CITY OF BURLINGTON
DEPARTMENT OF PUBLIC WORKS

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Chapin Spencer
DIRECTOR OF PUBLIC WORKS

M E M O R A N D U M

To: Tenzin Chokden, Clerks Office
From: Chapin Spencer, Director
Date: September 13, 2019
Re: Public Works Commission Agenda

Please find information below regarding the next Commission Meeting.

Date: **September 18, 2019**
Time: 6:30 – 9:00 p.m.
Place: **645 Pine St – Main Conference Room**

A G E N DA

		ITEM
1		Call to Order – Welcome – Chair Comments
2	5 Min	Agenda
3	10 Min	Public Forum (3 minute per person time limit)
4	5 Min	Consent Agenda

A 242 N. Winooski Ave Parking Space
B Colchester Ave 15-Minute Parking
C Flynn Ave Parking Removal for Crosswalk at Richardson St
D Update iMarket Parking Agreement to increase from 10 to 15 Parkers
E No Parking Zone on N. Ave Adjacent to Ward St
F Removal of One Accessible (ADA) Parking Space at 23 Hayward St
G Proposed Accessible (ADA) Parking Space on South Union St

5 15 Min Ethan Allen Parkway Parking Regulations
- A Communication, N. Losch, E. Gohringer & K. Furtado
- B Commissioner Discussion
- C Public Comment
- D Action Requested – Vote

6 25 Min Designation of City Managed Northern Waterfront Lot & Traffic Regulations
- A Communication, P. Peterson
- B Commissioner Discussion
- C Public Comment
- D Action Requested – Vote

7 5 Min Rescheduling of October Meeting
- A Oral Communication, C. Spencer
- B Commissioner Discussion
- C Public Comment
- D Action Requested – Vote

8 15 Min Commission FY'19 Annual Report –** *To Be Handed Out at Meeting* **
- A Communication, C. Spencer
- B Commissioner Discussion
- C Public Comment
- D Action Requested – Vote

9 5 Min Approval of Draft Minutes of 7-17-19

10 10 Min Director's Report

11 10 Min Commissioner Communications

12 **Adjournment & Next Meeting Date – October 16, 2019 (Tentative)**

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Technical Services Engineering Division
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Memorandum

Date: September 18, 2019

To: Public Works Commission

From: Madeline Suender, Associate Engineer

CC: Laura Wheelock, Senior Public Works Engineer
Susan Molzon, Senior Public Works Engineer

Subject: 242 N Winooski Ave Parking Removal

Recommendations to the DPW Commission:
7 No-parking area.
No person shall park any vehicle at any time in the following location:

- For 20 feet South of the southernmost driveway entrance at 242 North Winooski Ave

Purpose & Need:

The purpose of the recommended traffic regulation amendment is to facilitate truck deliveries in and out of a Planning and Zoning Commission pre-approved driveway access to a new grocery store going in at 242 N Winooski Ave.

Project Checklist:

	N/A	Yes	No	Reference
Aligns with MUTCD standards and/or established City Policy?	X			
Aligns with City plans?	X			
Followed Public Engagement Plan?		X		These Traffic Regulation changes are defined as an INVOLVE project in the Public Engagement Plan (PEP).

Summary and Conclusion:

The Department of Public Works (DPW) has received a request from a local business to remove 1 parking space in front of 242 N Winooski Ave. This would enable the new grocery store to maneuver trucks during deliveries. Based on site visits and review of the turning movement template with this driveway configuration, which has

been approved by the Planning and Zoning Commission, the need for this no parking zone has been confirmed. DPW staff conducted various parking counts in the vicinity of 242 N Winooski. In doing this, it was determined that there is enough capacity on the rest of the street (and adjacent streets) to accommodate the current parking needs.

Public Engagement:

In preparation for the 09/18/19 DPW Commission Meeting, Staff placed flyers at properties surrounding this location. Staff received two emails and one phone call in regards to the proposed parking changes (Attachment 2). One resident was opposed, two residents were in support.

Attachments:

1. Site map.
2. Public correspondence.

Attachment 1: Site Map

Attachment 2: Public Correspondence

A representative from the Chittenden Emergency Food Shelf called to express serious concern for losing a public space in front of their nonprofit organization for the needs of a for-profit business. The representative expressed concern for the lack of parking in general in the area.

Email received 9/5/19:

Thank you for the opportunity to comment on the parking space removal at 242 N. Winooski Ave. I live at [redacted] N. Winooski Ave., just across the street. I am supportive of removing the parking space. As a matter of fact I am supportive of removing more parking spaces on N. Winooski Ave. up my way to allow for a bike lane or bike track that does not suddenly end at Decatur St.

