allowed by special permit.

L. Water Department signs.

M. Town Meeting/election signs.

N. Open house and tag sale signs if displayed for not more than 48 hours.

O. Temporary signs.

§ 325-32. Nonconforming signs.

Lawfully preexisting signs that do not comply with the provisions of this bylaw at the time of its adoption may be maintained so long as they are kept in a state of good repair as specified in § **325-28** of this bylaw and so long as they are not relocated, replaced or structurally altered. Preexisting signs that are relocated, replaced, structurally altered or not kept in a state of good repair as specified in § **325-28** of this bylaw shall not be allowed to continue as nonconforming signs and shall require new permits and compliance with this bylaw. A lawfully preexisting nonconforming sign destroyed by natural disaster or accident can be replaced by a sign of the same dimensions in the same location as the original sign.

§ 325-33. Appeals.

Any applicant who believes a denial is not justified has the right to appeal to the Board of Appeals and to appear at a meeting for which proper notice can be given and agenda time is available. Intention to take an appeal to the Board of Appeals shall be filed with the Town Clerk in writing within 30 business days following the denial of the permit by a Building Official, pursuant to MGL c. 40A. Applicants appealing to the Board of Appeals may request review of the decision of a Building Official or a variance to the sign regulation pursuant to MGL c. 40A, § 10.

§ 325-34. Violations.

Violation of this bylaw is subject to enforcement action through the Building Department pursuant to § **325-48** of the Town of Harwich Zoning Bylaw.

§ 325-35. Severability.

If any provision of this bylaw is held invalid by a court of competent jurisdiction, the remainder of the bylaw shall not be affected thereby. The invalidity of any section or sections or parts of any section or sections of this bylaw shall not affect the validity of the remainder of the Harwich Zoning Bylaw.

POLICY FOR APPROVAL OF MUNICIPAL CONTRACTS

At a Public Meeting of the Harwich Board of Selectmen held on November 10, 2014, the Board voted to adopt the following policy for the approval of municipal contracts:

> Whereas, under the Harwich Home Rule Charter, Chapter 4 Section 4-3-2 (i), the Town Administrator is "Responsible for the purchasing of services, supplies, materials, and equipment for all town divisions, departments, and offices, excepting those for the school department, water department, and the Brooks Free Library.";
>
> It shall be the policy of the Harwich Board of Selectmen to authorize the Town Administrator to approve and execute all contracts procured under the Town Administrator's authority that are under $50,000 in total value and for the Board of Selectmen to approve and execute all contracts procured under the Town Administrator's authority that are $50,000 and over in total value.

Approved at a meeting of the Board of Selectmen held on November 10, 2014.

HARWICH BOARD OF SELECTMEN
Access to Town Counsel

I. Appointment

Town Counsel should be appointed annually by the Board of Selectmen pursuant to their powers of appointment under Section 3-6-1 of the Harwich Home Rule Charter. The Board may appoint Special Town Counsel from time to time to advise them either in a particular area of the law, such as labor relations or real estate or for any particular project identified by the Board of Selectmen.

II. Access

When Town funds are utilized to secure counsel, access to Town Counsel, by any Board or employee under the jurisdiction of the Board of Selectmen, shall be approved in one of the following ways:

1. By a vote of the Board of Selectmen,
2. With the authorization of the Chairman of the Board of Selectmen when emergency circumstances exist, or
3. Through the Town Administrator

In the event of approvals under 2 or 3 above, any such approval shall be reported to the entire Board as soon as practical.

Access shall be limited to the particular matter described in the request, whether that request shall be for a one time opinion, or ongoing legal advice. Once the immediate reason for the access no longer exists, a new request for access should be submitted to the Board, the Chairman or the Town Administrator.

It is the intent of this policy to coordinate the expenditure of Town funds for legal representation. It is also the intent of this policy to address all issues thoroughly and expeditiously so that all members of an affected Board or commission, once access to counsel has been approved, have the necessary information to render the decision for which they are charged.

Whenever practical, all questions from any Board or commission member shall be directed, in writing or in person, at a single meeting as approved by the Board of Selectmen. Written questions shall be all-inclusive and shall be reviewed by the relevant Board or commission in final draft prior to submission to counsel with a copy sent to the Board of Selectmen.

III. Litigation

The Town shall defend itself against all lawsuits. An exception to this policy shall be those situations where an applicant has received relief from a particular board such as the Board of Appeals, and in the opinion of Town Counsel, the burden of defending that relief more appropriately shall fall to the applicant and not to the Town of Harwich. This exemption to the

policy shall always require the opinion of Town Counsel. That opinion shall be subject to appeal to the Board of Selectmen by any department employee or resident of the Town.

No litigation, whether initial enforcement action or appeals of earlier decisions, shall be initiated without an affirmative vote of the Board of Selectmen at a duly posted meeting of the Board where such matters shall have been discussed and voted upon. All relevant milestones shall be promptly reported the Board of Selectmen.

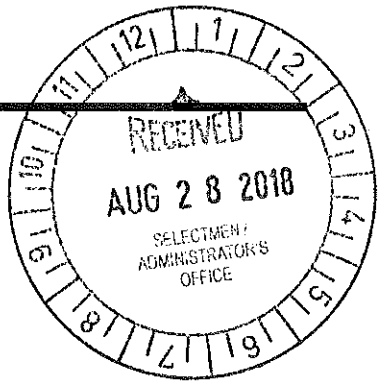
HARWICH BOARD OF SELECTMEN

Harwich, Massachusetts

ADOPTED: October 17, 2005

AMENDED: N/A

Sandy Robinson



From: Julie Kavanagh
Sent: Monday, August 27, 2018 4:20 PM
To: william ely
Cc: Christopher Clark; John Rendon; Town Administrator Office
Subject: Re: Public Beach 22

Hi Mr. Ely,

Thank you for your email. I have copied Chris Clark, Yosn Administrator & our Harbormaster, John Rendon, above.

We will be adding the topic to our agenda in the next month or so.

Thanks for taking the time to share your concerns.

Julie

Sent from my iPhone

> On Aug 23, 2018, at 12:22 PM, william ely <spike.ely@gmail.com> wrote:
>
> Dear Ms. Kavanagh,
> I have been a seasonal resident of West Harwich for over 22 years. During much of this time the Beach Road easement, access to the Sound and use as a beach have been concerns, and I have tried to follow developments.
>
> I recently read the 6/25/18 minutes of the BOS with respect to the situation. I continue to believe the Town is being too passive and is not adequately supportive of the residents and the use of this local asset. I wish by this note to make only some basic points:
> 1. The settlement agreement was only between the Town and the Fitzpatricks; the Morris family were not parties to it.
> 2. Parcel 37 is south of the Morris lot that extends only a specific distance from Shore Road. It does not extend to the low tide level. I believe that a portion of Parcel 37 exists above the high water line.
>
> The settlement does not prevent the Town from replenishing Parcel 37 with sand to enhance the public beach. Nor am I aware of any legal obstacle to informing beach goers that Parcel 37 is accessible just north of the groin.
>
> The Town also has other options to assure at a minimum that the Town's existing easement can be used by beach goers.
>
> I will be more than happy to meet with any Town officials including the engineer to discuss this matter.
>
> I look forward to hearing from you.
>
> Wm. Ely
> 28 Green Needle Lane

Project Name: Community Center Ens TM Year and Article #: 18 ART 10 Appropriation: $ 140,000.00

Low Bidder: N/A Bid Price: $ 55,839.00

7/30/18 Revised Procurement Checklist

Please complete checklist below for contracts requiring Selectmen* signature **before Wednesday morning**** in order to get sign-off approval from the Town Administrator or the Assistant Town Administrator.

**Note: contracts (not grants) below $50,000 can be signed by Town Administrator.*

☑ 1. Please provide a **separate page titled "Summary of Project"** which includes:

N/A ☐ a. Provide how many bidders there were, the range of bids, and apparent low bidder.

☑ b. Identify the funding source, such as article number and amount approved.

☑ c. Include what you feel is pertinent, but keep this section to 4 sentences or less.

☐ 2. Finance Director has signed that funds are available: Carl Coppola Account # 618010 0142IA2/

☑ 3. Please provide a single **copy of the bid packet** along with all supporting documents. Specs of Project.

☑ 4. Please use K-P Law provided standardized contracts.

25A. ✓

Buildings and Public Works	Goods and Services
☐ C1. Please show Prevailing Wage was used.	☐ GS1. If procured using the **State Bid List**:
☐ C2. If construction is **near $10,000** you also need:	☐ a. Over $25,000 please show project was on the Capital Plan.
☐ a. Written spec sheet.	☐ GS2. If project is **over $5,000**:
☐ b. Advertised for two weeks on Central Register and COMMBUYS.	☐ a. Please provide written spec sheet used and who it was sent to.
☐ c. Apparent low bidder posted to Town website.	☐ b. Maximum contract length is three years.
☐ C3. If construction **over $25,000** you need C1, C2, as well as:	☐ GS3. If project is **over $50,000**:
☐ a. Show project was in the Capital Plan.	☐ a. Show project was advertised for two weeks in a newspaper and on COMMBUYS.
☐ b. Show that 50% payment bond was in bids.	☐ b. Show project utilized sealed bids.
☐ C4. If construction **over $50,000** you need C1, C2, C3, as well as:	☐ c. Apparent low bidder posted to Town website.
☐ a. Bid Bond of 5% of total value.	☐ GS4. If project is **over $100,000**:
☐ b. Sealed Bids.	☐ a. Show project was advertised for two weeks in COMMBUYS and Goods and Services Bulletin.
c. End of Public Works construction requirements	☐ b. Show project utilized sealed bids.
☐ C5. If ***Building*** estimated construction costs are over $100,000 ***and*** estimated design costs are over $10,000 you'll need to follow the Designer Selection RFQ process:	Note 1: If lowest bidder was found to be either not responsive or not responsible, the Town may begin negotiations with next lowest bidder.
☐ a. Advertise in Central Register and local newspaper for two weeks.	Note 2: Bids may be negotiated downwards but never higher than original quote.
☐ b. Set a designer fee or price ceiling.	Note 3: Municipalities shall not provide a down payment, deposit, or provide funding before possession of purchased item.
☐ c. Use Standard Designer Application Form	
☐ C6. If ***Building*** construction **over $150,000** you'll need C1, C2, C3, C4, C5, as well as:	
☐ a. 100% payment bond was in bids.	
☐ b. 100% performance bond was in bids.	
☐ c. DCAMM certified bidders.	
☐ i. DCAMM certified sub-bids if over $25,000.	
☐ C7. If ***Building*** construction **over $10,000,000** you'll need C1, C2, C3, C4, C5, C6, as well as:	
a. Solicit qualifications prior to sealed bids.	

Signature of Town Administrator or Assistant Town Administrator:

***Note: Failure to gain sign-off **before Wednesday at noon** results in the contract being delayed to the next meeting.*

MEMORANDUM

To: Christopher Clark, Town Administrator

From: Sean Libby, Facilities Maintenance Manager

Re: Energy Management System Replacement

Date: 18 September 2018

Article 10 from the May 2018 ATM approved funds to include $140,000.00 earmarked for updating or replacing the energy management system in the Town Hall, Community Center, Fire Station One, and Police department. Each building will be addressed in separate contracts as they are all differing in nature of work. As these are energy conservation projects working with Cape Light Compact representative they are not subject to further solicitation. We have used Rise Engineering in the past with outstanding results. I am requesting that this contract be approved and signed so we can move forward with this project. Please let me know if you have any further questions.

CC: Lincoln Hooper, DPW Director

Part I ADMINISTRATION OF THE GOVERNMENT

Title II EXECUTIVE AND ADMINISTRATIVE OFFICERS OF THE COMMONWEALTH

Chapter 25A DIVISION OF ENERGY RESOURCES

Section 14 CONTRACTS FOR ENERGY CONSERVATION PROJECTS COSTING ONE HUNDRED THOUSANDS DOLLARS OR LESS; ADDITIONS TO MONTHLY UTILITY BILLS.

Section 14. (a) A state agency, building authority or local governmental body may contract for energy conservation projects that have a total project cost of $100,000 or less, directly and without further solicitation, with electric and gas utilities, their subcontractors and other providers of such energy conservation projects authorized under sections 19 and 21 of chapter 25 and section 11G.

(b) For purposes of this section, "total project cost" shall mean all construction costs of an energy conservation project, whether borne by the utility, agency, authority or body including, without limitation, the costs associated with equipment purchase and installation of such equipment. Ancillary services provided at no cost by utilities, such as auditing and design, shall not be considered part of project cost.

(c) A state agency, building authority or local governmental body may pay for such energy conservation projects through additions to their monthly utility bills.

(d) Sections 44A to 44M, inclusive, of chapter 149 and section 39M of chapter 30 shall not apply to contracts entered into under this section.

CONSTRUCTION CONTRACT AGREEMENT

THIS AGREEMENT made this ___September____ day of __the Eighteenth___ in the year Two Thousand and _Eighteen___, between __RISE Engineering_____, with a usual place of business at __1341 Elmwood Ave, Cranston, RI 02910_____, hereinafter called the CONTRACTOR, and the Town of Harwich, acting by its Board of Selectmen, with a usual place of business at 732 Street, Harwich, MA, hereinafter called the OWNER.

The CONTRACTOR and the OWNER, for the consideration hereinafter named, agree as follows:

1. Scope of Work

The Contractor shall furnish all labor, materials, equipment and insurance to perform all work required for the project known as the __Harwich Community Center Energy Management System Project, in strict accordance with the Contract Documents and all related Drawings and Specifications. The said Documents, Specifications, Drawings and any GENERAL SUPPLEMENTARY CONDITIONS are incorporated herein by reference and are made a part of this Agreement.

2. Contract Price

The Owner shall pay the Contractor for the performance of this Agreement, subject to additions and deductions provided herein, in current funds, the sum of Fifty Five Thousand Eight hundred Thirty Nine Dollars_.

3. Commencement and Completion of Work and Liquidated Damages

It is agreed that time is of the essence of this Agreement. The Contractor shall commence and prosecute the work under this Agreement upon execution hereof and shall complete the work on or before _____First of May, year Two Thousand and Nineteen_____.

A. Definition of Term: The Term "Substantial completion" shall mean the date certified by the Owner when construction is sufficiently complete, in accordance with the Contract Documents, so the Owner may occupy the project, or designated portion(s) thereof, for the use for which it is intended.

B. Time as Essential Condition: It is understood and agreed that the commencement of and substantial completion of the work are essential conditions of this Agreement. It is further agreed that time is of the essence for each and every portion of the Contract Documents wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract Documents any additional time is allowed for the completion of any work, the new time fixed by such extension shall be of the essence of this Agreement. It is understood and agreed that the times for the

completion of the work are reasonable, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

C. Progress and Completion: Contractor shall commence work promptly upon execution of this Agreement and shall prosecute and complete the work regularly, diligently and uninterruptedly at such a rate of progress as will insure Substantial Completion within the stipulated number of calendar days.

D. Liquidated Damages: It is expressly agreed between the Contractor and the Owner that the Contractor will be responsible for all damages which may arise due to the Contractor's failure to substantially complete the work within the above specified time. If the Contractor shall neglect, fail or refuse to complete the work within the specified number of days, or any extension thereof authorized by the Owner, Contractor agrees, as a part of the consideration for the execution of this Contract by the Owner, to pay the Owner the amount specified herein, not as a penalty, but as liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day, excluding Saturdays, Sundays and legal Holidays, that the Contractor shall be in default of Substantial completion after the date specified in the Agreement. Due to the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, said amount is agreed to be the amount of damages which the Owner would sustain, and said amount shall be retained from time to time by the Owner from current periodic estimates. The amount of liquidated damages shall be ___1% of project _ per day.

4. Performance of the Work

A. Direction of the Work: The Contractor shall supervise and direct the Work, using his best skills and attention which shall not be less than such state of skill and attention generally rendered by the contracting profession for projects similar to the Project in scope, difficulty and location. The Contractor shall maintain adequate supervisory personnel at the project site during the performance of the Work. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Agreement.

B. Responsibility for the Work: (1) The Contractor shall be responsible to the Owner for the acts and omissions of his employees, Subcontractors and their agents and employees, and other persons performing any of the Work under a contract with the Contractor. This obligation shall also extend to the presence on the Site of suppliers of materials or equipment, their employees, contractors, and agents engaged in the work.

(2) The Contractor shall not be relieved from his obligations to perform the Work in accordance with the Contract Documents either by the activities or duties of the Owner in its administration of the Agreement, or by inspections, tests or approvals required or performed by persons other than the Contractor.

C. Permits and Fees: Unless otherwise expressly provided, the Contractor shall secure and pay for all permits and fees, licenses and inspections necessary for the proper execution and completion of the Work which are customarily secured after execution of the

Agreement and which are legally required at the time the bids are received, and the same shall at all times be the property of the Owner and shall be delivered to the Owner upon completion of the Project.

D. Notices, Compliance With Laws: (1) The Contractor shall give all notices and comply with all federal, state and local laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the Work. The Contractor shall provide the Owner with reproductions of all permits, licenses and receipts for any fees paid. The Owner represents that it has disclosed to the Contractor all orders and requirements known to the Owner of any public authority particular to this Agreement.

(2) If the Contractor observes that any of the Contract Documents are at variance with applicable laws, statutes, codes and regulations in any respect, he shall promptly notify the Owner in writing, and any necessary changes shall be accomplished by appropriate modification.

(3) If the Contractor performs any Work which he knows or should know is contrary to such laws, ordinances, rules and regulations, and without such notice to the Owner, he shall assume full responsibility therefor and shall bear all costs attributable thereto.

(4) In the performance of the Work, the Contractor shall comply with all applicable federal, state and local laws and regulations including those relating to workplace and employee safety. The Contractor shall notify the Owner immediately of any conditions at the place of the work which violate said laws and regulations and shall take prompt action to correct and eliminate any such violations.

E. Project Superintendent: The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site at all times during the progress of the Work. The superintendent shall represent the Contractor and all communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be so confirmed on written request in each case.

F. Progress Schedule: The Contractor, immediately after being awarded the Contract, shall prepare and submit for the Owner's information an estimated progress schedule for the Work. The progress schedule shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

G. Drawings, Specifications and Submittals:

(1) The Contractor shall maintain at the site for the Owner one record copy of all Drawings, Specifications, Addenda, Change Orders and other Modifications, and "As-Built" Drawings and Specifications in good order and marked currently to record all changes made during construction, and approved Shop Drawings, Product Data and Samples. These shall be delivered to the Owner upon completion of the Work.

(2) By approving and submitting Shop Drawings, Product Data and Samples, the Contractor represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto, or will do so, and that he has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

(3) The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Owner's approval of Shop Drawings, Product Data or Samples unless the Contractor has specifically informed the Owner in writing of such deviation at the time of submission and the Owner has given written approval to the specific deviation. The Contractor shall not be relieved from responsibility for errors or omissions in the Shop Drawings, Product Data or Samples by the Owner's approval thereof.

(4) The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data or Samples, to revisions other than those requested by the Owner on previous submittals.

(5) No portion of the Work requiring submission of a Shop Drawing, Product Data or Sample shall be commenced until the submittal has been approved by the Owner. All such portions of the Work shall be in accordance with approved submittals.

H. Protection of the Work and Owner's Property: The Contractor shall at all times safely guard the Owner's property from injury or loss in connection with this Agreement. He shall at all times safely guard and protect his own work, and that of adjacent property from damage. The Contractor shall replace or make good any such damage, loss or injury. The Contractor shall clean the work area and restore it to its original condition upon completion of the work.

I. Quality of the Work: The Contractor shall perform the work in a good, workmanlike manner. The Contractor hereby guarantees that the entire work constructed by him under the Agreement will meet fully all requirements thereof as to quality of workmanship and materials. The Contractor hereby agrees to make at his own expense any repairs or replacements made necessary by defects in materials or workmanship supplied to him that become evident within one (1) year after the date of the final payment, and to restore to full compliance with the requirements set forth herein any part of the work constructed hereunder, which during said one (1) year period is found to be deficient with respect to any provisions of the Contract Documents. The Contractor also agrees to hold the Owner harmless from claims of any kind arising from damage due to said defects. The Contractor shall make all repairs and replacements promptly upon receipt of written orders for same from the Owner. If the Contractor fails to make the repairs and replacements promptly, the Owner may do the work and the Contractor shall be liable to the Owner for the cost thereof.

J. Warranty: The Contractor guarantees to Owner that all materials incorporated into the work will be new unless otherwise specified or agreed. Prior to final payment, the Contractor shall deliver to the Owner all manufacturers' warranties, together with such

endorsements or assignments as are necessary to ensure to the Owner the full rights and benefits of such warranties.

5. Affirmative Action/Equal Employment Opportunity

The Contractor is directed to comply with all applicable State Laws, Ordinances, Bylaws, and rules and regulations regarding affirmative action/equal employment opportunity requirements. Failure of the Contractor to comply with any such law, rule or regulation shall constitute grounds for the Owner to terminate the Agreement.

6. Site Information Not Guaranteed; Contractor's Investigation

All information given in the Contract Documents relating to subsurface and other conditions, natural phenomena, existing pipes, and other structures is from the best sources at present available to the Owner. All such information is furnished only for the information and convenience of the Contractor and is not guaranteed.

It is agreed and understood that the Owner does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes, or other structures encountered during construction will be the same as those indicated in the Contract Documents.

Contractor has familiarized himself with the nature and extent of the Contract Documents, work, locality, and with all local conditions and federal, state, and local laws, rules, ordinances, and regulations that in any manner may affect costs, progress, or performance of the work. Contractor has made, or has caused to be made, examinations, investigations, and tests and studies of such reports and related data in addition to those referred to in the paragraph above as he deems necessary for the performance of the work at the Contract Price, within the Contract Time, and in accordance with the other Terms and Conditions of the Contract Documents; and no additional examinations, tests, investigations, reports, and similar data are or will be required by the Contractor for such purposes.

Contractor has correlated the results of all such observations, examinations, investigations, tests, reports, and data with the Contract Documents. Contractor has given the Owner written notice of all conflicts, errors, or discrepancies that he has discovered in the Contract Documents, and the resolution thereof by the Owner is acceptable to the Contractor.

It is further agreed and understood that the Contractor shall not use or be entitled to use any of the information made available to him or obtained in any examination made by him in any manner as a basis of or ground for any claim or demand against the Owner, arising from or by reason of any variance which may exist between the information made available and the actual subsurface conditions or other conditions or structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract Documents.

7. Project Architect or Engineer

There ___ ___ is not a project architect-engineer for this project who is _____. Except as otherwise indicated in the Contract Documents, the Architect/Engineer shall be a representative of the Owner and the Contractor shall direct all communications, questions and comments on the work and the performance thereof to the Architect/Engineer. Except as otherwise provided, the Architect/Engineer shall have all the authority of the Owner set forth in the Contract Documents. In general, the Architect/Engineer shall have the authority to review the performance of the work, reject work which is defective or otherwise does not comply with the Contract Documents and to order the Contractor to remedy defective work and take such actions which are necessary to make the work conform to the Contract Documents.

8. Wage Rates

Prevailing Wage Rates as determined by the Commissioner of the Department of Labor and Workforce Development under the provisions of Massachusetts General Laws, Chapter 149, Section 26 to 27G, as amended, apply to this project. It is the responsibility of the Contractor to provide the Town with certified payrolls and to comply with all requirements of the above-cited statutes.

The schedules of prevailing wage rates are included in the Contract Documents.

9. Payments to the Contractor

Within fifteen (15) days after receipt from the Contractor of a proper and satisfactory periodic estimate requesting payment of the amount due for the preceding month, the Owner shall have fifteen (15) days to make payment for:

A. The work performed during the preceding month.

B. The materials not incorporated in the Work but delivered and suitably stored at the site (or at some location agreed upon in writing) to which the Contractor has title, or to which a Subcontractor has title and has authorized the Contractor to transfer title to the Owner.

C. Less the following retention items:

1. A retention based on an estimate of the fair value of the Owner's claims against the Contractor.

2. A retention for direct payments to Subcontractors, if any, based on demands for same in accordance with the provisions of Section 39F of Chapter 30 of the General Laws.

3. A retention not exceeding five percent (5%) of the approved amount of the periodic payment.

D. After the receipt of a periodic estimate requesting final payment and within sixty-five (65) days after the Contractor fully completes the Work, or substantially completes the Work so that the value of the Work remaining to be done is, on the estimate of the Owner, less than 1% of the original Contract Price, or substantially completes the Work and the Owner takes possession or occupancy, whichever occurs first, the Owner shall pay the Contractor the entire balance due on the Contract less:

1. A retention based on an estimate of the fair value of the Owner's claims against the Contractor and of the cost of completing the incomplete and unsatisfactory items of work.

2. A retention for direct payments to Subcontractors, if any, based on demands of same in accordance with the provisions of Section 39F of Chapter 30 of the General Laws, or based on the record of payments by the Contractor to the Subcontractors under this Contract if such record of payment indicates that the Contractor has not paid Subcontractors as provided in Section 39F of Chapter 30 of the General Laws.

If the Owner fails to make payment as herein provided, there shall be added to each such payment, daily interest at the rate of 3 percentage points above the rediscount rate than charged by the Federal Reserve Bank of Boston, commencing on the first day after said payment is due, and continuing until the payment is delivered or mailed to the Contractor; provided that no interest shall be due, in any event, on the amount of a periodic estimate for final payment until fifteen (15) days after receipt of such a periodic estimate by the Owner as provided in the first paragraph of this Article. The Contractor agrees to pay to each subcontractor a portion of any such interest paid in accordance with the amount due each subcontractor.

The Owner may make changes in any periodic estimate submitted by the Contractor and the payment due on said periodic estimate shall be computed in accordance with the changes so made, and such changes and any requirements for a corrected periodic estimate shall not affect the due date for the periodic payment or the date for the commencement of interest charges on the amount of the periodic payment computed in accordance with the changes made, as provided herein; provided further, that the Owner may, within seven (7) days after receipt, return to the Contractor for correction, any periodic estimate which is not in acceptable form or which contains computations not arithmetically correct, and in that event, the date of receipt of such periodic estimate shall be the date of receipt of the corrected periodic estimate in proper form and with arithmetically correct computations. The date of receipt of a periodic estimate received on a Saturday shall be the first working day thereafter.

E. Changes in the Work: No changes in the work covered by the approved Contract Documents shall be made without prior written approval of the Owner. Charges or credits for the work covered by the approved change shall be determined by one or more, or a combination of the following methods:

(a) Unit bid prices previously approved.

(b) An agreed lump sum.

(c) The actual cost of:

(1) Labor.

(2) Materials entering permanently into the work.

(3) The ownership or rental cost of construction equipment during the time of use on the extra work.

(4) Power and consumable supplies for the operation of power equipment.

(5) Wages to be paid.

To the cost under (c) there shall be added a fixed fee to be agreed upon but not to exceed fifteen percent (15%) of the actual cost of work. The fee shall be compensation to cover the cost of supervision, overhead, bond, profit and any other general expenses.

F. Claims for Additional Costs: If the Contractor wishes to make a claim for an increase in the Contract Sum, he shall give the Owner written notice thereof within twenty days after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the Work, except in an emergency endangering life or property. No such claim shall be valid unless so made. Any change in the Contract Sum resulting from such claim shall be authorized by Change Order.

The Contractor hereby agrees that the Contractor shall have no claim for damages of any kind against the Town on account of any delay in the commencement or performance of the work and/or any hindrance, delay or suspension of any portion of the work including, but not limited to, any claims or damages on account of having to perform out of sequence work, claims for damages on account of loss of production or other interference with the work whether such delay is caused by the Town or otherwise, except as and to the extent expressly provided under G.L. c.30, §39O in the case of written orders by the Town. The Contractor acknowledges that the Contractor's sole remedy for any such claim will be an extension of time as provided herein.

10. Final Payment, Effect

The acceptance of final payment by the Contractor shall constitute a waiver of all claims by the Contractor arising under the Agreement.

11. Contract Documents

The Contract Documents consist of the following, together with this Agreement:

Invitation to Bid
Instructions to Bidders
This Contract Form
Bid Form

Performance Bond
Labor & Materials Payment Bond
Non-Collusion Certificate
Tax Compliance Certificate
Clerk's Certificate of Corporate Vote
Certificate of Insurance
General Conditions
Supplementary General Conditions
General Requirements
Specifications and Addenda
Contract Drawings
Schedule of Prevailing Wages
(Strike out any inapplicable item)

12. Terms Required By Law

This Agreement shall be considered to include all terms required to be included in it by the Massachusetts General Laws, and all other laws, as though such terms were set forth in full herein.

13. Indemnification

The Contractor shall indemnify and hold harmless the Owner from and against any and all claims, damages, losses, and expenses, including attorney's fees, arising out of the performance of this Agreement when such claims, damages, losses, and expenses are caused, in whole or in part, by the acts, errors, or omissions of the Contractor or his employees, agents, subcontractors or representatives.

14. Insurance

The Contractor shall purchase and maintain such insurance as will protect both the Owner and the Contractor from claims which may arise under the Agreement, including operations performed for the named insured by independent contractors and general inspection thereof by the named insured. In addition, the Contractor shall require its subcontractors to maintain such insurance. Coverage shall be provided for:

.1 claims under workers' or workmen's compensation, disability benefit and other applicable employee benefit acts;

.2 claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

.3 claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

.4 claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or (2) by any other person;

.5 claims for damages, including damages to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom; and

.6 claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

.7 claims involving contractual liability applicable to the Contractor's obligations under Article 13.

The limits of liability for coverage required under the preceding paragraph shall be as Specified in the Supplemental Conditions.

Except for Workmen's Compensation, all liability coverage shall name the Town as an additional insured and shall provide for 30 days prior written notice to the Town of any modification or termination of coverage provided thereby. The Contractor shall provide the Owner with appropriate certificate(s) of insurance evidencing compliance with this provision prior to the commencement of any work under this Agreement.

15. Notice

All notices required to be given hereunder shall be in writing and delivered to, or mailed first class to, the parties' respective addresses stated above. In the event that immediate notice is required, it may be given by telephone or facsimile, but shall, to the extent possible, be followed by notice in writing in the manner set forth above.

16. Termination

A. Each party shall have the right to terminate this Agreement in the event of a failure of the other party to comply with the terms of the Agreement. Such termination shall be effective upon seven days' notice to the party in default and the failure within that time of said party to cure its default.

B. The Owner shall have the right to terminate the Agreement without cause, upon ten (10) days' written notice to the Contractor. In the event that the Agreement is terminated pursuant to this subparagraph, the Contractor shall be reimbursed in accordance with the Contract Documents for all Work performed up to the termination date, and for all materials or equipment not incorporated in the Work, but delivered and suitably stored at the site. Payment for material or equipment stored at the site shall be conditioned upon submission by the Contractor of bills of sale or such other evidence as is satisfactory to Owner to establish the Owner's title to such material or equipment or otherwise protect the Owner's interests.

17. Miscellaneous

A. Royalties and Patents: The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Owner

harmless from loss on account thereof, except that the Owner shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified; but if the Contractor believes or has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Owner, and thereafter the Owner insists on the use of the design, process or products specified.

B. Assignment: The Contractor shall not assign or transfer any of its rights, duties or obligations under this Agreement without the written approval of the Owner.

C. Governing Law: This Agreement shall be governed by and construed in accordance with the law of the Commonwealth of Massachusetts.

D. By its signature hereon, the Contractor certifies, under the pains and penalties of perjury, that it has complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

[Remainder of page intentionally blank.]

AGREED:

TOWN OF HARWICH, MASSACHUSETTS
(Owner)

By its Board of Selectmen

_____

_____

_____

_____

_____

CONTRACTOR: RISE Engineering

By _____

MICHAEL S TETREAULT
(Name)

CONTROLLER
(Title)

1341 Elmwood Ave,
(Address)

Cranston, RI 02910
(City and State)

By its Town Administrator under $50,000

In accordance with G.L. c.44, Section 31C, this is to certify that an appropriation in the amount of this contract is available therefore and that the Town Administrator has been authorized to execute the contract and approve all requisitions and change orders.

By Carl Coppola
(Owner's Accountant)

CAROL Coppola
(Name)

By Town Administrator and Chief Procurement Officer

Harwich EMS Project

Customer: Town of Harwich
Contact: Sean Libby
Prepared by: Hossam Mahmoud

Project Summary

SITE: Community Center	Measure	Project Cost	Ngrid Cost Allocation	Electric Cost Allocation	kWh Savings	Therm Savings	CLC Incentive	NGrid Incentive	Total Incentive	Net Customer Cost
EMS with Dual Enthalpy		$ 75,536.25		$ 48,897.13	30,522	1,976	$ 30,522	$ 3,952	$ 34,474	$ 41,062.25
Demand Control Ventilation		$ 48,437.50	$ 39,234.38	$ 9,203.13	10,530	4,066	$ 9,203	$ 8,132	$ 17,335	$ 31,102.38
Fan VFD		$ 73,772.25		$ 73,772.25	88,771.00		$ 73,772		$ 73,772	$ -
Site		$ 197,746.00	$ 67,164.38	$ 131,872.50	$ 129,823	$ 6,042	$ 129,823	$ 12,084	$ 141,907	$ 55,839.00

Efficiency Energized.

RISE ENGINEERING™

AHU Variable Frequency Drive Proposal

Date: 8/6/2018

Customer: Harwich Community Center

ATTN: Mr. Sean Libby

Address: 100 Oak St, Harwich, MA 02645

NOTE: THIS CONTRACT MAY BE WITHDRAWN BY RISE IF NOT EXECUTED WITHIN 30 DAYS

AUTHORIZED SIGNATURE

DATE

8/6/2018

Energy Conservation Measure Proposal

Reduction of Electric usage by modulating fan motors according to demand

RISE shall replace shall furnish, install, and start-up VFDs inclusive of providing duct static pressure controls per the following schedule:

Unit	Total CFM	OA CFM	SF Motor HP	EF Motor HP
AHU1	4500	1100	5	
AHU2	10200	4800	15	
AHU3	4700	2100	5	
AHU5	7800	3200	5	0.50
AHU6	7800	3200	5	0.50

Scope of Work

- Furnish and install (6) Siemens BT300 with bypass VFD drives with Bypass
- Replace (6) fan motors with Baldor premium efficiency motors with grounding rings.
- Provide all necessary engineering and project management

Notes and Clarifications:

- All work performed during normal working hours.
- New Niagara JACE 8000 assumed to already exist

Total Installed Cost	$ 73,772
Cape Light Compact Incentives	($ 73,722)
Net Cost To Customer	$ 0

1. Upon execution of this contract RISE Engineering will require a 30% down payment and balance upon invoicing.
2. Any defect in materials, design, or installation found within one (1) year of installation date will be remedied without charge and within a reasonable period of time.
3. All work to be completed in a workmanlike manner according to standard practices.
4. Contract cost includes any permit(s) required by law for this installation. Prior to, or during installation, RISE Engineering (at its sole discretion) may choose not to proceed further with the installation for reasons relative to Safety or discovery of unforeseen conditions
5. Any change from the above specifications involving extra costs will be executed only on written orders, and will become an extra charge over and above the contract amount.
6. In the absence of alternate arrangements, disposal of disabled materials is the responsibility of the Customer.
7. This contract is subject to Utility company approval of any Utility program incentives incorporated herein. All applicable Utility program incentives shall be assigned to RISE ENGINEERING.
8. Pricing is valid for 30 days from above date.
9. This project is contingent on the execution of the new Niagara JACE 800 EMS as it will connect to it

Acceptance of Contract – The above prices, Specifications and conditions are satisfactory and are the work as specified. Payments will be hereby accepted. You are authorized to do the work as specified. Payments will be made as outlined above.

DATE OF ACCEPTANCE _____

SIGNATURE _____

Efficiency Energized.

RISE ENGINEERING

Demand Control Ventilation Proposal

Date: 8/6/2018

Customer: Harwich Community Center

ATTN: Mr. Sean Libby

Address: 100 Oak St, Harwich, MA 02645

NOTE: THIS CONTRACT MAY BE WITHDRAWN BY RISE IF NOT EXECUTED WITHIN 30 DAYS

AUTHORIZED SIGNATURE

DATE

8/6/2018

Energy Conservation Measure Proposal

Reduction of Electric and Gas usage by controlling OA ventilation

The Community Center has CTE-1004 standalone VAV controls. RISE shall replace them with DXR2 controls and room CO2 sensors.

Scope of Work

- Furnish and install (30) DXR2 controls for (30) VAV boxes
- Replicate sequence of operation in as-built drawing and modify as needed
- Install and furnish (30) room CO2 sensors
- Provide all necessary engineering and project management

Notes and Clarifications:

- All work performed during normal working hours.
- Prevailing Wage Included
- Niagara JACE 8000 assumed to already exist

Total Installed Cost	$ 48,437.50
Cape Light Compact Incentives	($ 9,203)
National Grid Incentive	($ 8,132)
Net Cost To Customer	$ 31,102

1. This project is contingent on the execution of the new Niagara JACE 800 EMS as it will connect to it
2. Upon execution of this contract RISE Engineering will require a 30% down payment and balance upon invoicing.
2. Any defect in materials, design, or installation found within one (1) year of installation date will be remedied without charge and within a reasonable period of time.
3. All work to be completed in a workmanlike manner according to standard practices.
4. Contract cost includes any permit(s) required by law for this installation. Prior to, or during installation, RISE Engineering (at its sole discretion) may choose not to proceed further with the installation for reasons relative to Safety or discovery of unforeseen conditions
5. Any change from the above specifications involving extra costs will be executed only on written orders, and will become an extra charge over and above the contract amount.
6. In the absence of alternate arrangements, disposal of disabled materials is the responsibility of the Customer.
7. This contract is subject to Utility company approval of any Utility program incentives incorporated herein. All applicable Utility program incentives shall be assigned to RISE ENGINEERING.
8. Pricing is valid for 30 days from above date.

Acceptance of Contract – The above prices, Specifications and conditions are satisfactory and are the work as specified. Payments will be hereby accepted. You are authorized to do the work as specified. Payments will be made as outlined above.

DATE OF ACCEPTANCE _____

SIGNATURE _____

Efficiency Energized.

RISE ENGINEERING™

Energy Management System Proposal

Date: 8/6/2018

Customer: Harwich Community Center

ATTN: Mr. Sean Libby

Address: 100 Oak St, Harwich, MA 02645

NOTE: THIS CONTRACT MAY BE WITHDRAWN BY RISE IF NOT EXECUTED WITHIN 30 DAYS

AUTHORIZED SIGNATURE

DATE

8/6/2018

Energy Conservation Measure Proposal

Reduction of Electric and Gas usage by controlling the HVAC system

The Community Center has a legacy Honeywell XBS system which utilizes the proprietary C-bus communication protocol. RISE Engineering is proposing to replace the front end with a new Niagara 4 JACE-8000. The new EMS shall control the HW plant, (6) AHU and provide dual enthalpy controls and sequence.

Scope of Work

- Replace Honeywell XBS legacy system with Niagra-4 JACE controls
- Install Siemens talon controllers for (6) AHU and HW plant
- Replicate sequence of operation in as-built drawing and modify as needed
- Install and furnish Dual Enthalpy controls
- Provide all necessary engineering and project management

Notes and Clarifications:

- All work performed during normal working hours.
- Prevailing Wage Included

Total Installed Cost	$ 75,536
Cape Light Compact Incentives	($ 35,222)
Additional Incentive if DCV implemented	($ 16,326)
National Grid Incentive	($ 3,952)
Net Cost To Customer	$ 24,736

1. Upon execution of this contract RISE Engineering will require a 30% down payment and balance upon invoicing.
2. Any defect in materials, design, or installation found within one (1) year of installation date will be remedied without charge and within a reasonable period of time.
3. All work to be completed in a workmanlike manner according to standard practices.
4. Contract cost includes any permit(s) required by law for this installation. Prior to, or during installation, RISE Engineering (at its sole discretion) may choose not to proceed further with the installation for reasons relative to Safety or discovery of unforeseen conditions
5. Any change from the above specifications involving extra costs will be executed only on written orders, and will become an extra charge over and above the contract amount.
6. In the absence of alternate arrangements, disposal of disabled materials is the responsibility of the Customer.
7. This contract is subject to Utility company approval of any Utility program incentives incorporated herein. All applicable Utility program incentives shall be assigned to RISE ENGINEERING.
8. Pricing is valid for 30 days from above date.

Acceptance of Contract – The above prices, Specifications and conditions are satisfactory and are the work as specified. Payments will be hereby accepted. You are authorized to do the work as specified.

DATE OF ACCEPTANCE _____

SIGNATURE _____

Payments will be made as outlined above.

Building Technologies
Two Technology Way, Norwood, MA 02062
www.StellarBT.com

Pre-Submittal for EMS/DCV/Enthalpy/VFDs

Harwich COMMUNITY CENTER

Table of Contents

Executive Summary

About Stellar Building Technologies

Now in its 26th year in business, Stellar Building Technologies ("Stellar") is one of New England's premier Building Automation System providers with complete support, maintenance services, installation, and design offerings.

Stellar Building Technologies is a **One-Stop Turnkey Source** by virtue of our:

- In-house electricians
- In-house engineering, programming, graphics, and field checkouts
- In-house fitters/mechanics and DDC panel shop

About Siemens Talon by Stellar

Stellar is an authorized **Siemens Solution Partner** for the Talon product line. Not only are we a AAA-class partner, we have been recognized as "National Dealer of the Year" twice in the past five years, including the current year, from a pool of over one hundred companies across the country. Our reasons for proposing this solution for Harwich include:

OPEN SOLUTION:

Utilizing industry-standard **open-protocol** BACnet controllers throughout the automation level and the **open-platform** Tridium Niagara 4 at the software level, Siemens Talon is a truly open solution. Tridium Niagara software can be freely purchased from several manufacturers.

UNMATCHED TECHNICAL SUPPORT:

We are a **factory-direct** channel partner with direct lines of support to the technical staff at Siemens should there be any unforeseen hardware or software issue during execution. Importantly, our staff of qualified engineers and programmers are trained directly by Siemens and are notified immediately of any updates to the products or programming tools.

AWARD-WINNING EXPERTISE:

With over forty employees and **over twenty awards** from controls manufacturers, we have now completed more than two thousand projects in New England. We are also current members of the Siemens Dealer Advisory Council and Technical Advisory Committee, helping improve the products of today and sharing our vision for the products of tomorrow.

Building Technologies
Two Technology Way, Norwood, MA 02062
www.StellarBT.com

Product List

#	Location/Category	Controller/End-Device	Qty	Part #	Manufacturer
	Community Center				
1	EMS	DDC for HW Plant and AHUs	7	TC24.3-UCM.T	Siemens
2	EMS	End devices for HW Plant	*	*TBD in Submittal*	Siemens/Other
3	EMS	Duct Temperature Sensors	18	QAM2030.010-BR	Siemens
4	EMS	Network Manager	1	TNM-8000	Siemens
5	Enthalpy	Duct Temp-Humidity Sensor	6	QFM2160U	Siemens
6	DCV	VAV DDC with actuator	30	DXR2.M12P-102B-GDE	Siemens
7	DCV	Space Temp-CO2 Sensor	30	QMX3.P74	Siemens
8	VFDs	VFDs with Bypass	7	BTE Series	Siemens
9	VFDs	Motors with grounding rings	7	EM-3xxxT-G	Baldor
10	VFDs	Duct Pressure Sensor	5	MRG	Setra

Attachments

This pre-submittal includes the following appended cut-sheets:

- Talon Network Manager JACE-8000
- DDC Controller
- VAV DDC
- VAV Actuator
- Space Sensor for Temperature / CO2
- Duct CO2 Sensor
- Duct Temperature Sensor
- Duct Temperature-Humidity Sensor
- Duct Pressure Sensor
- Premium-efficiency Motors
- Variable Frequency Drives with Bypass

SIEMENS

Technical Specification Sheet
Document No. 149-1035
February 19, 2016

JACE® 8000 Controller

Description

The Siemens JACE® 8000 is a compact, embedded IoT (Internet of Things) controller and server platform for connecting multiple and diverse devices and sub-systems. With Internet connectivity and Webserving capability, the JACE 8000 controller provides integrated control, supervision, data logging, alarming, scheduling and network management. It streams data and rich graphical displays to a standard Web browser via an Ethernet or wireless LAN, or remotely over the Internet.