Email received 9/6/19:

We received a letter that a parking space is going to be removed for the new market. Totally understandable as the market needs to bring in loading trucks. I imagine this is on your radar but I would like to add to the concern for a parking plan as the market will increase parking needed. Ok with me to remove that space, especially to avoid an accident!. Appreciation for larger parking conversations.

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Memo

Date: September 18, 2019

To: Public Works Commission

From: Madeline Suender, Associate Engineer

CC: Nicole Losch, Senior Transportation Planner
Elizabeth Gohringer, Associate Planner

Subject: Colchester Ave 15 Minute Parking

Recommendations to the DPW Commission:
9 Fifteen-minute parking.
(b) No person shall park any vehicle, at any time, longer than fifteen (15) minutes at the following locations:

(1)-(32) As Written.

(33) In the 3 designated spaces on the east side of Colchester Avenue in front of 273 Colchester Avenue, between the hours of 6:00 am and 9:00 pm, ~~Sundays and~~ holidays excepted.

(34) In the 2 designated spaces on the east side of Colchester Avenue in front of 291 and 297 Colchester Avenue, between the hours of ~~6:00 am and 9:00pm~~ 9:00am and 6:00 pm, Sundays and holidays excepted.

Purpose & Need:
The purpose of the recommended traffic regulation amendment is to better balance the business and resident parking needs.

Project Checklist:

	N/A	Yes	No	Reference
Aligns with MUTCD standards and/or established City Policy?	X			
Aligns with City plans?	X			
Followed Public Engagement Plan?		X		These Traffic Regulation changes are defined as an INVOLVE project in the Public Engagement Plan (PEP).

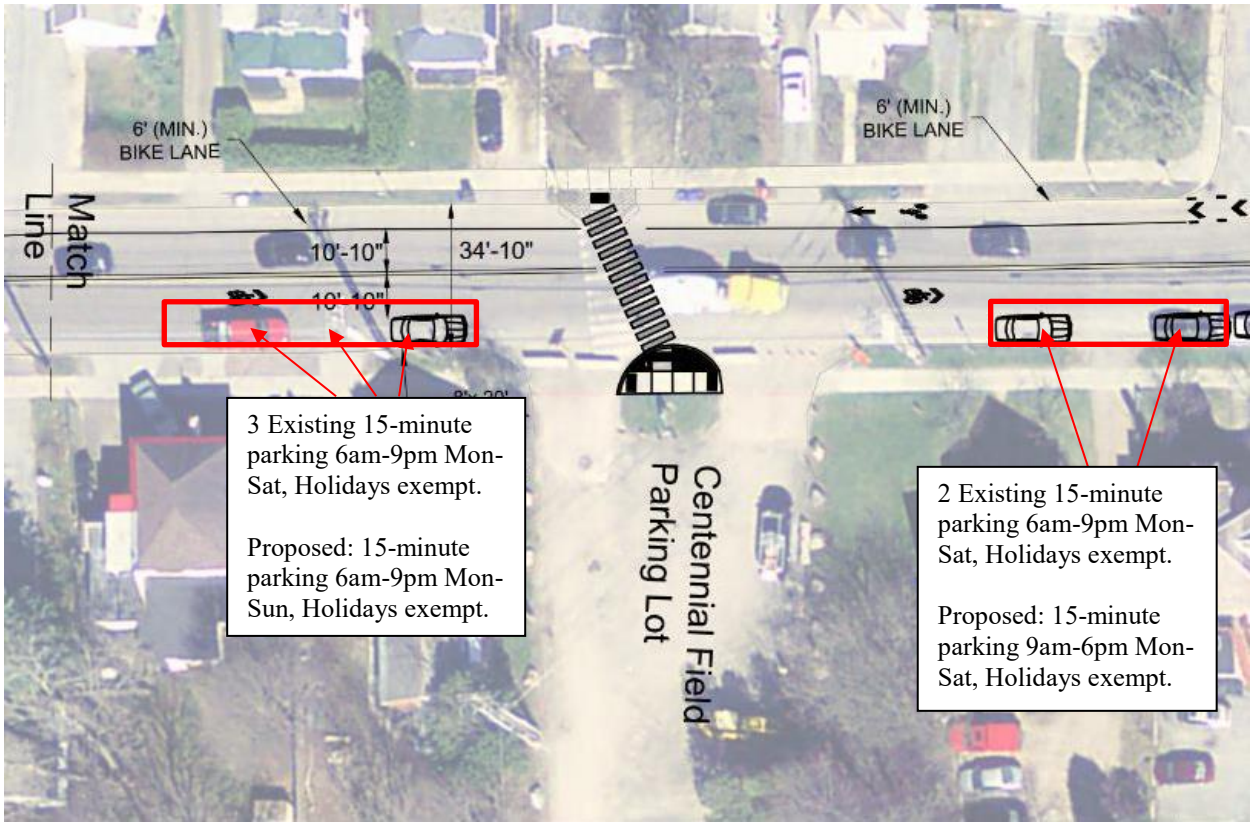
Summary and Conclusion:
There are two existing 15-minute spaces in front of 291 Colchester Ave (see Attachment 1). This condition is currently in effect from 6:00 am – 9:00 pm Monday-Saturday. The primary purpose of these time limited spaces is to serve the needs of Kampus Kitchen patrons. DPW is proposing this time limit be altered to range from 9:00 am – 6:00 pm. This would better balance the needs of residents needing overnight parking, while still serving the needs of Kampus Kitchen during their busiest times. Additionally, DPW would like to edit the three 15-minute parking spaces located directly in front of Kampus Kitchen between the hours of 6:00 am and 9:00 pm to include Sundays.