Features

The licensing model for the JACE 8000 controller is simplified and features standard drivers.

- Optional IO and field bus expansion modules for ultimate flexibility and expandability.
- Operates with Niagara 4, the latest version of the Niagara Framework®, for optimum performance. In larger facilities.
- Multi-building applications.
- Large-scale control system integrations.
- Niagara 4 Supervisors can be used with JACE 8000 controllers to aggregate information, including real-time data, history and alarms, to create a single and unified application.

Specifications

Processor	TI AM3352: 1000 MHz ARM® Cortex™-A8
	1 GB DDR3 SD RAM
	Removable micro-SD card with 4GB flash total storage/2 GB user storage
Wi-Fi (Client or WAP)	IEEE802.11a/b/g/n IEEE802.11n HT20 @ 2.4 GHz IEEE802.11n HT20/HT40 @ 5 GHz Configurable radio (Off, WAP, or Client) WPAPSK/WPA2PSK supported
	USB type A connector Back-up and restore support
	(2) Isolated RS-485 with selectable bias and termination
	(2) 10/100 MB Ethernet ports
	Secure boot

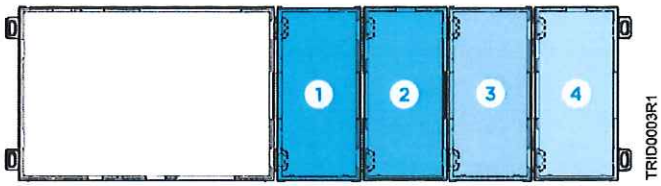
Power Supply	24 VAC/DC
Operating System	Runs Niagara 4.1 and later
	Real time clock
	Batteryless

Agency Listings	
UL Listings	UL 916, PAZX
CE	EN 61326-1, 1999/5/EC R&TTE Directive, ROHS
FCC Compliance	FCC Part 15 Subpart B, Class B
	FCC Part 15 Subpart C
cUL Listed	Canadian Standards Association C22.2 No. 205-M1983 (PAZX7)
	CCC (China)
Optional	SRRC, RSS

Ambient Conditions	
Operating Temperature	-20°C to 60°C
Storage Temperature	-40°C to 85°C
Relative Humidity Range	5% to 95% — Non condensing
Shipping and vibration:	ASTM D4169, Assurance Level II
MTTF	10 years+

Maximum Combinations

Expansion 1	Expansion 2	Expansion 3	Expansion 4
232 or LON	232 or LON	232 or LON	232 or LON
485 485	232 or LON	232 or LON	232 or LON
485 485	485 485	232 or LON	
485 485	485 485		

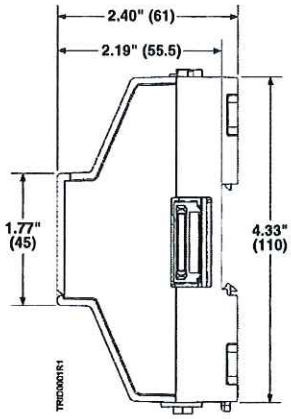


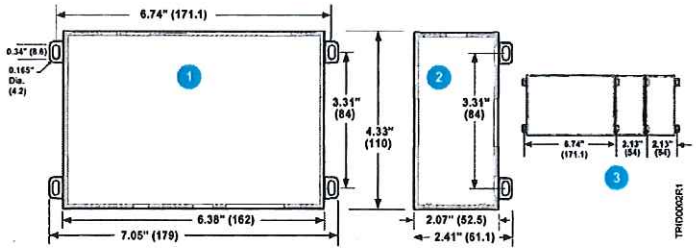
Expansion Module and I/O Combinations

Maximum Expansion Modules Supported	**Maximum I/O Modules Supported**
NPB-8000-LON: 4	T-IO-16-485: 16
NPB-8000-232: 4	
NPB-8000-2X-485: 2	

Mounting and Dimensions

1. Controller. Allow at least 1.5 in. (38 mm) clearance around all sides and minimum of 3 in. (76 mm) at bottom for Wi-Fi antenna.
2. Expansion module. Up to four (4) can be used. See *Expansion Module and I/O Configurations*.
3. Distances between center of tabs from one unit to another unit.





Compatible with (DIN43880) enclosures. Suitable for mounting to a panel or to an EN50022 standard 35 mm rail.

Product Ordering Information

Description	Part Number
Base unit includes two isolated RS485 ports, two 10/100 MB Ethernet ports, USB Backup & Restore and Wi-Fi connectivity.	SLX-8000
Base unit includes two isolated RS485 ports, two 10/100MB Ethernet ports, USB Backup & Restore, Wi-Fi connectivity, all available Tridium drivers and a 500 device license. Hardware Accessories purchased separately.	SLX-8000-DEMO
Up to 5 devices/250 point core.	NC-8005*
Up to 10 devices/500 point core.	NC-8010*
Up to 25 devices/1,250 point core.	NC-8025*
Up to 100 devices/5,000 point core.	NC-8100*
Up to 200 devices/10,000 point core.	NC-8200*
Up to 10 devices/500 point upgrade (can be purchased during initial licensing).	DEVICE-10
Up to 25 devices/1,250 point upgrade (can be purchased during initial licensing).	DEVICE-25
Up to 50 devices/2,500 point upgrade (can be purchased during initial licensing).	DEVICE-50
Up to 10 devices/500 point upgrade (can be purchased post initial licensing).	DEVICE-UP-10
Up to 25 devices/1,250 point upgrade (can be purchased post initial licensing).	DEVICE-UP-25
Up to 50 devices/2,500 point upgrade (can be purchased post initial licensing).	DEVICE-UP-50
Enables JACE® 8000 controller to run Niagara AX (3.8U). 3.8U Build with JACE 8000 controller support.	SLX -8000-AX
JACE 8000 controller — add on dual port RS-485 module.	NPB-8000-2X-485
JACE 8000 controller — add on single port LON FTT10A module.	NPB-8000-LON
JACE 8000 controller — add on single port RS-232 module.	NPB-8000-232
Universal power supply for JACE 8000 controller.	WPM-8000
Remote IO module, compatible with the JACE 8000 controller. Communication using RS 485, maximum I/O supported T-IO-16-485 modules: 16.	T-IO-16-485
24V power supply for T-IO-16-485.	T-NPB-PWR
Universal power supply for T-IO-16-485.	T-NPB-PWR-UN
*All NC-8XXX parts include a Niagara 4 license and Tridium's standard driver suite. Please see Tridium standard driver suite documentation for more information.	

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Your feedback is important to us. If you have comments about this document, please send them to SBT_technical.editor.us.sbt@siemens.com.

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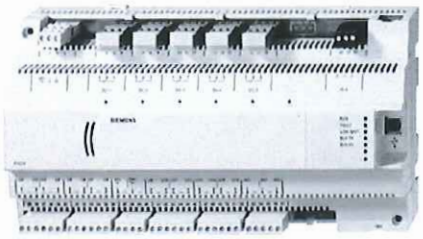
Printed in the USA

TC Compact Series Unitary Equipment Controller



DESCRIPTION

The TC Compact Series Unitary Equipment Controller (Programmable Controller–Compact) for BACnet networks is a high-performance Direct Digital Control (DDC) equipment controller, which is an integral part of the TALON® Automation System. The controllers are classified as a BACnet Advanced Application Controller (B-AAC) with support for BACnet MS/TP protocol.

The TC Compact Series offers integrated I/O based on state-of-the-art TX-I/O™ Technology, which provides superior flexibility of point and signal types, and makes it an optimal solution for Air Handling Unit (AHU) control. The TC Compact operates stand-alone or networked to perform complex control, monitoring, and energy management functions without relying on a higher-level processor.

TC Compact Series communicates with other field panels or workstations on a peer-to-peer Automation Level Network (ALN), or on the Field Level Network (FLN), and supports Native BACnet MS/TP on RS-485.

FEATURES

- BACnet Testing Laboratories (BTL) certified Classified as BACnet Advanced Application Controllers (B-AAC) using the BACnet MS/TP protocol for specific models
- Sophisticated Adaptive Control, a closed loop control algorithm that auto-adjusts to compensate for load/seasonal changes
- Models with either 16 or 24 inputs/outputs to cost-effectively match the needs of the application
- Message control for terminals, printers, pagers, and workstations
- HMI RS-232 port, which provides laptop connectivity for local operation and engineering
- Extended battery backup of Real Time Clock
- Auto Save and persistent database backup and restore within the controller
- PXM10T and PXM10S support: Optional LCD Local user interface with HOA (Hand-off-auto) capability and point commanding and monitoring features

TC Compact Series Unitary Equipment Controller

SPECIFICATIONS

Dimensions (L x W x D)

TC Unitary Equipment Controller, 24 point, BACnet MS/TP
10.7" x 5.9" x 2.45" (272 mm x 150 mm 62mm)

Processor, Battery, and Memory

Processor and Clock Speed
Freescale MPC852T, 100 MHz

Memory
24 MB (16 MB SDRAM, 8 MB Flash ROM)

Battery backup of SDRAM (field replaceable)
AA (LR6) 1.5 Volt Alkaline (non-rechargeable)
60 days (accumulated)

Battery backup of Real Time Clock
10 years (32°F to 122°F (0°C to 50°C)
Coin cell (BR2032) 3 Volt lithium

Communication

A/D Resolution (analog in)
16 bits

D/A Resolution (analog out)
10 bits

BACnet MS/TP Automation Level Network (ALN)
9600 bps to 115.2 Kbps, up to 10 nodes per MS/TP ALN

BACnet MS/TP Field Level Network (FLN)
9600 bps to 115.2 Kbps

Human-Machine Interface (HMI)
RS-232 compliant, 1200 bps to 115.2 Kbps

Human-Machine Interface (HMI)
Ethernet, 10/100 MB

USB Device port (for non-smoke control) (applications only)
Standard 1.1 and 2.0 USB device port, Type B connector

Electrical

Power Requirements
24 Vac ±20% input @ 50/60 Hz

Power Consumption (Maximum)
20 VA @ 24 Vac

A/D Resolution (analog in)
16 bits

D/A Resolution (analog out)
10 bits

AC Power and Digital Outputs
NEC Class 1 Power Limited

Communication and all other I/O
NEC Class 2

Analog Outputs
0-10 V

Digital Inputs
Contact Closure Sensing, Status/Binary
Dry Contact/Potential Free inputs only
Does not support counter inputs

Digital Outputs
Class I Relay

Electrical Rating

Universal Input (UI) and Universal Input/ Outputs (U)

Analog Input
Voltage (0-10 Vdc)
Current (4-20 mA)
1K Ni RTD @ 32°F
1K Pt RTD (375 or 385 alpha) @32°F
10K NTC Type 2 or Type 3 Thermistor @ 77°F
100K NTC Type 2 Thermistor @77°F

Digital Input
Pulse Accumulator
Contact Closure Sensing
Dry Contact/Potential Free inputs only
Supports counter inputs up to 20 Hz

Analog Output (U points only)
Voltage (0-10 Vdc)

TC Compact Series Unitary Equipment Controller

SPECIFICATIONS (Continued)

Super Universal I/Os

Analog Input
Voltage (0-10 Vdc)
Current (4-20 mA)
1K Ni RTD @ 32°F
1K Pt RTD (375 or 385 alpha) @32°F
10K NTC Type 2 or Type 3

Digital Input
Pulse Accumulator
Contact Closure Sensing
Dry Contact/Potential Free inputs only
Supports counter inputs up to 20 Hz

Analog Output
Voltage (0-10 Vdc)
Current (4-20) mA Digital Output (requires an external relay)
0 to 24 Vdc, 22 mA max.

Operating Environment

Ambient operating temperature
32°F to 122°F (0°C to 50°C)
5% to 95%, non-condensing

Shipping and Storage Environment
-40°F to 185°F (-40°C to 85°C)

Mounting Surface
Direct equipment mount, building wall, or structural member
CE Compliance must be installed inside a metal enclosure rated at IP20 minimum

Agency Listings

UL
UL916 PAZX
UL916 PAZX7

Agency Compliance
FCC Compliance CFR47 Part 15, Subpart B, Class B
Australian EMC Framework
European EMC Directive (CE)
European Low Voltage Directive (LVD)

OSHPD Seismic Certification

TC Compact Series Unitary Equipment Controller

ORDERING INFORMATION

Description	Product Number
TC Unitary Equipment Controller, 16 point, BACnet MS/TP	TC16.3-UCM.T
TC Unitary Equipment Controller, 24 point, BACnet MS/TP	TC24.3-UCM.T
Accessories	
Serial cable required for PXM10T/S connection to non-rooftop variants of the 16-point and 24-point Compact Series (pack of 5)	PXA-HMI.CABLEP5
The Wire Tie Bar kit can be used when addition tie bars are needed to secure wiring within the enclosure.	PXA-TIEBARKIT
USB to RS232 Adapter converts USB Host signals (Type A male connector) to RS232 signals (DB9 male connector).	PXA-USBADAPTER
USB Modem kit contains everything needed for dial up modem connection using the USB Host port of the TC Modular controller.	PXA-USBMODEMKIT
Controller mounted Operator Display module with point monitor and optional blue backlight	PXM10S
Controller mounted Operator Display module	PXM10T
Service Boxes and Enclosures	
The DIN Replacement Kit can be used when additional 16" DIN rail is required.	PXA-DIN16KIT
18" Enclosure (Utility Cabinet) (UL Listed NEMA Type 1 Enclosure)	PXA-ENC18
19" Enclosure (UL Listed NEMA Type 1 Enclosure)	PXA-ENC19
34" Enclosure (UL Listed NEMA Type 1 Enclosure)	PXA-ENC34
PX Series Service Box – 115V, 24 Vac, 50/60 Hz, 192 VA	PXA-SB115V192VA
PX Series Service Box – 115V, 24 Vac, 50/60 Hz, 384 VA	PXA-SB115V384VA
PX Series Service Box – 230V, 24 Vac, 50/60 Hz, 192 VA	PXA-SB230V192VA
PX Series Service Box – 230V, 24 Vac, 50/60 Hz, 384 VA	PXA-SB230V384VA
Service Box Sidewall Kit, 192 VA	PXA-SW192VA
Service Box Sidewall Kit, 384 VA	PXA-SW384VA

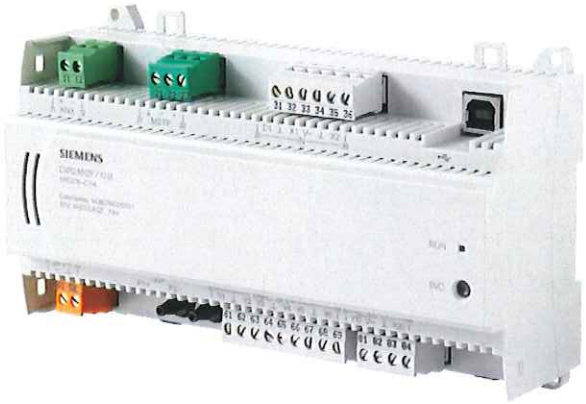
Documentation	Document Number
TC Compact Series Owner's Manual	588-682
Powers Process Control Language (PPCL) User's Manual	588-583

SIEMENS

Desigo® DXR

Room Automation Stations

DXR2.M12P



Automation station with increased functionality and flexibility to support the demands for standard control of terminal HVAC equipment and Total Room Automation (TRA) applications. TRA offers the highest level of flexibility for energy-optimized solutions without sacrificing comfort.

- Compact, programmable room automation stations for HVAC, lighting, and shading.
- BACnet MS/TP Communication (BTL certified).
- KNX PL-Link bus to connect sensors, actuators, and operator units (including bus power).
- USB interface.
- Operating voltage AC 24V.
- Mounted on standard DIN rails or on the wall.
- Plug-in terminal blocks.

Features

- Total Room Automation applications combining multiple disciplines (HVAC, lighting, shading) into one comprehensive solution.
- BTL Listed as a BACnet Advanced Application Controller (B-AAC) device.
- Fully programmable using block programming.
- Proven, pre-loaded applications.
- Extendable application for lighting and blinds.
- Operational modes (Comfort, Standby, Economy, Protection, and so on).

Preconfigured applications

Variable Air Volume (VAV) or Constant Volume (CV)

- VAV Cooling Only
- VAV with staged Electric Heat
- VAV with Hot Water
- VAV with Hot Water and Supply Temp Control

VAV with Fan Powered Boxes (FPB)

- VAV Series FPB with staged Electric Heat
- VAV Series FPB with Hot Water
- VAV Series FPB with Hot Water and Supply Temp Control
- VAV Parallel FPB with staged Electric Heat
- VAV Parallel FPB and Hot Water
- VAV Parallel FPB with Hot Water and Supply Temp Control

Chilled Beam

- Chilled Beam Passive Heating and Cooling with Hot Water Radiator
- Chilled Beam Active Heating and Cooling VAV with Hot Water Radiator
- Chilled Beam Active Heating and Cooling VAV with Electric 1-Stage Radiator

Additional Applications

- Electrical terminal heating coils, PWM, 1…3 stages or analog
- Series or Parallel fans, 1…3 stages or analog
- Chill water coils and heating/cooling coils (2-pipe or 4-pipe)
- Supply/Extract (Exhaust) airflow tracking and control
- Radiant ceiling including Chilled beams, cooling, heating and heating/cooling (2-pipe or 4-pipe) control
- Radiator/Baseboard: hot water, steam or electric
- Lighting – up to four separated or overlapping zones
  - Manual switching and dimming
  - Occupancy control and Vacancy control
  - Automatic Daylight Harvesting - step or constant level control
  - Stairwell lighting
  - Scene control
- Blinds – one or two separate zones
  - Manual control: Up, Down, Predefined positions
  - Occupancy control and Vacancy control
  - Glare Protection
  - Energy efficiency functions including solar radiation optimization
  - Slat angle

- Scene control

Pre-loaded Application Options

- Separate maximum and minimum flow setpoints for both heating and cooling control.
- Separate minimum ventilation flow setpoints for each occupancy mode.
- CO2 sensor and Demand control ventilation with maximum ventilation flow setpoint.
- Flexible occupancy modes: Comfort, Pre-Comfort, Economy and Protection.
- Supply (discharge) air temperature control for modulating heating or cooling coils.
- Configurable occupancy sensor control.
- Relative humidity sensor and room dew point calculation.
- Greenleaf energy efficiency determination and display.
- Configurable plant operating modes (heating, cooling, warm up, cool down, flush/purge, and so on).

Functions

The selected application and its parameters as well as input and output configuration determine the room automation station's functionality.

A detailed description of functionality is available in the ABT (Automation Building Tool) online help.

Communication

- BACnet MS/TP
- USB connection for service and commissioning, firmware download, and LAN access.
- The following functions are available with the KNX PL-Link bus:
  - Communication with room operator units, switches, sensors, actuators, and luminaires.
  - Plug-and-play connection of Siemens field devices with KNX PL-Link.

Type summary

Product Number	SSN	Description	Inputs	Outputs
DXR2.M12P-102B (Version with 30 data points)	S55376-C123	DXR2.M12P Room Automation Station	1 DI, 2 UI, ΔP sensor	6 DO Triacs, 2 AO 0 to 10V
DXR2.M12P-102K (Version with 30 data points)	S55376-C152	Smoke Control DXR2.M12P Room Automation Station	1 DI, 2 UI, ΔP sensor	6 DO Triacs, 2 AO 0 to 10V
DXR2.M12PX-102B (Version with 60 data points*)	S55374-C251	DXR2.M12PX Room Automation Station	1 DI, 2 UI, ΔP sensor	6 DO Triacs, 2 AO 0 to 10V
DXR2.M12PX-102K (Version with 60 data points*)	S55376-C153	Smoke Control DXR2.M12PX Room Automation Station	1 DI, 2 UI, ΔP sensor	6 DO Triacs, 2 AO 0 to 10V

* 60 data point DXRs are typically used for Desigo Total Room Automation projects.

Accessories

Product Number	Designation
985-124	499 ohm Resistor Kit

Product Documentation

Topic	Title	Document ID
Installation and mounting	DXR Installation Instructions	A6V10550039
Global datasheet*	DXR2 24V IP DXR2 24V MS/TP	N9205 N9207
Setup and commissioning	DXR VAV Start-up Procedures DXR FPB Start-up Procedures DXR FCU Start-up Procedures Balancing Procedures	A6V10665935 A6V10665938 A6V10665941 A6V10665943
Room Unit Datasheet	Wall mounted	A6V10394781
BTL listing	DXR PIC Statement	A6V10665948

Installation and mounting	DXR Actuator Package Installation Instructions	A6V10549963
Datasheet	DXR Actuator Package	A6V10549990

* Please see the Global datasheets for additional information not found in this submittal sheet.

Technical data

Dimensions	180 mm (7.09 in) x 104.5 mm (4.11 in) x 59.5 mm (2.34 in)
Weight	approx. 1.35 kg (3 lbs)

Power data

Power supply	
Operating voltage	AC 24V -15%/+20%
Frequency	50/60 Hz

Apparent power (VA) for transformer design						
Base Model	Base load	Max. load Triac output AC 24V~ 0.25 A each	Max. load all Aux. outputs AC 24V~	Max. load KNX PL-Link (at 50 mA)	Max. load DC 24V+ (2.4 W))	Max. Allowed Power consumption including connected field devices
DXR2.M12P	6	6 x 6 = 36	12	4	-	58

NOTE:
To calculate the total VA, add the Base Load + the number of Triacs + field supplies+ KNX PL-Link devices.
This cannot exceed the maximum power consumption. See the *Wiring Guidelines* for more information.

Inputs

Analog Inputs		
Resistance sensor	**Temperature measurement**	**Voltage measurement**
AI 1000 Ω	AI PT1K 375 (NA)*)	AI 0 to 10V
AI 2500 Ω	AI PT1K 385 (EU)*)	AI 0 to 10V (0 to 100%)
AI 10 KΩ	AI (LG-)Ni1000*)	
AI 100 KΩ	AI Ni1000 DIN*)	
	AI T1 (PTC)*)	
	AI NTC10K**)	
	AI NTC100K**)	

* A fixed value of 1 Ω is calibrated to correct line resistance.

** Configurable default.

Digital Inputs	
Contact voltage	Universal input: 18V Digital input: 21V
Contact current	Universal input: 1.2 mA; 7.4 mA initial current Digital input: 1.6 mA; 9.4 mA initial current
Contact resistance for closed contacts	Max. 100 Ω
Contact resistance for open contacts	Min. 50 kΩ

Differential pressure sensor (inputs P1+, P1-)	
Connections (nipple diameter)	Dia. 5.2 mm (0.20 in)
Measuring range	0 to 500 Pa (0 - 2.01 in WC)
Overload range	0 to 100 kPa (0 - 402 in WC)
Measuring range accuracy Zero point accuracy Resolution	4.5% 0.2 Pa 12 bit

Outputs

Analog Outputs	
0 to 10V	Max. 1 mA

Digital Outputs	
Type (Switching outputs triacs)	High side The Triac closes the contact to AC 24V
Switching voltage	AC 24V
Permissible load	250 mA/6 VA per output (cos phi 0.35) (500 mA/12 VA per output with PWM*)
Protection	Short-circuit proof

Connections

Interfaces	
MSTP	Interface type: RS485 Galvanic isolation: Yes Baud rates: 9600, 19200, 38400, 57600, 115200 Protocol: BACnet over MS/TP Short-circuit proof Protection against faulty wiring at max. AC 24V
USB (2.0)	Plug: Type B Data rate: 12 Mbps
KNX PL-Link	Type: KNX TP1 PL-Link, galvanic isolation Baud rate: 9.6 kbps Bus power: 50 mA Short-circuit proof Protection against faulty wiring at max. AC 24V

Wiring connections	
Pluggable screw terminals	Copper wire or copper strands with ferrules 1 x 0.6 mm dia. to 2.5 mm2 (22 to 14 AWG) or 2 x 0.5 mm dia. to 1 mm2 (24 to 18 AWG) Copper strands without ferrules 1 x 0.6 mm dia. to 2.5 mm2 (22 to 14 AWG) or 2 x 0.5 mm dia. to 1.5 mm2 (24 to 16 AWG)
Slotted screws	Small 1/8" blade, tightening torque 0.6 Nm (0.44 lb-ft)
Wiring lengths for signals	KNX PL-Link 80 m (260 ft) with internal bus power or 300 m (990 ft) with external power supply MS/TP 1,000 m (3,290 ft) Signal lines 80 m (260 ft) For inputs AI 100 KΩ, AI NTC10K, AI NTC100K: 30 m (100 ft) or 80 m (260 ft), if shielded.

KNX/PL-Link Network and Power Wriring.*	
Cable configuration	1 or 2 twisted pair - Pair 1 red/black - Pair 2 yellow/white
Gauge	20 AWG (solid copper)
Twists per foot	4 Minimum
Capacitance	30 pF/foot or less
Shields	100% foil with drain wire
UL type	300Vrms, CMP (75 °C or higher)
CSA type	300Vrms, FT6 (75 °C or higher)

* Alternative 18 AWG STP CMP (Belden 6320FE 8771000)

Conformity

⚠ CAUTION

National safety regulations

Failure to comply with national safety regulations may result in personal injury and property damage.
Observe national provisions and comply with the appropriate safety regulations.

Ambient conditions and protection classification	
Climatic ambient conditions	
• Transport and Storage	• Temperature -25 to 70°C (-13 to 158°F) Air humidity 5 to 95% rh.
• Operation	• Temperature -5 to 45°C (23 to 113°F)/ -5 to 50 °C (23 to 122°F) Air humidity 5 to 95% rh.

Standards, directives and approvals	
UL Listing	UL916; UL864 (K variant only)
Suitable for plenum area installation	UL1995
Federal Communications Commission	FCC CFR 47 Part 15 Class B
CSA Compliance and cUL certification	C22.2 No. 205
Environmental compatibility - RoHS Compliant	The product environmental declaration contains data on environmentally compatible product design and assessments (composition, packaging, environmental benefit, disposal).
BACnet BTL Listing	BTL-AAC
CEC Title 24 Supported	
ASHRAE 90.1 Supported	
Quality	ISO 9001 (Quality).

Issued by
Siemens Industry, Inc.
Building Technologies Division
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Electronic Damper Actuator
Non-spring Return

GDE Series Non-spring Return Electronic Damper Actuator.

Easily Replaces:

- Belimo LM Series

44 lb.-in. Torque
24 Vac, Floating Control
0 to 10 Vdc, Modulating Control

Indoor Environmental Quality

Description

The OpenAir GDE Series Direct-coupled 24 Vac Non-spring Return Rotary Electronic Actuator is designed for 0 to 10 Vdc or floating control of building HVAC dampers.

Features

- Compact design
- Easy-to-see position indicator
- 0 to 10 V or floating models
- Self-adapting capability for maximum flexibility in damper positioning
- UL, cUL, CE listed
- Quiet, low-power operation
- Rated NEMA 2
- Assembled in the U.S.A.
- Manual override
- Modulating actuators contain built-in feedback
- N Versions designed for under floor installation (pluggable cable connections)

Options

- Independently adjustable dual auxiliary switches
- Adjustable start/span
- Standard or plenum cable
- Available in bulk packs for additional savings
- Potentiometer on floating control

Applications

The OpenAir GDE Series Damper Actuators are used in Constant or Variable Air Volume installations for the control requiring up to 44 lb.-in. (5 Nm) torque.

Models are available with either a universal cable for wiring in conduit or a plenum-rated cable for applications where conduit is not required.

Siemens Product Guard PLUS 3 Warranty

GDE Series Specifications

Operating Voltage ..... 24 Vac
Frequency ..... 50/60 Hz
Power Consumption ..... 2 to 3 VA
Input signal (8–2)
Voltage-Input ..... 0 to 10 Vdc
Input Resistance ..... 100K Ohms
Position Output Signal (9–2)
Voltage-Output ..... 0 to 10 Vdc
Max. Output Current ..... 1 mA
Equipment Rating for Operating Voltage, Input Signal, and Position Output Signal ..... Class 2
Control Signal Adjustment
Offset (Start Point) ..... Between 0 to 5 Vdc
Factory Setting ..... 0 V
Span ..... Between 2 to 10 Vdc
Dual Auxiliary Switch
Contact Rating ..... 4 A resistive, 2 A General Purpose
Voltage ..... 24 Vac
Switch Range
Switch A ..... 0 to 90° with 5° intervals
Recommended Range Usage ..... 0 to 45°
Factory Setting ..... 5°
Switch B ..... 0 to 90° with 5° intervals
Recommended Range Usage ..... 45 to 90°
Factory Setting ..... 85°
Switching Hysteresis ..... 3°
Position Feedback
GDE132.1P ..... .0 to 1000 Ohm <10 mA

Function
Torque ..... 44 lb.-in. (5 Nm)
at 50 Hz ..... 108 sec.
at 60 Hz ..... 90 sec.
Nominal Angle of Rotation ..... 90°
Max. Angular Rotation ..... 95°
Shaft Size ..... 3/8 to 5/8-in. (8 to 16 mm) Dia. ●
1/4 to 1/2-in. (6 to 13 mm) Sq. ■
Min. Shaft Length ..... 3/4-in. (20 mm)
Housing Enclosure ..... NEMA Type 2
Material ..... Plenum Rated Rugged Plastic
Temperature
Operation ..... -25 to +130°F (-32 to +55°C)
Storage and Transport ..... -25 to +140°F (-30 to +60°C)
Humidity ..... 95% RH, non-condensing
Agency Approvals UL873
cUL C22.2 No. 24-93
CE
Pre-cabled Connection ..... AWG 18
Cable Length ..... 3 ft. (0.9 m)
Dimensions ..... 5.4" H x 2.6" W x 2.3" D
(137 mm H x 68 mm W x 60 mm D)
Shipping Weight ..... 1.06 lb. (0.45 kg)

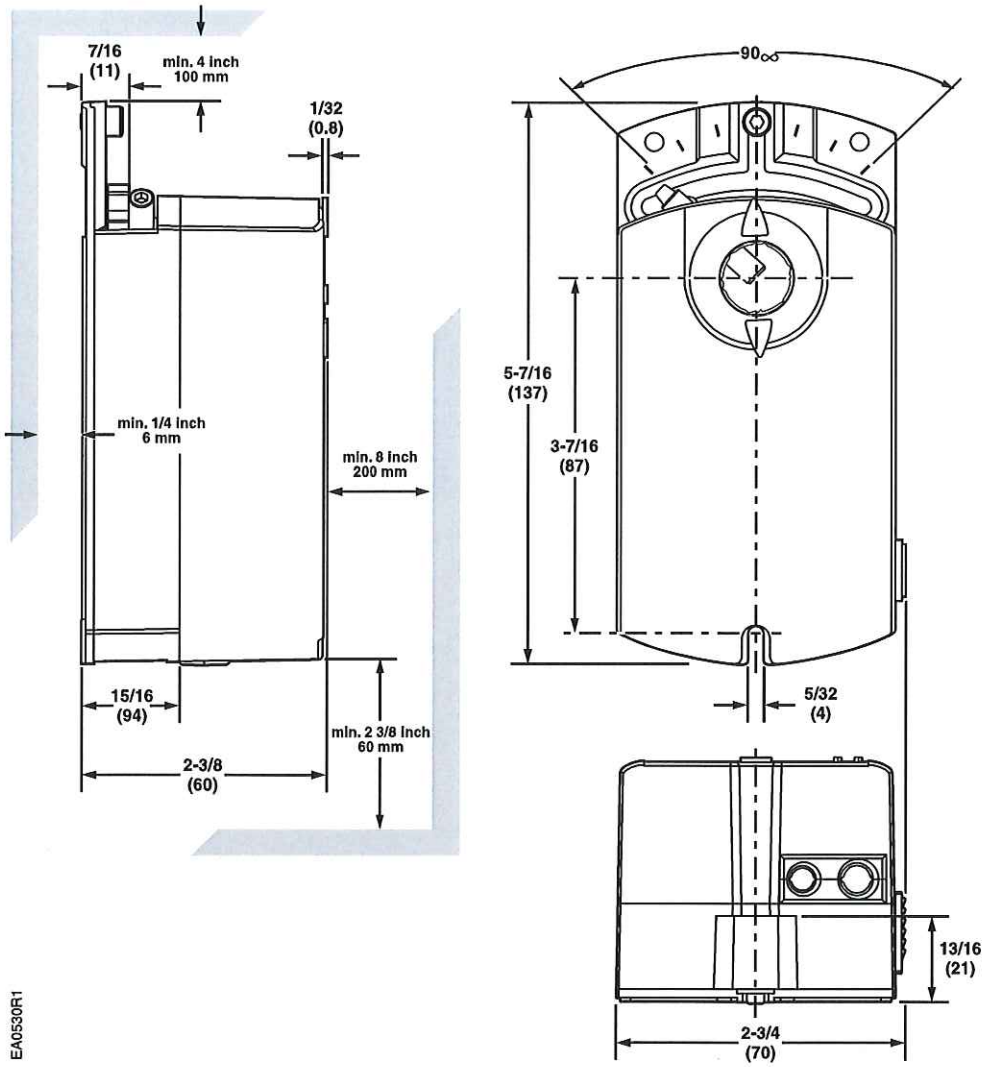
GDE Series Product Ordering

Input Signal	Part No. Standard	With Potentiometer	Slope/Offset Adjustable	Dual Aux. Switches & Slope/Offset Adjustable	Dual Aux. Switches Only	Pre-Cabled	No Cables
0 to 10 Vdc	GDE161.1P GDE161.1P/B (24 pk)	—	GDE163.1P	GDE164.1P	GDE166.1P	Plenum	—
	GDE161.1Q	—	—	—	—	6 ft Plenum	—
	GDE161.1N GDE161.1N/B (24 pk)	—	—	—	—	—	Post Header AMP
	GDE161.1T GDE161.1T/B (24 pk)	—	—	—	—	—	Terminal Strip
Floating	GDE131.1U GDE131.1U/B (24 pk)	—	—	—	—	Standard	—
	GDE131.1P GDE131.1P/B (24 pk)	GDE132.1P	—	—	GDE136.1P	Plenum	—
	GDE131.1Q GDE131.1Q/B (12 pk)	—	—	—	—	6 ft Plenum	—
	GDE131.1N GDE131.1N/B (24 pk)	—	—	—	—	—	Post Header AMP
	GDE131.1T GDE131.1T/B (24 pk)	—	—	—	—	—	Terminal Strip

Cables compatible with the GDE131.1N and GDE161.1N sold seperately on page B-53.

GDE Series Dimensions

GDE/GLB Series OpenAir Electronic Damper Actuator



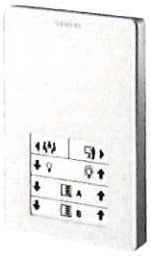
Dimensions shown in inches (mm).

SIEMENS

Technical Specification Sheet
Document No. 149-151
January 29, 2018

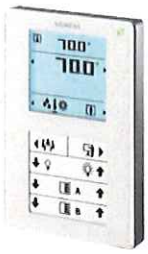
QMX3 Room Sensors for Siemens DXR Series Controllers

QMX3.P30/P70
Sensing Only



QMX3.P02
Sensor/Room Operator

QMX3.P34/P74
Sensor with Full Display



QMX3.P37
Room Sensor/Operator with Display

Description

The QMX3 Series includes sensors, switches and room operator units exclusively for use with Siemens DXR Series Controllers. The devices communicate with the controller using PL-Link protocols. All units can be installed on a standard 2" × 4" electrical box with no additional back plates required. No-logo versions are available for some units.

QMX3.P02
- Temperature sensor.
- Configurable touch keys for light and shade control.

QMX3.P30
- Temperature sensor.

QMX3.P34
- Temperature sensor.
- Backlit LCD display and touch keys for HVAC control.
- Green Leaf active energy management.

QMX3.P37
- Temperature sensor.
- Backlit LCD display and configurable touch keys for light and shade control.
- Green Leaf active energy management.

QMX3.P70
- Temperature, humidity and air quality sensor.
- LED air quality indicator.

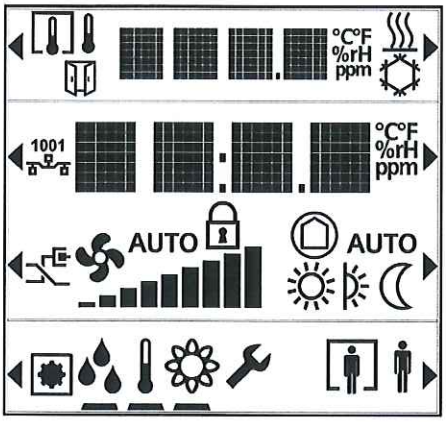
QMX3.P74
- Temperature, humidity and CO_2 sensor.
- Backlit LCD HMI and touch keys for HVAC control.
- Green Leaf active energy management.

Specifications*

Temperature	
Measuring range	32°F to 122°F (0°C to 50°C)
Accuracy	± 0.36°F @ 77°F (0.2°C @ 25°C)
Humidity (P70 and P74)	
Measuring Range	0 to 95% rh
Accuracy	± 4% (20 to 80% rh)
CO_2 (P70 and P74)	
Measuring Range	400 to 10,000 PPM
Accuracy < 2K ppm	± (30 ppm +4% measured CO_2) @ 73°F (23°C) and 101.3 kPa
Temp. dependency	± 2 ppm/°C typical
Pressure dependency	0.14% of value/hPa
Long-term drift	± 20 ppm per year
Calibration	Not required
Operating voltage range	PL-Link DC 21 to 30V Max.
Power consumption	15 mA at 24 Vdc
Agency Listings	UL 916 FCC Part 15 CSA C22.2 #0 and #205
Color	White or black
Dimensions	5.25" × 3.5" × 0.71" (133.4 mm × 88.4 mm × 18 mm)
Shipping Weight	7.6 oz. (216 g)

*Accuracies shown are for sensing elements; actual system accuracy may vary.

Display (QMX3.P34 and QMX3.P74 Only)



NOTES:

- User-accessible values and settings will vary based on overall system configuration.
- Some values (for example, open window indicator, and outdoor air temperature) require additional

	Current Room Temperature/Humidity/Air Quality
	Indicates indoor or outdoor temperature (User-selectable).
	Indicates that a window is open.
	Heating/cooling mode indicator
	Green leaf indicates optimum settings are active. (One-touch resets to optimum setpoints.)
	Displays temperature setpoint (User-adjustable)
	Displays current fan speed (User-adjustable)
	Displays current room operating mode (User-selectable)
	Displayed value selector (RH/Temp/Air Quality) (User-selectable)
	Room occupancy indicator
	Start-up/commissioning mode indicators (See start-up and commissioning documents)
	Indicates parameters are locked

Product Ordering Information

Category	Model Number	Orderable Part Number	Temperature Sensor	Humidity Sensor	CO2 Sensor	Air Quality Indicator LED	Backlit Display and Touch Keys	Green Leaf LED	Configurable Touch Keys	Window for Labels	Color
Sensors	QMX3.P30*	QMX3.P30*	•	–	–	–	–	–	–	–	White
	QMX3.P30-1WNB	QMX3.P30-1WNB	•	–	–	–	–	–	–	–	White (no logo)
	QMX3.P30-1BSC	S55624-H123	•	–	–	–	–	–	–	–	Black
	QMX3.P40	S55624-H116	•	•	-	-	-	-	-	-	White
	QMX3.P40-1BSC	S55624-H124	•	•	-	-	-	-	-	-	Black
	QMX3.P70	QMX3.P70	•	•	•	•	–	–	–	–	White
	QMX3.P70-1BSC	S55624-H125	•	•	•	•	–	–	–	–	Black
Room Operator Units	QMX3.P02	QMX3.P02	•	–	–	–	–	–	•	•	White
	QMX3.P02-1BSC	S55624-H128	•	–	–	–	–	–	•	•	Black
	QMX3.P34*	QMX3.P34*	•	–	–	–	•	•	–	–	White
	QMX3.P34-1WNB	QMX3.P34-1WNB	•	–	–	–	•	•	–	–	White (no logo)
	QMX3.P34-1BSC	S55624-H126	•	–	–	–	•	•	–	–	Black
	QMX3.P74*	QMX3.P74*	•	•	•	–	•	•	–	–	White
	QMX3.P74-1WNB	QMX3.P74-1WNB	•	•	•	–	•	•	–	–	White (no logo)
	QMX3.P74-1BSC	S55624-H127	•	•	•	–	•	•	–	–	Black
	QMX3.P37	QMX3.P37	•	–	–	–	•	•	•	•	White
	QMX3.P37-1BSC	S55624-H129	•	–	–	–	•	•	•	•	Black
Accessories	QMX3-GSKT	QMX3-GSKT	QMX3 Insulating Gasket (10-pack). For installing sensors on a hollow wall.								
	OCI702	S55800-Y101	USB to PL-LINK Interface with Power Supply (Required for commissioning)								
	QMX3-BP	QMX3-BP	QMX3 Replacement Back Plates (12-pack)								
	5WG11938AB01	5WG11938AB01	KNX/PL-Link Bus Connector (25-pack)								

* For COO = USA, add suffix "-1WSB" to the part number (P30, P34 and P74 models only).

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SIEMENS

Technical Specification Sheet
Document No. 149-915
August 26, 2009

Duct Point Temperature Sensors

Description

The Duct Point Temperature Sensors monitor and transmit changes in duct air temperature to the building control system. Specific devices within the range are compatible with whatever North American manufactured building automation system you may be installing. They provide accurate, reliable indication of duct temperature. The sensor resistance varies proportionally to the actual duct air temperature being measured. They are well suited for application such as heating and cooling, morning warm-up/cool-down, and monitoring discharge air temperature.

Features

- Variety of sensing elements.
- Suitable for multiple duct applications.
- Responsive to temperature change.
- Accurate and reliable indication of duct temperature.
- Familiar installation requires no special tools.

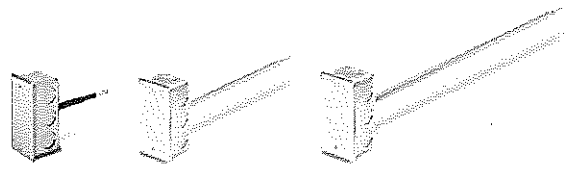


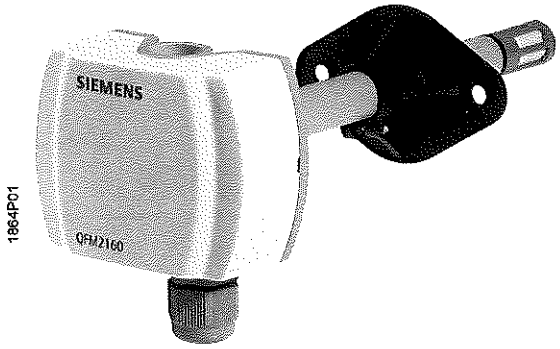
Figure 1. Duct Point Temperature Sensors.