Public Engagement:
In preparation for the 09/18/19 DPW Commission Meeting, staff placed flyers at properties along this stretch of Colchester Ave. Staff received three emails in regards to the proposed parking changes (Attachment 2). All three residents expressed concern for overall parking on the street and the impact of the recent parking changes prior to this proposal.

Attachments:

1. Site map.
2. Public correspondence.

Attachment 1: Site Map



Attachment 2: Public Correspondence

Email received 8/27:

Hello Madeline,
My household very much supports adding more street parking to Colchester Ave. We are a group of 8 young professionals and have a lot of cars between us, and were extremely frustrated when the parking spots on one side of the street were taken away. I'm not sure if this is the same department as you, but we now can't park on their street from 7-5 for the next week due to work. This is a HUGE hassle and cost for us. We're at the point where we are encouraging our friends who talk about moving to Burlington but need a car to get to work to not move here because of the parking situation in general. We're also pretty upset because we bought multiple parking passes for the street at the beginning of the summer when there was plenty of parking but now we're lucky if one of us can find a spot to park on the street at night. What can we do to bring the resident parking spots back to Colchester Ave? Would it be possible to get a pass for the resident parking on east avenue or something like that? Please let us know ASAP.
Many thanks,

Email received 8/27:

To whom this may concern, at the Department of Public Works:

I am a resident on Colchester Avenue and a full-time cyclist, although I find myself parking my girlfriend's car every night. This email is in response to plans for changing the range in which the five 15-minute parking signs apply, which are currently from 6am to 9pm on Monday through Saturday and could change in order to be from 9am to 6pm including Sunday.

Prior to recent changes, Colchester Avenue offered resident-only parking on both sides of the street but, although meeting the needs of residents and their guests, this posed a conflict for the unique volume of emergency traffic and the perceived needs of those seeking alternative trasportation. As it currently stands, there are approximately less than twenty-five parking spaces on the street for over thirty-five multi-resident dwellings and that's only if everyone leaves enough room for every possible spot.

Perhaps I'm not clear enough on what the rules are for the times beyond the 15-minute parking restrictions. Would a resident be allowed to park there in the off-hours?

More on point: The Kampus Kitchen closes at 5pm on Sundays, so it doesn't make any sense to expand the ranges of the fifteen-minute spaces in either hours or days.

Years of observation has held that the paved area, owned by UVM and designated as parking for Centennial field, has always more than handled the needs of the Kampus Kitchen -- yet now sits entirely unused. Private property, though it may be, it's currently little more than a seemingly petty waste of space; while in the adjacent area, UVM possesses several such empty lots and operates a similarly empty yet giant yellow bus, as a shuttle service, every fifteen minutes.

More off topic: anyone who isn't comfortable riding their bicycle in traffic is already opting for the sidewalk. Colchester Avenue really doesn't require the type of unprotected lanes with the green paint that washes off in the rain. I'm going to stop now before I go off on a rant, but I really do look forward to any possible discourse over this matter because it seems as if the people making these decisions haven't ever been in the position to use what they're making. I mean this with more humility and respect to your profession than my words might convey.

Concluding with my main concerns: there isn't enough parking for residents, the Kampus Kitchen's needs are overstated, and I don't know what to do at two in the morning when some kid has parked their parents' car in two of the very few spots available.