Specifications

Temperature Range	Controller dependent
Output Signals	Changing resistance
Sensing Element Type	NTC Thermistor, Platinum RTD, or Nickel RTD
Accuracy:	
NTC Thermistors, mid-range	±1.0°F (±0.5°C)
Pt RTD and Ni RTD, mid-range	±0.75°F (±0.4°C)
Installation:	
Wiring	2-conductor: 18 to 22 AWG twisted pair (per code requirements)
Calibration Adjustments	NTC: None required RTD: Adjust for increased temperature offset (a constant) as required, related to added resistance of the field wiring
Dimensions:	
Probe Lengths	4 in. (10 cm), 8 in. (20 cm), or 18 in. (45 cm)
Mounting	2 × 4 inch (5 × 10 cm) electrical conduit box
Probe Material	0.028 Wall SAE J526 ZTEW or Galfan steel tubing
Housing	Standard NEC approved 2 × 4 inch (5 × 10 cm) utility box with 1/2 inch (13 mm) knockouts
Cover Plate	Standard NEC approved 2 × 4 inch (5 × 10 cm) utility box cover
Screw Head Type	Standard slotted

Duct Point Temperature Sensor Product Numbers

Product Number	Description
QAM2012.010	Duct Temperature Sensor, 2 × 4 Box Housing, Platinum 1000 Ohm, 385 Alpha, 4-Inch Probe
QAM2012.020	Duct Temperature Sensor, 2 × 4 Box Housing, Platinum 1000 Ohm, 385 Alpha, 8-Inch Probe
QAM2012.045	Duct Temperature Sensor, 2 × 4 Box Housing, Platinum 1000 Ohm, 385 Alpha, 18-Inch Probe
QAM2020.010	Duct Temperature Sensor, 2 × 4 Box Housing, Nickel 1000 Ohm, Siemens, 4-Inch Probe
QAM2020.020	Duct Temperature Sensor, 2 × 4 Box Housing, Nickel 1000 Ohm, Siemens, 8-Inch Probe
QAM2020.045	Duct Temperature Sensor, 2 × 4 Box Housing, Nickel 1000 Ohm, Siemens, 18-Inch Probe
QAM2021.010	Duct Temperature Sensor, 2 × 4 Box Housing, Nickel 1000 Ohm, JCI, 4-Inch Probe
QAM2021.020	Duct Temperature Sensor, 2 × 4 Box Housing, Nickel 1000 Ohm, JCI, 8-Inch Probe
QAM2021.045	Duct Temperature Sensor, 2 × 4 Box Housing, Nickel 1000 Ohm, JCI, 18-Inch Probe
QAM2030.010	Duct Temperature Sensor, 2 × 4 Box Housing, NTC 10K Ohm Type 2, 4-Inch Probe
QAM2030.020	Duct Temperature Sensor, 2 × 4 Box Housing, NTC 10K Ohm Type 2, 8-Inch Probe
QAM2030.045	Duct Temperature Sensor, 2 × 4 Box Housing, NTC 10K Ohm Type 2, 18-Inch Probe
QAM2032.010	Duct Temperature Sensor, 2 × 4 Box Housing, NTC 10K Ohm Type 3, 4-Inch Probe
QAM2032.020	Duct Temperature Sensor, 2 × 4 Box Housing, NTC 10K Ohm Type 3, 8-Inch Probe
QAM2032.045	Duct Temperature Sensor, 2 × 4 Box Housing, NTC 10K Ohm Type 3, 18-Inch Probe



Symaro™

Duct sensors

QFM21..

for relative humidity and temperature

- **Operating voltage AC 24 V / DC 13.5...35 V**
- **Signal output DC 0...10 V / 4...20 mA for relative humidity**
- **Signal output DC 0...10 V / 4...20 mA / T1 / LG-Ni 1000 for temperature**
- **Measuring accuracy ±3 % r. h. within the comfort range**
- **Range of use –15...+60 °C / 0...95 % r. h. (non-condensing)**

Use

The QFM21.. duct sensors are for use in air ducts of ventilation and air conditioning plant for acquiring:

- The relative humidity and
- The temperature.

The sensors are used as:

- Control sensors in the supply or extract air
- Reference sensors, e.g. for shifting the dew point
- Limit sensors, e.g. in connection with steam humidifiers
- Limit sensors, e.g. for measured value indication or for connection to a building automation and control system
- Sensors for enthalpy and absolute humidity, together with SEZ220 (see Data Sheet N5146)

Type summary

Type reference	*Temperature measuring range*	*Temperature signal output*	*Humidity measuring range*	*Humidity signal output*	*Operating voltage*
QFM2100	None	None	0...100 %	active, DC 0...10 V	AC 24 V or DC 13.5...35 V
QFM2101	None	None	0...100 %	active, 4...20 mA	DC 13.5...35 V
QFM2120	–35...+50 °C	passive, LG-Ni 1000	0...100 %	active, DC 0...10 V	AC 24 V or DC 13.5...35 V
QFM2140	–35...+50 °C	passive, T1 (PTC)	0...100 %	active, DC 0...10 V	AC 24 V or DC 13.5...35 V
QFM2160	0...50 °C / –35...+35 °C or –40...+70 °C	active, DC 0...10 V	0...100 %	active, DC 0...10 V	AC 24 V or DC 13.5...35 V
QFM2171	0...50 °C / –35...+35 °C or –40...+70 °C	active, 4...20 mA	0...100 %	active, 4...20 mA	DC 13.5...35 V

Ordering and delivery

When ordering, please give name and type reference, e.g.:
Duct sensor **QFM2120**
The sensor is supplied with mounting flange and cable entry gland M16.

Equipment combinations

All systems and devices capable of acquiring and handling the sensor's DC 0...10 V, 4...20 mA, LG-Ni 1000 or T1 output signal.
When using the sensors for minimum or maximum selection, for averageing, or to calculate enthalpy, enthalpy difference, absolute humidity, and dewpoint, we recommend to use the SEZ220 signal converter (see Data Sheet N5146).

Function

Relative humidity

The sensor acquires the relative humidity in the air duct via its capacitive humidity sensing element whose electrical capacitance changes as a function of the relative humidity.
The electronic measuring circuit converts the sensor's signal to a continuous DC 0...10 V or 4...20 mA signal, which corresponds to 0...100 % r. h.

Temperature

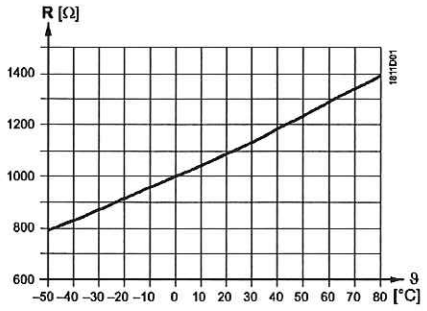
The sensor acquires the temperature in the air duct via its sensing element whose electrical resistance changes as a function of the temperature.
Depending on the type of sensor this change in resistance is converted either to an active DC 0... 10 V or 4...20 mA output signal corresponding to a temperature range of 0... 50 °C, –35... +35 °C, or –40...+70 °C. The measuring range can be selected. The temperature is provided as a simulated passive LG-Ni 1000- or T1-output signal (≙ –35...50 °C) as an alternative to the active output signal.

Simulated passive output signal

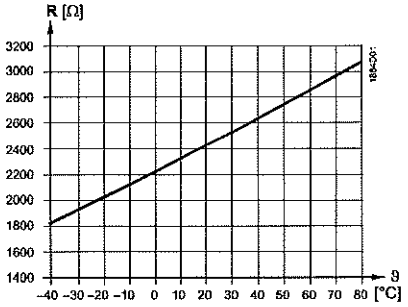
The measuring current of systems/devices for acquiring the electrical resistance of the passive sensor differs greatly and impacts self-heating of the temperature sensing element at the end of the measuring tip. To compensate the impact, the passive output signal is simulated with an electronic circuit.

Sensing elements, simulated LG-Ni 1000

Characteristic:



T1 (PTC)

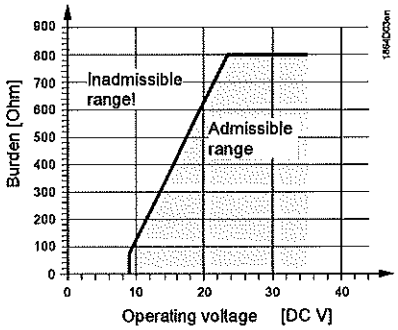


Legend

R	Resistance value in Ohm
ϑ	Temperature in degrees Celsius

Burden diagram

Output signal, terminal I1 / I2

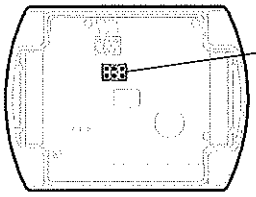


Mechanical design

The duct sensor consists of a housing, a printed circuit board, connection terminals, a mounting flange and an immersion rod having a measuring tip.
The 2-sectional housing comprises a base and a removable cover (snap-on design).
The measuring circuit and the setting element are located on the printed circuit board inside the cover, the connection terminals on the base.
The sensing elements are located at the end of the measuring tip and protected by a filter cap.
Cable entry is made via the screwed cable gland M16 supplied with the sensor.
Immersion rod and housing are made of plastic and are rigidly connected.

The sensor is fitted with the mounting flange supplied with the sensor. The flange is to be placed over the immersion rod and then secured in accordance with the required immersion length.

Setting element



Measuring range 1|2|3


	Test function active				
	U1	U2	BS-MS	I1	I2
	10 V	5 V	≙ 20 °C	20 mA	12 mA
	5 V	10 V	≙ 75 °C	12 mA	20 mA
	0 V	5 V	≙ 20 °C	4 mA	12 mA
	5 V	0 V	≙ –35 °C	12 mA	4 mA

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The setting element is located inside the cover. It comprises 6 pins and a jumper. It is used to select the required measuring range and to activate the test function.

The different jumper settings have the following meaning:

- *For the passive temperature measuring range:*
  Jumper in the middle position (R2) = –35...+50 °C (factory setting)
- *For the active temperature measuring range:*
  Jumper in the left position (R1) = –35...+35 °C,
  Jumper in the middle position (R2) = 0...50 °C (factory setting)
  Jumper in the right position (R3) = –40...+70 °C
- *For activating the test function:*
  Jumper in the horizontal position: The values according to the table "Test function active" will be made available at the signal output.

Malfunction

- Should the temperature sensor become faulty a voltage of 0 V (4 mA) will be applied at signal output U2 (I2) or signal output BS-MS becomes high impedance (>1 MΩ) after 60 seconds, and the humidity signal at signal output U1 (I1) will reach 10 V (20 mA).
- Should the humidity sensor become faulty a voltage of 10 V (20 mA) will be applied at signal output U1 (I1) after 60 seconds, and the temperature signal will remain active.

Accessories

Name	*Type reference*
Filter cap (for replacement)	**AQF3101**

Engineering notes

A transformer for safety extra low-voltage (SELV) with separate windings for 100 % duty is required to power the sensor. When sizing and protecting the transformer, local safety regulations must be complied with.
When sizing the transformer, the power consumption of the duct sensor must be taken into consideration.
For correct wiring, refer to the Data Sheets of the devices with which the sensor is used.
The permissible cable lengths must be considered.

Cable routing and cable selection

It must be considered for routing of cables that the longer the cables run side by side and the smaller the distance between them, the greater electrical interference. Shielded cables must be used in environments with EMC problems.
Twisted pair cables are required for the secondary supply lines and the signal lines.

Note to **QFM2171**

Terminals G1(+) and I1(–) of the humidity output must always be connected to power, even if only terminals G2(+) and I2(–) of the temperature output are used!

Mounting notes

Location	Mount the sensor in the center of the duct wall. If used together with steam humidifiers, the minimum distance after the humidifier must be 3 m to max 10 m. Fit the sensor in the extract air duct if the application involves dew point shifting. Fit only the flange to the duct wall. The sensor is then inserted through the flange and engaged.
Caution!	• To ensure degree of protection IP 54, fit the sensor with the cable entry pointing downward. • The sensing elements inside the measuring tip are sensitive to impact. Avoid any impact on mounting.
Mounting instructions	The mounting instructions are printed on the inside of the package of the device.
Chemical vapors	It is of great importance to understand that a humidity sensor is a sensitive measure device and needs to be handled with care. Chemical vapors at high concentration in combination with long exposure times may offset the sensor reading.

Commissioning notes

Check wiring before switching on power. The temperature measuring range must be selected on the sensor, if required.
Wiring and the output signals can be checked by making use of the test function (refer to "Mechanical design").
To ensure the accuracy of the temperature measurement of the QFM2120, QFM2140 the test function has to be activated and on the controller side the values have to be adjusted.

We recommend not to use voltmeters or ohmmeters directly at the sensing element. In the case of the simulated passive output signals, measurements with commercially available meters cannot be made (measuring current too small).

Disposal

The devices are considered electronics devices for disposal in term of European Directive 2012/19/EU and may not be disposed of as domestic waste.

- Dispose of the device via the channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

Technical data

Power supply	Operating voltage	AC 24 V ±20 % or DC13.5...35 V (SELV) or AC/DC 24 V class 2 (US)
	Frequency	50/60 Hz at AC 24 V
	External supply line protection	Fuse slow max. 10 A or Circuit breaker max. 13 A Characteristic B, C, D according to EN 60898 or Power source with current limitation of max. 10 A
	Power consumption	≤1 VA
Cable lengths for measuring signal	Perm. cable lengths	See data sheet of the device handling the signal
Functional data of humidity sensor	Range of use	0...95 % r. h. (non-condensing)
	Measuring range	0...100 % r. h.
	Measuring accuracy at 23 °C and AC/DC 24 V in	
	0...95 % r. h.	±5 % r. h.
	30...70 % r. h.	±3 %, r. h. typically
	Time constant at 0...50 °C and 10...80 % r.h.	< 20 s
	Perm. air velocity	20 m/s
	Output signal, linear (terminal U1)	DC 0...10 V ≙ 0...100 % r. h., max. 1 mA
	Output signal, linear (terminal I1)	4...20 mA ≙ 0...100 % r. h.
	Burden	See "Function"
Functional data of temperature sensor with QFM2160, QFM2171	Measuring range	0...50 °C (R2 = factory setting), −35...+35 °C (R1) or −40...+70 °C (R3)
	Measuring accuracy at AC/DC 24 V in	
	23°C	±0.3 K
	15...35 °C	±0.7 K
	−35...+50 °C	±1 K
	Time constant	< 3.5 min. in with 2 m/s moved air
	Output signal, linear (terminal U2)	DC 0...10 V ≙ 0...50 °C /−35...+35 °C /−40...+70 °C max. 1 mA
	Output signal, linear (terminal I2)	4...20 mA ≙ 0...50 °C /−35...+35 °C /−40...+70 °C
	Burden	See "Function"
Functional data of temperature sensor with QFM2120, QFM2140	Measuring range	−35...+50 °C
	Sensing element simulated, corresponding to	
	QFM2120	LG-Ni 1000
	QFM2140	T1 (PTC)
	Measuring accuracy at AC/DC 24 V in the range of	
	23°C	±0.3 K
	15...35 °C	±0.7 K
	−35...+50 °C	±1 K
	Time constant	< 3.5 min. in with 2 m/s moved air
	Perm. measuring current with	
	QFM2120	1.18...4.21 mA
	QFM2140	0.53...1.89 mA
Degree of protection	Protection degree of housing	IP54 according to EN 60529 in built-in state
	Protection class	III according to EN 60730-1
Electrical connections	Connection terminals for	1 × 2.5 mm^2 or 2 × 1.5 mm^2
	Cable entry gland (enclosed)	M 16 x 1.5

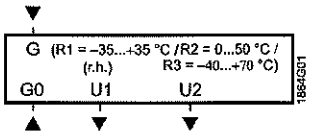
Environmental conditions	Operation	IEC 60721-3-3
	Climatic conditions	Class 3K5
	Temperature (housing with electronics)	–15...+60 °C
	Humidity	0...95 % r. h. (non-condensing)
	Mechanical conditions	Class 3M2
	Transport	IEC 60721-3-2
	Climatic conditions	Class 2K3
	Temperature	–25...+70 °C
	Humidity	<95 % r. h.
	Mechanical conditions	Class 2M2
Materials and colors	Base	Polycarbonate, RAL 7001 (silver-grey)
	Cover	Polycarbonate, RAL 7035 (light-grey)
	Immersion rod	Polycarbonate, RAL 7001 (silver-grey)
	Filter cap	Polycarbonate, RAL 7001 (silver-grey)
	Mounting flange	PA66 – GF35 (black)
	Cable entry gland	PA, RAL 7035 (light-grey)
	Sensor (complete assembly)	Silicone-free
	Packaging	Corrugated cardboard
Directives and Standards	Product standard	EN 60730-1 Automatic electrical controls for household and similar use
	Electromagnetic compatibility (Applications)	For use in residential, commerce, light-industrial and industrial environments
	EU Conformity (CE)	CE1T1864xx [2)]
	RCM Conformity	CE1T1864en_C1 [2)]
	UL	UL 873, http://ul.com/database
Environmental compatibility	The product environmental declaration CE1E1864[2)] contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).	
Weight	Incl. packaging	
	QFM21..	Approx. 0.18 kg

1) Does not apply to the **QFM2160** duct sensor!

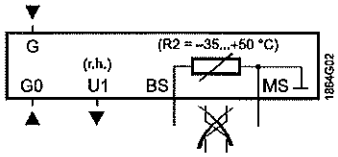
2) The documents can be downloaded from http://siemens.com/bt/download.

Connection terminals

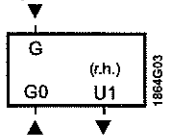
QFM2160



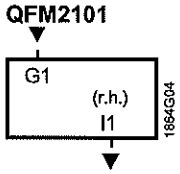
QFM2120, QFM2140



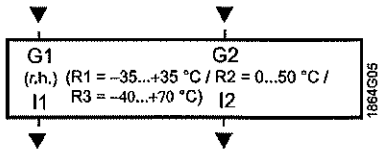
QFM2100



QFM2101



QFM2171

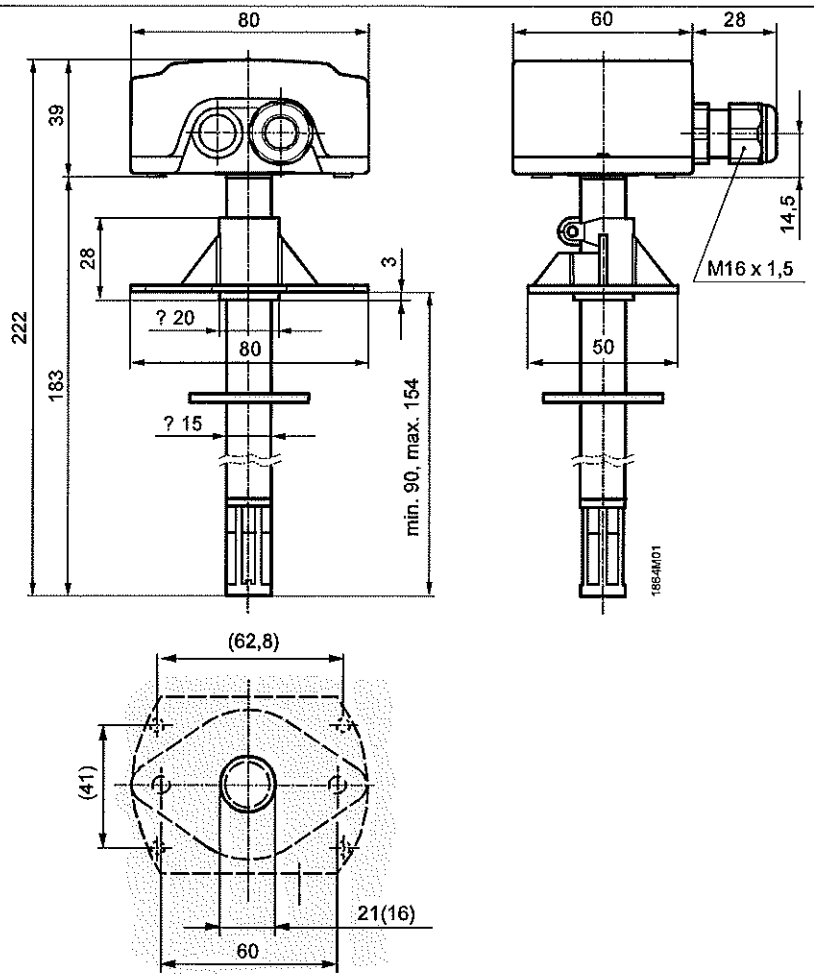


G, G0	Operating voltage AC 24 V (SELV) or DC 13.5...35 V
G1, G2	Operating voltage DC 13.5...35 V
U1	Signal output DC 0...10 V for 0...100 % r. h.
U2	Signal output DC 0...10 V for temperature range 0...50 °C (R2 = factory setting), –35...+35 °C (R1) or –40...+70 °C (R3)
I1	Signal output 4...20 mA for 0...100 % r. h.
I2	Signal output 4...20 mA for temperature range 0...50 °C (R2 = factory setting), –35...+35 °C (R1) or –40...+70 °C (R3)
BS, MS	Signal output LG-Ni 1000- or T1 for temperature range –35...+50 °C (passive, simulated); wires must not be interchanged

*Note on connection terminals of the **QFM2171**:*

Terminals G1(+) and I1(–) for the humidity output must always be connected to power, even if only the temperature output G2(+) and I2(–) is used!