Email received 8/28:

Dear Ms. Suender,

I am one of the residents of Colchester Avenue. We recently found out that parking has been taken away at a location near us. Due to this, there have been many cars parking in front of our apartment and the surrounding areas. Between the two units in our apartment and the two units in our neighbors' apartment, we are allowed 12 street parking passes. However, due to the abundance of cars parking in our area, there is barely room for one of the cars (between the four units) on the street. The implementation of the 15-minute parking spaces decreases parking availability even more. Our neighbor has also informed us that multiple cars have been hit since everything has changed. We are concerned that cars will keep getting hit due to the lack of available spaces and the fact that the yellow line in the road is too far to the right. We have almost been hit multiple times pulling out of our driveway and are concerned about the long term effects of this frustrating change.

Thank you for your time.

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Memo

Date: September 18, 2019

To: Public Works Commission

From: Madeline Suender, Associate Engineer

CC: Nicole Losch, Senior Transportation Planner

Subject: Crosswalk at Flynn Ave and Richardson St Intersection

Recommendations to the DPW Commission:
7 No-parking area.
No person shall park any vehicle at any time in the following location:

- For 20 feet on either side of the midblock crosswalk on Flynn Ave at the intersection of Richardson Street.

Purpose & Need:
The purpose of the recommended traffic regulation amendment is to be in compliance with the VTrans Guidelines for Pedestrian Crossing Treatments. The need is to facilitate safe crossings at this location (Attachment 1).

Project Checklist:

	N/A	Yes	No	Reference
Aligns with MUTCD standards and/or established City Policy?		X		MUTCD Standards, VTrans Guidelines for Pedestrian Crossing Treatments, AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities
Aligns with City plans?		X		MUTCD Standards, VTrans Guidelines for Pedestrian Crossing Treatments
Followed Public Engagement Plan?		X		These Traffic Regulation changes are defined as an INVOLVE project in the Public Engagement Plan (PEP).

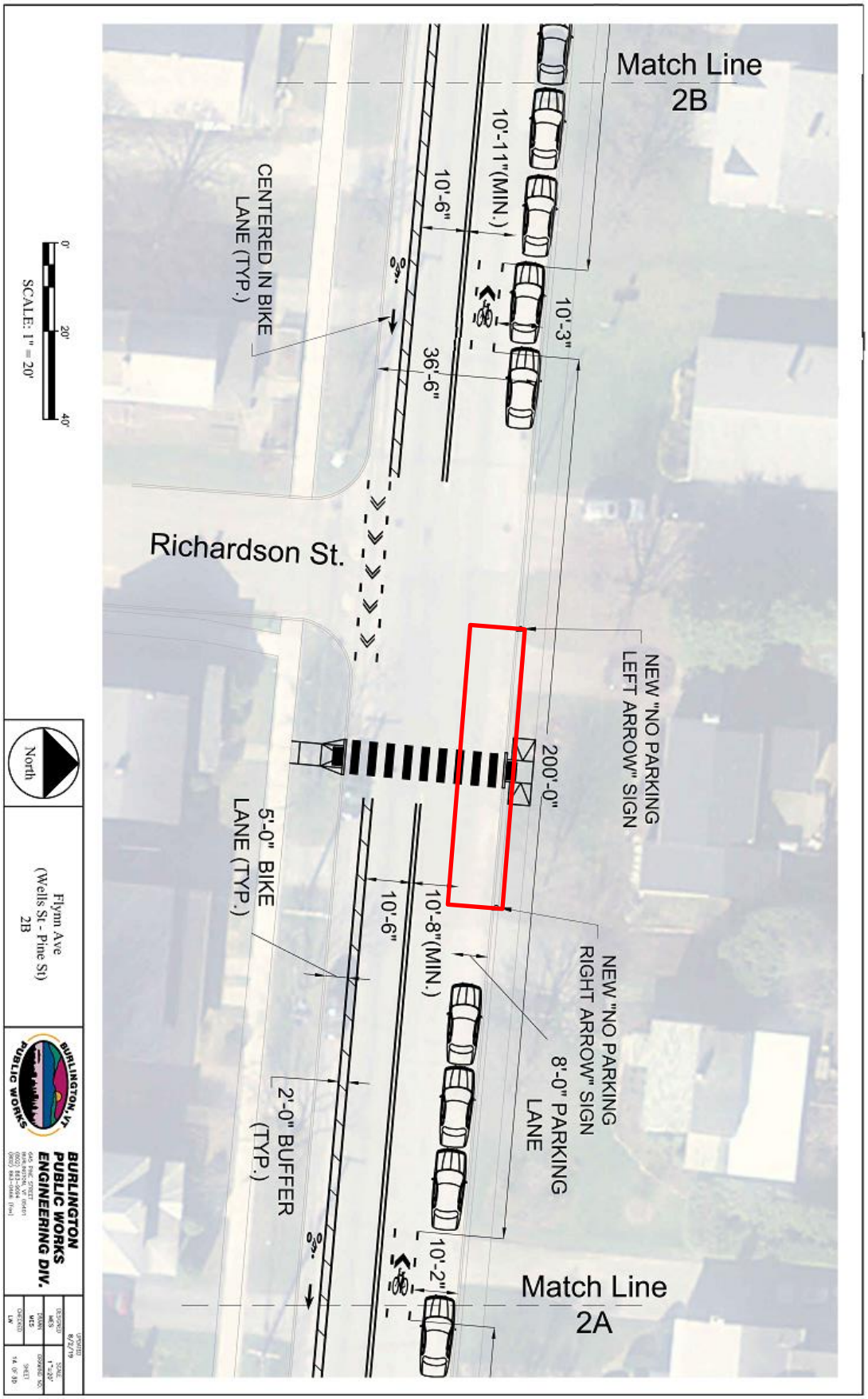
Summary and Conclusion:
In an effort to add a bike lane/shared lane on Flynn Ave, parking was removed from the south side of the street. To accommodate the foreseeable increase in pedestrian crossing movements to access parking, DPW staff is installing a crosswalk at Flynn Ave and Richardson St. To facilitate safe crossing and meet VTrans Standards, parking must be removed for 20' on either side of the crosswalk. In doing this, two parking spaces would be removed.