Dimensions



Drilling plan with (without) mounting flange

Dimensions in mm

Issued by:
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Building Technologies Division
International Headquarters
Theilerstrasse 1a
CH-6300 Zug
Tel. +41 58 724 2424
www.siemens.com/buildingtechnologies

10/10

Model MRG

Multi-Range General Pressure Transducer

The Setra Model MRG is Setra's newest differential pressure transducer. The Setra MRG is the ideal product for any contractor, combining the flexibility of a multi-range with the performance of a single range transducer. The MRG has 8 selectable ranges and 3 selectable outputs, easily adjustable on the job with a flip of a switch or jumper. The MRG uses an IP67 rated housing and has a conduit fitting for easy wiring, making the MRG an ideal solution for any general HVAC application.

Universal Design

The Setra MRG utilizes a universal design that gives the user total flexibility to make changes on the job site. The user has the option to choose the field configurable range, mounting (DIN Rail, wall mount and duct mount), output (mA or Volt) and engineering unit (W.C. or Pascals). This flexibility means that the contractor can use the MRG for all of their needs.

8 Field Selectable Ranges

The Setra MRG provides 8 field selectable ranges (0.5, 1.0, 2.5 and 5.0"W.C.). These ranges can be selected on site by flipping to the desired range.

IP67 Rated Housing

The MRG housing is a robust IP67 rated design and is sealed with a gasket to make it wash-down capable for difficult applications. The MRG also has a conduit fitting that make installation and wiring easier.

Capacitive Sensing Technology

Only Setra can claim ownership to the stainless steel capacitive design used in all of our HVAC/R sensors. Our advanced capacitive element provides excellent stability and linearity, while standing above the competitors in our ability to measure low pressure (<0.001"W.C.) at high accuracy. Our technology has been used in over 8 million installations and has the highest field acceptance rate in the industry.

- **Universal Design**
- **IP67 Rated Housing**
- **Field Selectable**

Model MRG Features:

- Field Configurable Duct Probe
- 4 Digit LCD
- Field Selectable Range
- Field Selectable Output
- Simple 5-Step Setup
- Field Accessible Push-Button Zero & Span
- External Mounting Tabs & Optional DIN Rail
- Unregulated AC/DC Operation

Target Uses:

- Sub-Contractors- Quick Installation
- Flexible for Building Specification Changes
- Service/Retrofit Friendly
- Service Technicians- Quick & Accurate Reconfiguration

Phone: 800-257-3872 • Fax: 978-264-0292 • setra.com

Model MRG

Mutli-Range General Pressure Transducer

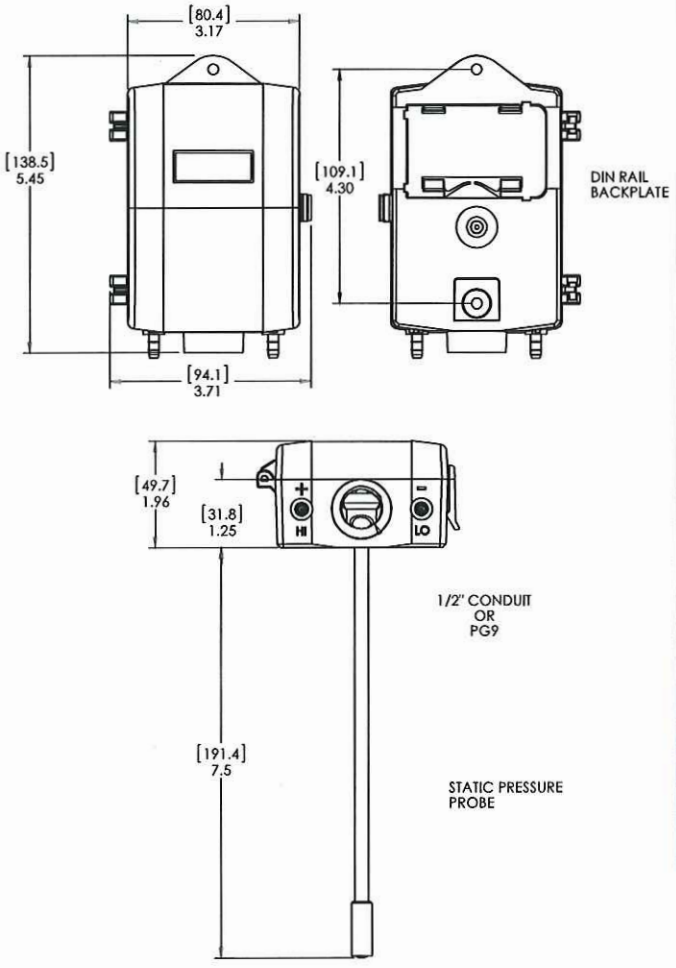
ORDERING INFORMATION

M	R	–	G	–		–	

Model	Field Selectable Ranges				Configuration		Electrical Fitting	
MRG	Unidirectional Pressure Ranges		Bidirectional Pressure Ranges		S	Standard (Base Mount)	A	1/2" Conduit
	0.5"W.C.	100 Pa	±0.5"W.C	±100Pa	U	Universal[1]	P	PG9
	1.0"W.C.	250 Pa	±1.0"W.C.	±250 Pa	D	DIN Rail	C	1/2" Conduit W/ Cal Certification[2]
	2.5"W.C.	500 Pa	±2.5"W.C	±500Pa	P	Duct Probe	D	PG9 W/ Cal Certification[2]
	5.0"W.C.	1,000 Pa	±5.0"W.C.	±1,000Pa				

[1]Code U, Universal unit includes Duct Probe and DIN Rail options.
[2]Calibration is performed at highest range.
Ordering Example: MRGSA = Model MRG, Standard Configuration, with 1/2" Conduit.

DIMENSIONS



GENERAL SPECIFICATIONS

Performance Data		Environmental Data	
	Standard	Operating Temperature[3]	32 to 122°F (0 to 50°C)
Accuracy RSS[1] (at constant temp)	±1.0% FS	**Electrical Data**	
Compensated Range °F (°C)	32 to 122°F (0 to 50°C)	Excitation Range	13 to 30 VDC/18 to 24 VAC (Voltage Output) 13 to 30 VDC (4 to 20mA output at terminals)
Thermal Effects[2] %FS/°F(°C)	0.03 (0.054)	Current Consumption	30mA (max)
Maximum Line Pressure	10 PSI	Mis-Wiring	Reverse Excitation Protection
Overpressure	Up to 10 PSI (range dependent)	Field Selectable Output[4]	0 to 5 V, 0 to 10V (3-wire), 4 to 20mA (2-wire)
Long Term Stability (max.)	2.0% FS/YR	Output Resistance (Voltage Output)	10 Ohms (max)
Position Effect		Load Resistance (Voltage Output)	10 K-Ohms (min)
Zero Offset %FS/G	0.5%	Loop Resistance (4-20mA)	0 to 800 Ohms
(Unit is factory calibrated at 0g effect in the vertical position)		Approval	CE & RoHS Compliant
Physical Description		**Pressure Media**	
Case	Fire-Retardant Polycarbonate (UL 94 V-0 Approved), Hinged Lid	Typically air or similar non-conducting gases.	
Mounting	Two Screw Holes Vertical Position	[1] RSS of Non-Linearity, Hysteresis, and Non-Repeatability. [2] Units calibrated at nominal 70°F. Maximum thermal error computed from this datum. [3] Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher. [4] Calibrated into a 50K ohm load, operable into a 10K ohm load or greater. [5] Span (Full Scale) output factory set to within 1%. [6] Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load. [7] Span (Full Scale) output factory set to within ±0.16mA. Specifications subject to change without notice.	
Electrical Connection Block	Removable Screw Terminal		
Pressure Fitting	3/16" O.D. Barbed Brass		
Zero	Push Button		
Span	Push Button		
Weight (approx.)	8 Ounces		

Phone: 800-257-3872 • Fax: 978-264-0292 • setra.com

Open Drip Proof Super-E® Premium Efficient Motors

NEMA Premium

Baldor•Reliance Super-E Open Drip Proof (ODP) motors meet or exceed NEMA Premium® efficiency in your choice of steel-band or cast iron frame, ideal for general purpose industrial applications. The ODP enclosure allows air to pass freely through the motor for excellent heat transfer out of the windings. Class F insulation, a 1.15 Service Factor and Exxon Polyrex®EM grease are some of these motors' standard features. Super-E motors have an insulation system that meets the requirements of NEMA MG1 Part 31.4.4.2 for VFD use and are considered Inverter Ready.

ODP – Open Drip Proof, Foot Mounted, 230/460, 460 & 575 Volts, Three Phase, 1 - 300 Hp

Hp	kW	RPM	Frame	Catalog No.	Amps @ High V		Full Load Torque Lb. Ft.	Efficiency %			Power Factor %			Bearings		Volt Code	"C" Dim.	Conn. Diag. No.	Notes
					Full Load	Locked Rotor		1/2	3/4	Full Load	1/2	3/4	Full Load	DE	ODE				
230/460 & 460 Volts																			
1	0.75	3500	56	**EM3115**	1.5	10.8	1.5	74.9	79	80	59	72	80	6205	6203	E	11.06	CD0005	-
1	0.75	1760	143T	**EM3116T**	1.5	12.1	3	82.1	84.8	85.5	49	62	71	6205	6203	E	11.12	CD0005	-
1	0.75	1155	145T	**EM3156T**	1.8	9.8	4.5	80.6	83	82.5	44	56	64	6205	6203	E	11.62	CD0005	-
1 1/2	1.1	3490	143T	**EM3120T**	2	17.2	2.3	82.2	84.7	84	64	76	83	6205	6203	E	11.12	CD0005	-
1 1/2	1.1	1755	145T	**EM3154T**	2.2	17.5	4.5	83.5	86	86.5	50	63	72	6205	6203	E1	11.62	CD0005	-
1 1/2	1.1	1170	182T	**EM3207T**	2.6	14	6.8	84.7	87.2	87.5	41	53	62	6206	6205	E	15	CD0005	-
2	1.5	3450	143T	**EM3155T**	2.5	21.5	3	85.2	86.8	85.5	72	82	87	6205	6203	E	11.62	CD0005	-
2	1.5	1755	145T	**EM3157TA**	2.9	24.8	6	84.9	87.2	86.5	54	67	73	6205	6203	E	12.13	CD0007	-
2	1.5	1750	145T	**EM3157T**	2.9	24.3	6	84.4	86.6	86.5	51	64	73	6205	6203	E1	12.12	CD0005	-
2	1.5	1170	184T	**EM3215T**	3.5	19.8	8.9	86	88.3	88.5	40	52	60	6206	6205	E	16.5	CD0005	-
3	2.2	3450	145T	**EM3158T**	3.8	32.5	4.5	83.8	85.4	85.5	72	82	87	6205	6203	E1	13	CD0005	-
3	2.2	1765	182T	**EM3211T**	4.2	32.3	8.9	87.5	89.5	89.5	53	66	73	6206	6205	E1	15	CD0005	-
3	2.2	1760	182T	**EM3211TA**	4.4	31.3	8.9	88.6	89.9	89.5	53	67	75	6206	6205	E	15	CD0007	-
3	2.2	1160	213T	**EM3305T**	4.4	26.6	13.6	88.1	89.1	88.5	54	66	72	6307	6206	E1	16.32	CD0005	-
5	3.7	3450	182T	**EM3212T**	6	50.7	7.7	86.7	87.6	86.5	81	88	91	6206	6205	E	13.62	CD0005	-
5	3.7	1750	184T	**EM3218T**	6.6	44.8	15	89.7	90.2	89.5	64	75	80	6206	6205	E	16.5	CD0005	-
5	3.7	1750	184T	**EM3218TA**	6.6	44.8	15	89.8	90.2	89.5	63	75	80	6206	6205	E	16.5	CD0007	-
5	3.7	1160	215T	**EM3309T**	7.4	53	22.5	89.7	90.1	89.5	53	65	71	6307	6206	E	17.45	CD0005	-
7 1/2	5.6	3450	184T	**EM3219T**	8.6	86.3	11.3	88.1	89.2	88.5	80	87	91	6206	6205	E	15	CD0005	-
7 1/2	5.6	1770	213T	**EM3311T**	9.7	68.2	22.1	90.5	91.4	91	62	73	79	6307	6206	E	16.32	CD0005	-
7 1/2	5.6	1180	254T	**EM2506T**	11	62.8	33.1	88.6	90.4	90.2	52	63	70	6309	6208	E1	23.19	CD0005	-
10	7.5	3500	213T	**EM3312T**	11.4	98	15	90.9	92	91.7	81	87	90	6307	6206	E	17.45	CD0005	-
10	7.5	1770	215T	**EM3313T**	12.5	88.3	29.7	91.6	92.3	91.7	66	77	82	6307	6206	E1	17.45	CD0005	-
10	7.5	1180	256T	**EM2511T**	14.3	91.8	44.4	91	92	91.7	54	65	71	6309	6208	E1	23.19	CD0180	-
15	11	3525	215T	**EM3314T**	17.5	250	22.6	92.4	91.9	90.2	88	92	92	6307	6206	E1	16.32	CD0005	-
15	11	1765	254T	**EM2513T**	17.7	118	44.6	93.3	93.5	93	70	81	86	6309	6208	E1	21.69	CD0180	-
15	11	1765	254T	**EM2513T-CI**	17.8	115	44.6	93.1	93.4	93	70	81	85	6309	6208	E1	20.63	CD0180	-
15	11	1180	284T	**EM2524T**	20.5	116	66.8	90.7	91.8	91.7	58	69	75	6311	6309	E1	23.81	CD0005	-
20	15	3510	254T	**EM2514T**	23.5	153	29.6	90.1	91.2	91	74	83	87	6309	6208	E1	21.69	CD0180	-
20	15	1765	256T	**EM2515T**	23.5	160.8	59.4	92.5	93.2	93	71	81	86	6309	6208	E1	21.69	CD0180	-
20	15	1765	256T	**EM2515T-12**	23.5	160.8	59.4	92.5	93.2	93	71	81	86	6309	6208	E1	21.69	CD0104	25
20	15	1765	256T	**EM2515T-CI**	24	164	60	91.9	92.8	93	74	83	87	6309	6208	E1	22.38	CD0005	-
20	15	1180	286T	**EM2528T**	27	165.4	88.1	92.7	93.3	92.4	59	72	77	6311	6309	E1	23.81	CD0180	-
25	19	3515	256T	**EM2516T**	28	197	37.2	91.8	92.3	91.7	79	86	89	6309	6208	E1	21.69	CD0180	-
25	19	1760	284T	**EM2531T**	29	180	74	93.2	93.9	93.6	72	82	86	6311	6309	E1	23.81	CD0180	-
25	19	1770	284T	**EM2531T-12**	29	180	74	93.2	93.9	93.6	72	82	86	6311	6309	E1	23.81	CD0104	25
25	19	1770	284T	**EM2531T-CI**	31	189	74.4	92.6	93.6	93.6	66	77	81	6310	6309	E1	23.44	CD0005	-
25	19	1180	324T	**EM2532T**	34	236	111	92.3	93.2	93	57	69	76	6312	6309	E	27.69	CD0180	-
30	22	3530	284TS	**EM2534T**	35	205	44.7	91.3	91.9	91.7	79	86	88	6311	6309	E	22.44	CD0180	-
30	22	1770	286T	**EM2535T**	35	223.6	88.9	93.6	94.2	94.1	72	82	85	6311	6309	E1	25.06	CD0005	-
30	22	1770	286T	**EM2535T-12**	35	223.6	88.9	93.6	94.2	94.1	72	82	85	6311	6309	E1	25.06	CD0104	25
30	22	1770	286T	**EM2535T-CI**	35	210	89	93.8	94.2	94.1	75	84	86	6310	6309	E1	24.94	CD0180	-
30	22	1180	326T	**EM2536T**	38	245.6	132	93.4	93.8	93.6	65	75	80	6312	6309	E1	28.69	CD0005	-
40	30	3530	286TS	**EM2538T**	46	282	59.6	93.7	93.7	92.4	82	88	89	6311	6309	E	22.44	CD0180	-
40	30	3540	286TS	**EM2538T-CI**	45	331	59.9	96.1	95.8	94.1	78	85	88	6310	6309	E	23.57	CD0180	-
40	30	1770	324T	**EM2539T**	49	330	119	94	94.5	94.1	65	76	82	6312	6309	E1	27.19	CD0005	-
40	30	1770	324T	**EM2539T-12**	47	316	119	94.6	94.8	94.1	68	79	84	6312	6309	E1	27.19	CD0104	25
40	30	1775	324T	**EM2539T-CI**	46	313	118	94.2	94.8	94.5	72	82	86	6311	6311	E1	26.13	CD0180	-
40	30	1180	364T	**EM2540T**	51	337	178	93.1	94.1	94.1	64	74	79	6313	6311	E1	29.81	CD0005	-
40	30	1190	364T	**EM2540T-CI**	49.4	290	177	93.2	94.1	94.1	69	77	81	6313	6313	E1	29.7	416820-2	-

NOTE: Volt Code: E = 208-230/460V, 60Hz; E1 = 230/460V, 60Hz, usable at 208V

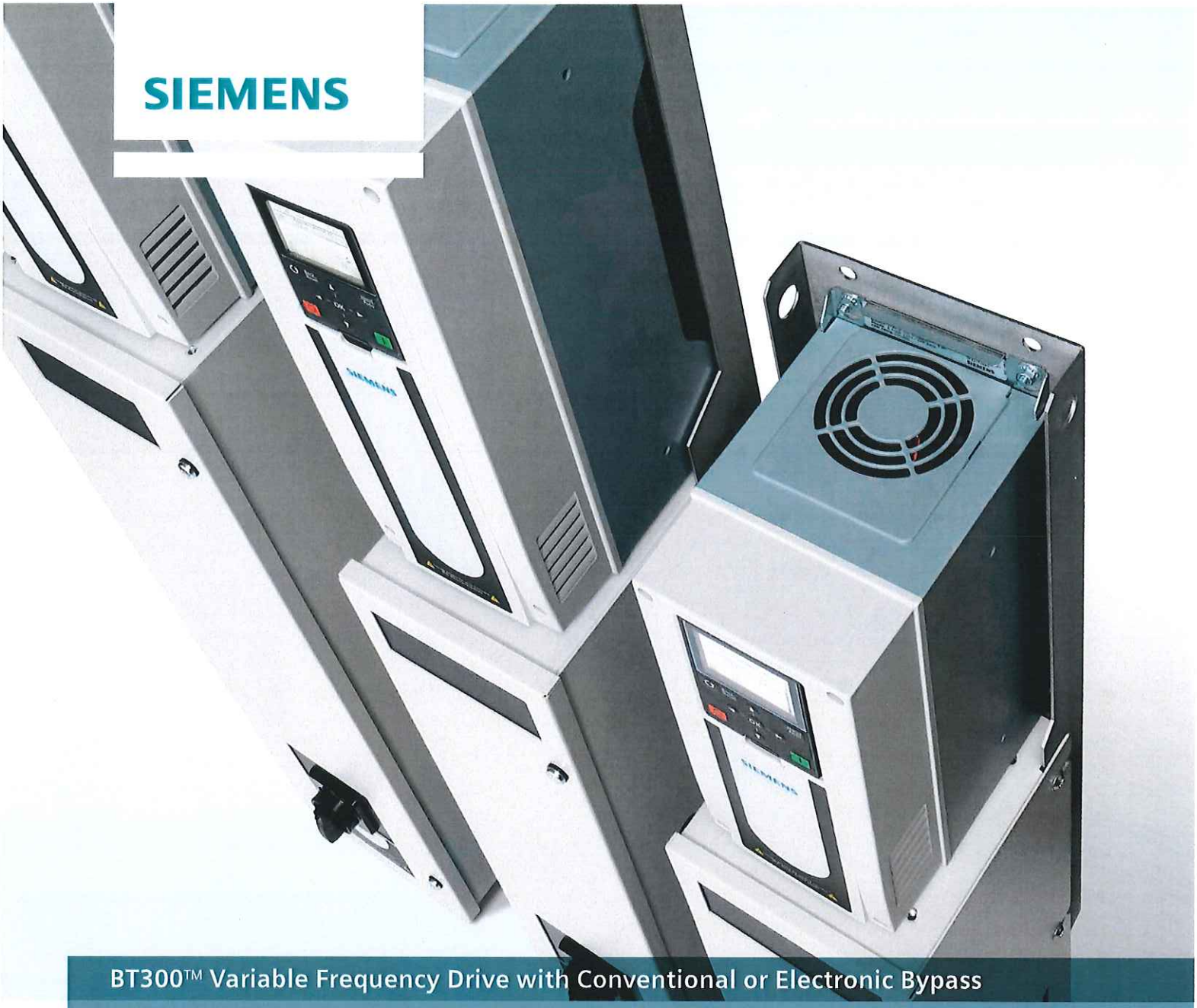
Shaded ratings are cast iron frames.

25 = Wye Start Delta Run

See page 77 for Layout drawing. See page 93 for Connection Diagrams.

Efficiencies shown are nominal. Data subject to change without notice. Contact Baldor for certified data.

SIEMENS



BT300™ Variable Frequency Drive with Conventional or Electronic Bypass

Ultra-reliable bypass options create ultimate peace-of-mind.

The perfect power solution at a great value.

Answers for infrastructure and cities.

Unstoppable power.

The BT300 VFD with Conventional or Electronic Bypass: One compact design, two bypass options, and non-stop coverage for demanding HVAC environments.

The BT300 VFD with Bypass ensures the HVAC equipment at mission critical facilities runs continuously and efficiently.

- Laboratories
- Data Centers
- Airports
- Hospitals

An increased focus on energy efficiency of variable flow systems has increased the need for easy-to-use and highly reliable Variable Frequency Drives. Facilities need devices that help reduce installation time and maintenance costs, while maximizing energy savings and optimizing occupant comfort. Additionally, half of today's drive specifications require bypass functionality. To meet these growing needs, Siemens is introducing the BT300 Variable Frequency Drive offering with Conventional or Electronic Bypass options.

The BT300 VFD with Conventional or Electronic Bypass is designed with the same sophisticated and industry-leading features of the BT300 VFD. This provides peace-of-mind to customers in mission critical facilities.

The Conventional Bypass utilizes selector switches and indicator lights as primary functions.

The Electronic Bypass utilizes internal control boards that act as the brains and eliminate the control wiring, relay logic, and terminal blocks. They are replaced with advanced built-in features that are accessible from an electronic keypad.

VFDs with Conventional or Electronic Bypass are built for North America and assembled in the USA. Integrating the same sophisticated features and easy-to-use menu structure found in a BT300 VFD makes the installation and commissioning of a BT300 VFD with Bypass quick and easy.

Reduce installation time and maintenance costs with either option:

On-board Ethernet – Lead the way with the first VFD with bypass that offers on-board Ethernet. All standard HVAC protocols are ready for "out of the box" installation. Ethernet and RS-485 connections are included for APOGEE® P1, BACnet IP and MS/TP, Modbus RTU/TCP, and Metasys N2. Since communication is built into the drive, there is no need for a cabinet, power supply, converter, or extra cabling. This saves time during installation.

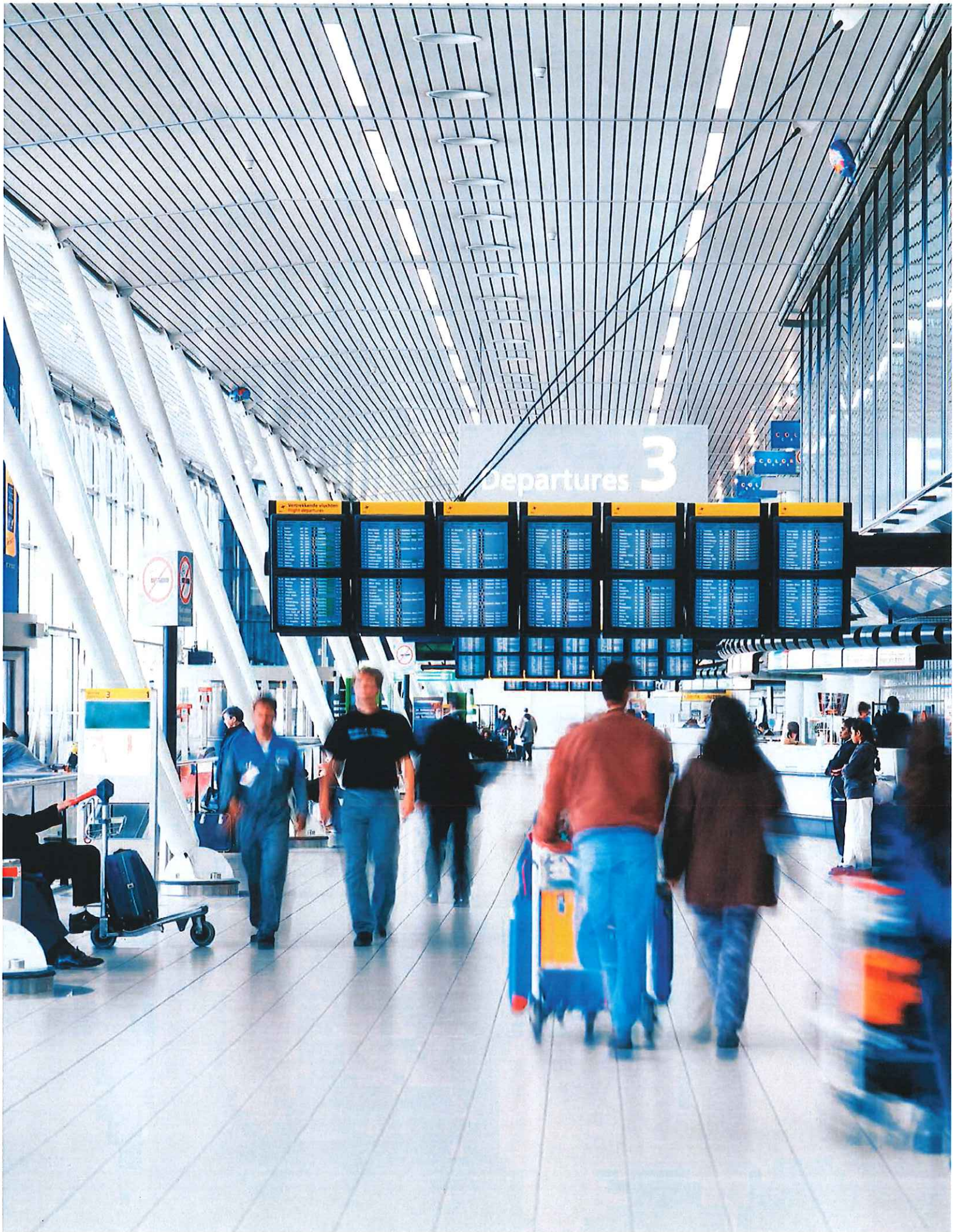
5% Impedance with Harmonic Filters – Protect against distortion, especially in sensitive areas, such as laboratories, data centers, airports, and hospitals.

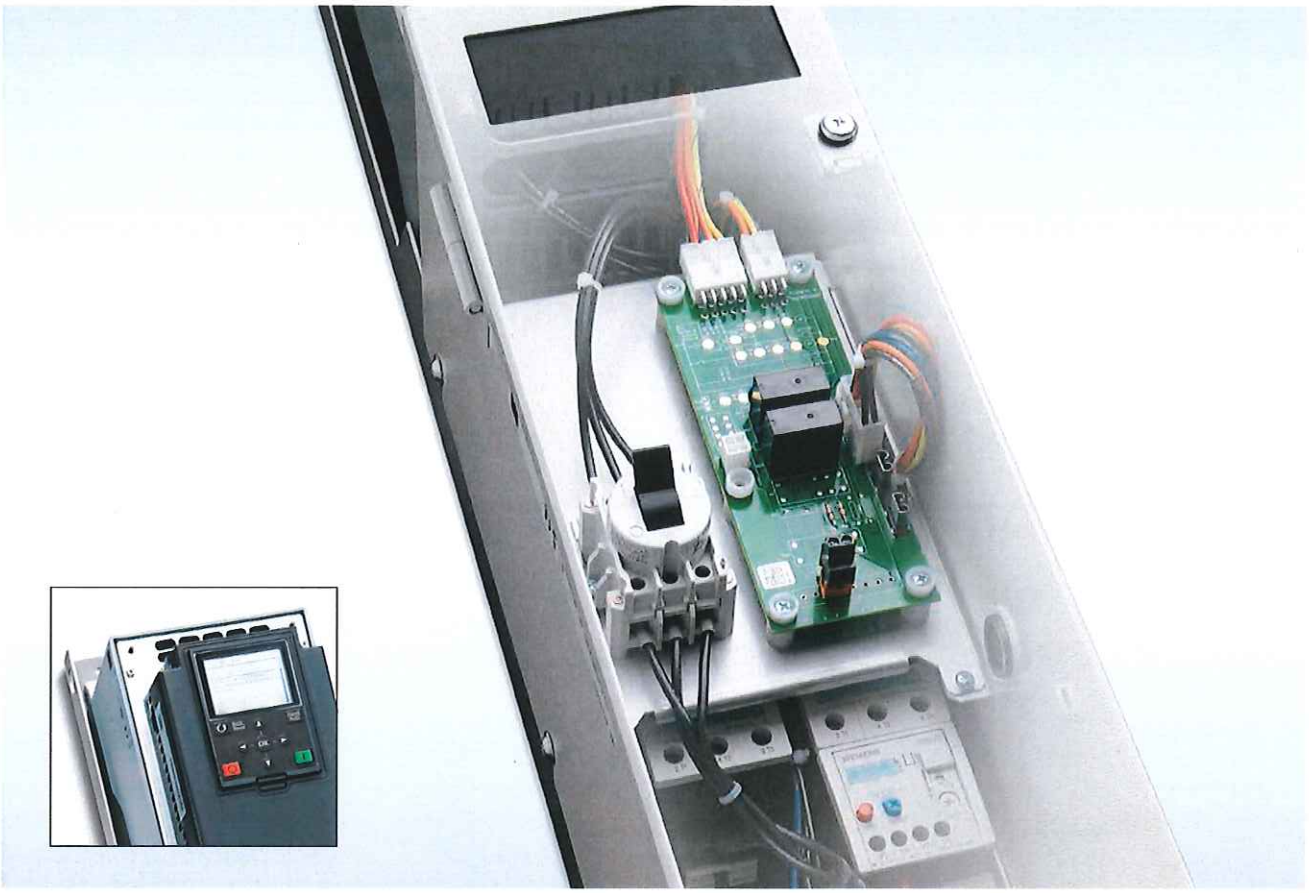
Seismic Certification – Meets International Building Code 2012 Standard for confident coverage of critical systems after a seismic event.

Rugged Housing, Compact Footprint – Helps lower shipping costs, makes installation easy, and ensures long-lasting performance in demanding HVAC environments.

Diagnostic Board – Allows the drive to continue to run while servicing the bypass. Easily accessible test points enable troubleshooting of the bypass components and their functionality while energized. A fusible link prevents electrical damage to the bypass circuitry.

Safety Switch – While in bypass mode, the drive can be replaced without de-energizing power to the driven equipment. There's no need to remove fuses or fuse blocks and no equipment down time when replacing the drive.


Departures 3



Both Bypass Options Feature:

Advanced Keypad with Start-Up Wizards and Displays

- Built-in simplicity with an intuitive, easy-to-use Bypass Start-up Wizard
- Nine user-defined values of Drive or Bypass can be monitored and displayed at one time
- Graphical keypad features help texts and clear fault info including possible causes and remedies

Conventional Bypass Features:

Two Drive Bypass Configuration Options

Choose either the two contactors and a service switch, or the traditional three-contactor configuration. Selector switches and indicator lights are incorporated for primary functions.

22 mm Components with Wide Viewing Angle

Industrial style operators and lights have a longer life and require less maintenance.

Electronic Bypass Features:

Full Bypass Control – Even if the Bypass Board Fails

If the bypass control board malfunctions, the Electronic Diagnostic Board provides an override switch input to allow the motor to continue to run in bypass.

Auto Bypass

Bypass can be auto-activated based on the drive's programmable relay.

Pass Through I/O

Monitor and display up to 8 safety interlocks. For easy troubleshooting, read the status of all 12 I/O points of the drive, plus up to 8 additional inputs.

Additional HVAC I/O Capability

For external safety systems, PID loops, and external device control and monitoring.

Essential Service

This system override enhances operator safety by eliminating the drives from the control scheme and running the motor in bypass mode.

Product Ordering

Your Product Number																
Example Product Number	**B**	**T**	**E**	**-**	**0**	**4**	**0**	**X**	**4**	**-**	**B**	**0**	**1**	**2**	**L**
Model(s)															
BTC Conventional															
BTE Electronic															
HP															
1, 1.5, 2, 3, 5, 7.5,10,15															
20, 25, 30, 40, 50, 60, 75															
100, 125, 150, 200, 250															
X=no fract HP															
5= 1/2 hp															
Voltage															
2 200 to 240															
4 380 to 480															
Disconnect															
F Fused Disconnect															
B Circuit Breaker															
Enclosure															
01 Enclosure Type 1															
Contactor															
3 3 contactors (input/output and bypass contactors) (Conventional option only)															
2 2 contactor bypass with service switch															
Options															
L Lon Card Installed															

Example shown:
BTE-040X4-B012L
BT300 Electronic Bypass, 480 volt, 40 hp, Type 1, circuit breaker and 2 contactor bypass with a service switch and Lon card installed in drive.

Frame Sizes and Power Ranges

Voltage	KW	0.75	1.1	1.5	2.2	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160
	HP	1	1.5	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125	150	200	250
208V	Frame Size	4					5			6		7			8			9		NA	
480V	Frame Size	N/A	4					5			6			7				8			9

Type 1 Bypass Approximate Weights

Frame Size	4	5	6	7	8 and 9
Weight lbs. (kg)	50 (23)	69 (31)	112 (51)	187 (85)	1000 (454)

NOTE: VFD products are only available through authorized distribution channels.
To locate an authorized distributor, please contact a Siemens Building Technologies representative at 1.800.515.9964.

Siemens Industry, Inc.
Building Technologies Division
1000 Deerfield Parkway
Buffalo Grove, IL 60089-4513
USA
Tel: 888-593-7876

Answers for infrastructure and cities.

Our world is undergoing changes that force us to think in new ways: demographic change, urbanization, global warming and resource shortages. Maximum efficiency has top priority – and not only where energy is concerned. In addition, we need to increase comfort for the well-being of users. Also, our need for safety and security is constantly growing. For our customers, success is defined by how well they manage these challenges. Siemens has the answers.

"We are the trusted technology partner for energy-efficient, safe and secure buildings and infrastructure."

www.usa.siemens.com/hvac

TOWN OF HARWICH
OFFICE OF THE TREASURER/COLLECTOR
732 MAIN STREET, HARWICH, MA 02645
TEL: 508-430-7501 FAX: 508-430-7504

MEMO

To: Chris Clark

From: Amy Bullock

CC:

Date: September 20, 2018

Re: tax lien update

- Currently 267 properties in tax lien status, listing attached
- Atty. Dawn Bloom has opened files on approximately 44 parcels, 8 of which have been redeemed. All fees charged by Atty. Bloom are added to the tax lien accounts.
- 10 additional parcels were redeemed since the advertisement of the tax lien auction
- 26 payment plans, about 10 of which are in good standing
- $427,346 collected FY 2018, 76,934 collector this year to date
- Atty. Coppola has begun processing the FY 2017 unpaid real estate bills for tax taking. There are presently 52 bills outstanding, after 4 quarterly bills, a demand bill mailed 6/12/17 and a letter sent from this office on March 30, 2018. Atty. Coppola will send a final notice advising of the impending tax lien.

Amy Duffy

From: Dawn Bloom <attybloom@outlook.com>
Sent: Monday, September 17, 2018 4:12 PM
To: Amy Duffy
Cc: irisgriffin1@hotmail.com
Subject: RE: services
Attachments: Tax Title List September 2018 Harwich.xlsx

Hi Amy,

This office "processes" or liquidates your tax titles. We typically start this procedure by mailing a demand letter to the property owner both certified and regular mail. We research a good mailing addresses for the property owner(s) to make sure they are properly notified that their tax lien is now being handled by a law office. This demand letter gives the property owner two (2) weeks to contact our office to make arrangements for payment, i.e., payment agreement, refinance, putting the house on the market, etc. We monitor the files by calendaring out status reviews based on our demands and/or our initial conversations with the property owners.

For example, if we send a letter to a property owner and we don't hear back within the specified time period, we may review the file and then request that we be allowed to file a petition or we may contact a lender for payment if applicable. Another scenario is that a property owner receives the demand and calls us with additional information, such as, the parents are now deceased and the siblings aren't getting along, the sibling living in the home is supposed to be paying the taxes, etc. This additional information assists us in determining our next step.

On many occasions, the property owner will call and enter into a payment agreement. We typically draft three (3) year payment agreements that include current taxes as well as the tax title balance at 16%.

Our last course of action, if the property owner seems non-responsive or if the case sits without progress, is to file a petition in Land Court to effectuate a judgment in favor of the Town. This process notifies all interested parties (banks and equity owners) and gives everyone a deadline for either payment in full or filing an answer as to how they will make payment in full. This Land Court process doesn't prevent the property owner from entering into a payment agreement and/or selling the property, which often happens during this phase. It is also possible for banks to make payment during this phase; and, most banks choose to wait until this phase before making payment anyway.

I've attached a list of open cases with updated status comments and requests to file petitions. Please review and advise.

Thanks,

Dawn E. Bloom, Esq.
Emerson & Bloom
34 Pleasant St., Ste. 340
Northampton, MA 01027
Phone: 413.529.9936
Fax: 413.529.9940
attybloom@outlook.com

COPPOLA AND COPPOLA
ATTORNEYS AND COUNSELLORS-AT-LAW
40 SOUTH STREET, MARBLEHEAD, MA 01945

JAMES E. COPPOLA, JR.
DAVID J. COPPOLA
ELAINE A. BYRNE

PH (781) 639-0140
FAX (781) 639-4416

April 5, 2013

Ms. Mary McIsaac
Treasurer
Town Hall
732 Main St.
Harwich, MA 02645

RE: Tax Collection and Foreclosure

Dear Mary:

Thank you for inquiring about the services we perform for city and town treasurers and collectors in the collection of unpaid real estate taxes. Our firm has been doing this work for over sixty years and would love to work for the Town of Harwich.

Our firm consists of five attorneys, two paralegals and a secretarial staff. We specialize exclusively in assisting tax collectors and treasurers in the collection of unpaid real estate taxes, including the preparation of collection letters for the tax collector and treasurer, the preparation of payment plans, the foreclosure of tax titles both in the Land Court and under the land of low value procedure, and in all other related matters. Those matters consist of representation in any bankruptcy matter affecting the collection of taxes, tax title assignments, representation in eviction proceedings on behalf of the municipality covering a property that remains occupied after the foreclosure, and handling all matters related to the sale of foreclosed property under the provisions of MGL, chapter 60, section 77B.

We also assist many tax collectors in all matters related to making tax takings which include a brief title search on each delinquent property, preparation of the notice of taking for publication and posting, preparation and recording of the instruments of taking, preparation of a statement to continue municipal lien if the owner of the property is involved with an open bankruptcy case and preparation of the list of recorded sales and tax title account sheets.

The services we provide regarding the foreclosure process consist of an initial conference with the treasurer to obtain the information regarding the tax titles that require action, an examination of the titles to be foreclosed at the Registry of Deeds to determine whether or not the tax takings were properly made and to ascertain the names of the current owners and the names of entities holding mortgages on the property, letters to the owners and copies to the lenders informing them that a foreclosure action will be initiated if arrangements are not made with the treasurer to pay the taxes, preparation of payment plans, preparation and filing of petitions to foreclosure tax titles in the Land Court, responding to all taxpayer inquiries regarding the case including requests for payoffs and payment plans, prosecution of cases in the Land Court to completion including the submission of all documents requested by the Court in order for the cases to proceed and attendance at motion sessions and hearings at the Land Court when necessary.

We also provide all services regarding the foreclosure of tax takings as lands of low value. These services include preparation of the application and submission to the Department of Revenue, recording of the affidavit of land of low value, preparation of posting, publication and mailing notices prior to the auction, attendance at the auction and preparation of the deeds to individuals and to the Town.

We also represent many municipalities in the sale of tax possession properties. Our services include preparation of the notice of sale that must be posted and mailed. Attendance at the auction, preparation of the memorandum of sale and all other documents that must be signed by the buyer, and preparation and recording of the deed.

Since we specialize in this field, we have an excellent, long-standing relationship with the Land Court. This relationship, and our expertise, gives us an advantage in processing foreclosure cases in a timely fashion. We employ a paralegal who formerly worked for the City of Boston tax department. He is usually in the Land Court twice a week checking the status of cases. We have two attorneys who prepare for and attend hearings in the Land Court at least once a week and oversee all cases in which there has been a response by the tax payer. We have another attorney who specializes in answering any questions the court might have concerning problems with the case, addressing issues that have been raised by the title examiner, providing addresses of interested parties, and preparing letters of diligent search. She also handles all bankruptcy matters involving delinquent tax payers. Our other paralegal performs all necessary Registry of Deeds and Probate research.

I am involved with and oversee all matters concerning our clients. At this time we charge an hourly rate for our services, $100.00 for paralegal and secretarial services and $120.00 for all attorney services.

Thank you for considering the information contained in this letter. As mentioned above our practice consists exclusively in all matters related to the collection of real estate taxes and the foreclosure of tax takings. We represent many cities and towns and cumulatively our attorneys have over one hundred years of experience in this field. We believe we have the skills and knowledge to satisfy any town's collection and tax title needs in a timely and professional manner.

Thanks again for contacting me. Please let me know if you have any questions.

Very truly yours,

JEC;Jr:ka

Coppola and Coppola, P.C.

Members of Staff performing services

ATTORNEYS

James E. Coppola, Jr. 35+ years experience, guest speaker before the Cape and Islands Treasurer and Collectors Association, the North Shore Treasurers and Collectors Association, the Massachusetts Association of Assessing Officers, the Worcester County Treasurers and Collectors Association and the Massachusetts Auditors and Accountants Association; has served on a special committee on the reformation of current tax laws and has been a member of the Massachusetts Collectors and Treasurers Association Annual School for over 16 years.

James E. Coppola,	60+ years experience
Judith O. Trufant	20+ years experience
Elaine A. Byrne	15+ years experience
David J. Coppola	2+ years experience

Paralegals

Philip Lundberg	20+ years experience
Frank D. Julian	15+ years experience

Secretarial Staff

Karen A. Ashwell	4+ years experience
John S. Coppola	3+ years experience

Fees for legal services

$120.00 per hour

$100.00 per hour for non-attorneys

Minimum of one hour for an appearance at a hearing in Land Court.

Court costs and legal fees can be recovered from the tax payer if the tax taking is redeemed.

There are no outside associated professionals or outside firm that will contribute services in order to complete the work for the Town.

Partial List of Clients

City/Town	Treasurers	Phone
Bourne	Karen Girouard	508-759-0600
Brewster	Lisa Vitale	508-896-4502
Dennis	Matt Stoltzfus	508-760-6117
Dighton	Mary Hathaway	508-669-5411
Eastham	Joan M. Plante	508-240-5900 ext. 1
Fairhaven	Lisa Rose	508-979-4026
Mattapoisett	Brenda Herbeck	508-758-4100
Orleans	Christine H. Lorge	508-240-3700 ext 420
Plymouth	Edward B. Maccaferri, Jr.	508-747-1620
Sandwich	William Jennings	508-888-6508
	Tax Col. E. Susan Flynn	508-833-8012
Taunton	Jayne Ross	508-821-1057
Wellfleet	Dawn E. Rickman	508-349-0301
	Tax Col. Marianne Nickerson	508-349-0307
Yarmouth	Irene Wright	508-398-2231 ext. 219
	Tax Col. Jaye Anne Kesten	508-398-2231 ext. 1233

NAME OF FIRM

Coppola and Coppola, P.C.
40 South Street
Marblehead, MA 01945
Phone Number: 1-781-639-0410
Fax Number: 1-781-639-4416
Email Address: coppola.coppola@verizon.net

CONTACT PERSON FOR ADDITIONAL INFORMATION:

James E. Coppola, Jr.
Phone Number: 1-781-639-0140
Cell Phone Number: 1-617-797-7665
Email Address: coppola.coppola@verizon.net

OFFICE OF THE SELECTMEN

PHONE (508) 430-7513
FAX (508) 432-5039

732 MAIN STREET, HARWICH, MA 02645

Mr. James E. Coppola, Jr.
Coppola & Coppola
40 South Street
Marblehead, MA 01945

June 13, 2013

Dear Mr. Coppola:

At a public meeting of the Board of Selectmen held on Monday, June 3, 2013, the Board voted to approve the recommendation of the Town Treasurer/Collector to award you the contract of Counsel for matters of Real Estate effective April 1, 2013. The hourly rate for services are in conjunction with your proposal of April 5, 2013.

The Board of Selectmen would like to welcome you and look forward to working with you and your firm in the future.

Sincerely,

Angelo S. La Mantia, Chairman

Edward J. McManus, Vice Chair

Peter S. Hughes, Clerk

Larry G. Ballantine

Linda A. Cebula

HARWICH BOARD OF SELECTMEN

CC: Mary McIsaac, Town Treasurer/Collector

Monthly Update for the Community and Cultural Centers
August 15 - September 15

I am pleased to provide a report on my work at both the Community Center and the Cultural Center for the month of August/September.

- I have attached the totals for the period of August 15 –September 15 for people using the building. The chart provided shows from August 15 – September 15, 2018. The new counters on the doors at the Community Center have captured more accurate data.

- The Outdoor Concert series held at the Cultural Center ended on August 23rd. The seven concerts were well received by the public and the series was a success. The Junior Theatre also finished on August 23 with a triumphant summer program for the Junior Players with performances on Tuesday and Thursdays in the Cultural Center Auditorium.

- I attended the Department Heard Meeting, Selectmen's meetings and the Facilities Committee meeting. I prepared the agenda and minutes for the facility Committee. I conducted several meetings for space at both Facilities.

- I have begun working on what the first steps are for the kitchen that could include an incubator project at the Cultural Center. I have recently met with two groups that are interested in moving forward with the process. I have begun by meeting with the Health Department on what the needs are for the kitchen to reopen. I have also met with the Facilities Director on getting a professional cleaning crew in to do a deep clean of the kitchen area.

- I held a renters meeting at the Cultural Center to go over upcoming events and policies and procedures for the building including fire alarms. We are getting ready for the Harbor Master's Office to leave the building. We will establish our office for both 19 hour a week employees in the front office for better customer service. In addition we have a new Facebook page and e-mail for the Cultural Center and we are in the process of making a one page monthly calendar including who is currently renting in the building.

- I toured the Cultural Center with the Principal and Assistant Principal from the Elementary School to open dialog on what projects and events we could colaborate on for the upcoming school year.

- We are scheduling and training for the Sunday opening of the Community Center scheduled to begin on Sunday September 23rd.

- I along with other Community Center Departments have begun cleaning out the basement. This will be an ongoing endeavor as we prepare for the building process for the Records Retention Storage Vault to be built in the basement.

Carolyn Carey, Community Center Director

Main Entrence Date	IN	OUT
8/15/2018 0:00	112	135
8/16/2018 0:00	69	90
8/17/2018 0:00	141	160
8/18/2018 0:00	52	66
8/19/2018 0:00	0	0
8/20/2018 0:00	112	123
8/21/2018 0:00	74	82
8/22/2018 0:00	121	123
8/23/2018 0:00	96	130
8/24/2018 0:00	85	99
8/25/2018 0:00	60	92
8/26/2018 0:00	0	0
8/27/2018 0:00	99	103
8/28/2018 0:00	81	89
8/29/2018 0:00	92	107
8/30/2018 0:00	96	102
8/31/2018 0:00	99	110
9/1/2018 0:00	200	216
9/2/2018 0:00	0	1
9/3/2018 0:00	2	3
9/4/2018 0:00	263	409
9/5/2018 0:00	108	122
9/6/2018 0:00	131	144
9/7/2018 0:00	117	126
9/8/2018 0:00	94	97
9/9/2018 0:00	3	4
9/10/2018 0:00	98	124
Totals	2405	2857

Recreation	IN	OUT
8/15/2018 0:00	430	307
8/16/2018 0:00	357	269
8/17/2018 0:00	561	395
8/18/2018 0:00	143	108
8/19/2018 0:00	549	519
8/20/2018 0:00	502	365
8/21/2018 0:00	353	245
8/22/2018 0:00	334	247
8/23/2018 0:00	451	277
8/24/2018 0:00	419	275
8/25/2018 0:00	609	559
8/26/2018 0:00	320	317
8/27/2018 0:00	337	243
8/28/2018 0:00	298	221
8/29/2018 0:00	253	196

8/30/2018 0:00	195	131
8/31/2018 0:00	220	147
9/1/2018 0:00	362	279
9/2/2018 0:00	114	97
9/3/2018 0:00	409	355
9/4/2018 0:00	2529	1814
9/5/2018 0:00	263	156
9/6/2018 0:00	237	171
9/7/2018 0:00	269	134
9/8/2018 0:00	952	865
9/9/2018 0:00	547	554
9/10/2018 0:00	383	284
Totals	12396	9530

COA	IN	OUT
8/15/2018 0:00	275	270
8/16/2018 0:00	122	117
8/17/2018 0:00	128	115
8/18/2018 0:00	34	32
8/19/2018 0:00	2	2
8/20/2018 0:00	151	143
8/21/2018 0:00	177	173
8/22/2018 0:00	236	235
8/23/2018 0:00	168	149
8/24/2018 0:00	184	168
8/25/2018 0:00	51	47
8/26/2018 0:00	1	1
8/27/2018 0:00	177	168
8/28/2018 0:00	156	144
8/29/2018 0:00	207	197
8/30/2018 0:00	159	145
8/31/2018 0:00	108	107
9/1/2018 0:00	99	95
9/2/2018 0:00	2	0
9/3/2018 0:00	1	0
9/4/2018 0:00	505	484
9/5/2018 0:00	284	259
9/6/2018 0:00	227	208
9/7/2018 0:00	177	157
9/8/2018 0:00	125	111
9/9/2018 0:00	4	3
9/10/2018 0:00	310	263
Totals	4070	3793

Building Totals	18871	16180

Channel 18 Monthly Report
August 15 – September 15 2018

- Filmed updates with:
  - Brooks Free Library
  - Chamber of commerce
  - Town Administrator
  - Cranberry Festival
  - Conservation Trust
  - Historical Society
  - Community Center
  - Town Band (2)

- Meetings Filmed:
  - Board of Selectmen (2)
  - CPC (1)
  - BOH (1)
  - Planning Board (2)
  - Wastewater (2)
  - Conservation Commission(1)
  - Historic (1)
  - Golf (1)
  - Community Journal (3)
  - Zoning Board of Appeals (1)

- Attending training in Chelmsford
- Filmed Jailhouse BBQ and Cultural Center Flea Market 9/1
- Filmed the parade 9/9
- Tested Ballots in Clerks Office with M. Maslowski
- Agendas and Minutes posted
- All clips and meetings transferred and posted to YouTube
- Video file maintenance

Please Follow Channel 18 on YouTube Facebook www.youtube.com/harwichchannel18
www.facebook.com/harwichchannel18

Respectfully Submitted,

Jamie Lee Goodwin

jgoodwin@town.harwich.ma.us 508-430-7569

Monthly Report for Selectman

September

9/19/18

Golf Operations

The golf course has been open in full 17 of 19 days so far in September with no carts due to rain on 9/13 and leagues cancelled due to rain on 9/18.

September is a busy month for outings on weekdays and hotel play on weekends. September tournament schedule:

September	-				
3-Sep	Labor Day				Mon
4-Sep	CVWGA Solheim	8am	SG	80	Tue
5-Sep	Ryder Cup Day 1	7am	TT	96	Wed
10-Sep	WGAM Fall Cup	8:30am	SG		Mon
11-Sep	CVWGA Member Guest	8am	SG	96	Tue
12-Sep	Ryder Cup Day 2	8am	SG	96	Wed
24-Sep	Retired Men's Club	8:30	SG	80+	Mon

Golf Course Maintenance

- Fairway aeration is taking place now on holes: 10,11,13,14,15,17,18
- All tees have been aerified
- Fairways that have been aerified have also been overseeded
- All fairways have been fertilized
- Golf course has responded well to cooler weather and a little rain.

  Irrigation system is running well

Golf Course Infrastructure Project

- New Cart Building is nearing completion
- Working with Eversource to supply electric to building
- Exploring Solar options (SMART program)

Director of Golf Specific

- Procurement meeting with Golf Course superintendent and Asst Town Administrator on 9/1
- Meeting with Town Administrator to discuss Golf Instruction License and Restaurant Lease renewals on 9/5
- Restaurant Lease negotiations on 9/14 & 9/26 with Town Administrator
- Prevailing Wage meeting with Town Administrator, Director of Finance and other Dept Heads on 9/18
- Presentation to Golf Committee on 9/18
- Current Pursuits:
    - Department capital submissions
    - Rate/Fee recommendations for 2019
    - Securing interns for 2019 season
    - Continuing Cart Barn Project – meeting on 9/25

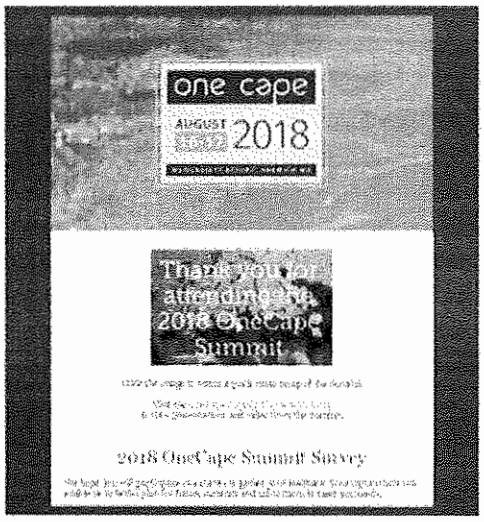
Memorandum from
Charleen Greenhalgh, Town Planner
Town of Harwich

September 18, 2018

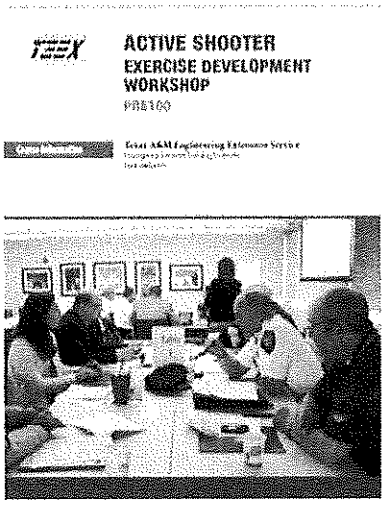
To: Christopher Clark, Town Administrator
From: Charleen Greenhalgh, Town Planner
Re: Monthly Report – August 15, 2018 – September 18, 2018

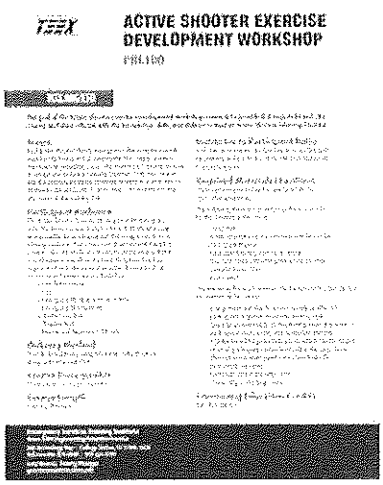
The summer did not disappoint, it continued to be very busy. I had my 6-month review in mid-August, I truly cannot believe that I have been the fulltime Planner for over half a year, time is flying. Below I offer the following updates on recent work and highlights:

1) Decisions, agendas, staff reports, etc. were prepared for the August 14, September 11 and September 25, 2018 Planning Board meetings. I have been asked how long it takes to review an application, and it can vary considerably. Applications and plans are reviewed, with a letter going to the applicant/representative outlining any outstanding items or simply items that need to be clarified. Once revised plans and information are received, I review them all again and prepare a staff report, which assists the Planning Board. The time spent can vary considerably.
2) Attended 2 Planning Board meetings since August 15th.
3) Worked with Amy Usowski and Norm Clarke on a landscape design plan for the corner of Routes 137 and 39. The idea is to beautify the corner and create a memorial park. This had been something that had been contemplated back when the cell tower was approved, but just never got off the ground. Working with Link Hooper, this has now regained momentum.
4) Cultural Compact
    a. Continue to meet weekly, or as needed, with Cyndi Williams, Executive Director of the Chamber of Commerce.
    b. Meetings with Tina Games, Harwich Cultural Council Chair, and Ms. Williams.
    c. Appeared before the Harwich Cultural Council, with Ms. Williams, to provide them with an update on the status of the envisioned Cultural Districts.
5) Attended weekly Community Development meeting, or as needed, to meet with potential applicant. Also met with citizens and public at various times to discuss properties, etc.
6) Attended the One Cape Summit here in Harwich at Wequassett. The summit was quite informative on many topics from wastewater to housing to economic development. It was great hearing from the different speakers, including Governor Baker.
7) Attended a day long Active Shooter Training program put on my Texas A&M Engineering Extension Services. Originally this was planned to be held in Northern California through a grant with the Federal Government; however due to



the fire situation there, they reached out to Sean O'Brian with the Barnstable County Regional Emergency Planning Committee (BCREPC), of which I am a member, and asked if Barnstable County would be interested. Over 70 attended from all over the Cape and Southeastern Massachusetts, and included the Air Force and Coast Guard. I was chosen to be a Team Leader for the day for one of the three breakout groups. It was a great experience. I also attended the September BCREPC meeting in early September.





8) Housing Trust: scheduled and attended a meeting with Brewster, Orleans and Chatham to discuss the Housing Coordinator. More meetings to come.
9) Attended an update meeting with Margaret Song (Cape Light Compact), Sean Libby and Evan Melillo on the status of the Green Communities Grant application. This is moving along nicely, with a copy of a working draft Energy Plan having been provided to us by Ms. Song on September 17th. This will all be before the Board of Selectmen by early to mid-October.
10) Attended a preliminary discussion on solar placement on town property.
11) Attended the monthly Department Head meetings for August and September.
12) Attended the September 13th meeting of the CPC to provide a status on 5 CPC grants, including: 2 for the Albro House, the Housing Trust, the Judah Eldredge property, and the Cape Housing Institute. Additionally, I did assist the CPC with updating their application for this year. My focus was on providing introductory information on what types of projects would qualify for CPC funds, where potential applicant could find additional information and making the actual application a fillable document. I was not involved in the actually application, its content or the requirements of said application. That was provided by the Committee.
13) Space is quite tight, so Elaine Banta and I have begun culling through the Planning Board files. For example, there is no reason to keep 5 copies of a staff report, when only one is needed.

Sheila House, MS, LMHC
Harwich Youth & Family Counselor
Town of Harwich • 728 Main Street
Harwich, MA 02645

MONTHLY REPORT-Board of Selectmen
Sheila House, LMHC - September 19, 2018

- Current caseload of 14 individuals. Clients receive mental health counseling, case management, mentoring, and wellness referrals as needed. Also seeing 3 parents and 1 grandparent for coaching and support.
- Administrative block time (closing files, curriculum planning, update email lists, generate and distribute information to school administrators)
- Contacted senior mentors for GIRL POWER 5-week series for availability for upcoming November-December dates
- Met with Liz Adams from Emerald Hollow Therapeutic Riding about programs for youth-at-risk. Liz may be working on a grant this fall and would like help in recruiting youth
- Volunteered at Summer Music Strolls in Harwich Port for Harwich Children's Fund
- Met with Kim Slade from the Regional Substance Abuse Council about 3rd annual Parent to Prevention Summit and sharing of prevention materials to schools
- Led a summer reading group with 10 Monomoy High School girls, grades 9-12, who had chosen *The Nowhere Girls* to read and discuss.
- Met with teacher Liz Hoff and the Peer Leaders class to share information about service opportunities in the community.
- Was invited to join a Monomoy Regional Strategic Planning Focus Group which will meet Saturday September 29th at the high school.

Was invited to be part of the Monomoy District Behavioral Health Steering Committee, which will meet 6 times during the school year. This group is run by Melissa McGuire and is described as follows: **NEW - District Behavioral Health Committee -** This committee will look at discipline policies and procedures as well as develop a scope of behavioral health services and

resources. I need representation from each school (4 staff members). I will also be inviting community members, parents, and students as well.

- Attended the Monomoy High School Curriculum night and shared information about prevention initiatives.

Please feel to call me at (508) 430-7836 if you have any questions.

Best Regards,

Sheila

Sheila House
Harwich Youth & Family Services

BUDGET/WARRANT TIME LINE 2018-2019

Friday, August 24, 2018	Capital Budget Instructions submitted by T A to Departments	
Friday, September 21, 2018	Deadline for submission of Department Capital Budgets to the T A	
Monday, September 24, 2018	TA presents BOS with 5-Year Financial Plan	**Charter 9-2-1/on or before October 1st**
TBD	MRSD meeting with B O S and Fincom to discuss enrollments by class and demographics, including a five year projection of same.	
Monday, October 1, 2018	Deadline for submission of Community Preservation requests	
Monday, October 1, 2018	BOS Budget Message to guide TA in developing budget Requests - Including Board agreed to goals	**Charter 9-2-2/on or before the first Tuesday in October**
Monday, October 22, 2018	Capital Outlay Committee submits 7-yr Capital Outlay plan to T A	
Wednesday, October 31, 2018	Operating Budget instructions submitted to departments by T A	
Tuesday November 13, 2018	Preliminary meeting with B O S and Fincom to discuss budget guidelines for the FY 20 MRSD budget	
Tuesday, November 13, 2018	Meeting with B O S and Fincom to discuss initial look at MRSD FY 18 budget	
Friday, November 30, 2018	Deadline for submission of department operating budgets to T A	**Charter 9-2-3/on or before the 1st Friday of December**
Friday, November 30, 2018	Deadline for submission of departmental warrant articles to T A	
Monday, December 10, 2018	B O S Review and discussion of potential warrant articles	
Monday, December 10, 2018	TA submits 7-yr Capital Outlay Plan to joint meeting of BOS/ Finance Committee	**Charter 9-6-3/during the month of December**
Monday, December 24, 2018	MRSD School Vacation	
Monday, January 7, 2019	BOS/FINCOM/Capital Outlay Committee hold joint Public Hearing on submitted Capital Outlay Plan	**Charter 9-6-4/on or before the 2nd Friday in January**
Friday, January 25, 2019	All items to be bid must have specifications in TA's office by 12:00 P.M. to be assured of bid process for Town Meeting	
Monday, January 28, 2019	Meeting with B O S and Fincom to discuss first draft budget and five-year plan with MRSD and Cape Cod Tech	
February – March	Fincom review of budgets and articles	
Monday, February 4, 2019	Last BOS meeting before Annual Warrant closes	
Friday, February 8, 2019	Article deadline – Warrant closes Noon deadline	**Charter 2-2-1/Bylaw 1-101 2nd Friday in February by 12:00 Noon**

Monday, February 11, 2019	TA presents budget and budget message to B O S and Fincom	**Charter 9-2-4/on or before the 2nd Tuesday of February**
Monday, February 18, 2018	MRSD School Vacation	
Tuesday, February 19, 2019	1st draft Warrant to BOS (presented at meeting)	
Tuesday, February 19, 2019	Articles submitted to Finance Committee by B O S	**General By-Laws I, § 271-1.B. Not later than 14 days after article deadline**
Monday, February 25, 2019	BOS required to submit final budget to Finance Committee	**Charter 9-3-2 / on or before the 4th Tuesday of February**
February 2019	MRSD to submit final line item budget to B O S and Fincom for inclusion in the ATM Warrant	
Saturday, March 2, 2019 (TENTATIVE)	Selectmen and Finance Committee Budget Presentations	
Monday, March 4, 2019	Joint budget/article hearing BOS/Finance Committee	
March, 2019	BOS reviews Warrant articles	
Monday, March 4, 2019	VOTE to sign **final** Annual Town Meeting Warrant	**No new information or changes will be added to the Warrant after this date**
Monday, March 4, 2019	Vote to open Special Town Meeting Warrant	**All Special Town Meeting Articles must be received 40 days prior to STM**
No later than Monday, March 18, 2019	Article funding review by B O S	
Monday, March 18, 2019	BOS votes Special Warrant BOS votes Ballot	
not later than Monday, March 25, 2019	FINCOM submits written recommendations on Budget/Warrant. Joint budget /article hearing with B O S and Fincom reconcilliation	**Charter 9-3-3/by March 31st**
Not later than Monday, March 25, 2019	Fincom conducts one or more hearings on budget	**Charter 9-3-3 by March 31st**
March 25, 2019	Ballot to Town Clerk	
Monday, April 1, 2019	Send Warrant to Printer Send Warrant to Chronicle **(April 18th publication)**	Printer needs 2 weeks. Chronicle needs 1 week before publish date
Monday, April 15, 2018	MRSD School Vacation	
Friday, April 19, 2019	Warrants available for public distribution	**Charter 2-2-2/14 days prior to Town Meeting**
Monday, May 6, 2019	First night of Annual Town Meeting and Special Town Meeting	**Charter 2-3-1/1st Monday in May**
Tuesday, May 21, 2019	Annual Town Elections	**Charter 8-1-1/3rd Tuesday in May**