Public Engagement:
In preparation for the 09/18/19 DPW Commission Meeting, staff placed flyers at properties along this stretch of Flynn Ave. Staff received 1 phone call in regards to the exact location of this crosswalk, unrelated to parking (Attachment 2).

Attachments:

1. Site map.
2. Public correspondence.

Attachment 1: Site Map



Attachment 2: Public Correspondence

One Flynn Ave resident called to discuss the location of the crosswalk. It was explained that this was the only feasible location due to driveway constraints and the location of the existing sidewalk along the east side of Richardson St.

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Jeff Padgett
DIVISION DIRECTOR: PARKING AND TRAFFIC

MEMORANDUM

TO: DPW Commission

FROM: Jeff Padgett, Interim Division Director – Parking and Traffic

DATE: September 18, 2019

RE: Updated Parking Agreement between the City and iMarket

Recommendation:
Staff recommends that the DPW Commission approve the attached Updated Parking Agreement between DPW and iMarket and authorize DPW Director Chapin Spencer to execute the Agreement.

Background:
In February the PWC approved an agreement with iMarket for 10 spaces in the Lakeview and College Street Garage. They recently made a requested to increase this agreement to 15. Based on recent analysis, we believe that the garage has capacity to accept these additional parkers. The updated agreement will also reset the annual renewal from this date.

Please don't hesitate to reach out with any questions. Thank you.

PARKING AGREEMENT
City of Burlington

This Parking Agreement ("Agreement") is entered into by the City of Burlington ("City"), by and through its Department of Public Works ("DPW"), and iMarket Solutions, Inc. ("Tenant"), a for profit corporation registered to conduct business in the State of Vermont and located at 150 S. Champlain St., 3rd Floor, Burlington, VT 05401. Tenant and the City agree to the terms of this Agreement.

1. EFFECTIVE DATE AND NOTICE OF NONLIABILITY

This Agreement shall not be valid or enforceable until the Effective Date. The City shall not be bound by any provision of this Agreement before the Effective Date and shall have no obligations for performance or expenses incurred before the Effective Date or after the expiration or termination of this Agreement.

2. RECITALS

A. Authority. Authority to enter into this Agreement exists in the City Charter. Required approvals, clearance, and coordination have been accomplished from and within each Party.

B. Consideration. The Parties acknowledge that the mutual promises and covenants contained herein and other good and valuable consideration are sufficient and adequate to support this Contract.

C. Purpose. Tenant seeks to lease 15 parking permits at the College Street/Lakeview parking garage owned by the City.

3. DEFINITIONS

A. "Parking Facility" means the parking facility known as the College Street and Lakeview parking garage owned by the City and located at 60 College Street in Burlington, Vermont.

B. "Effective Date" means the date on which this Agreement is approved and signed by the City, as shown on the signature page of this Agreement, whichever date is later.

C. "Party" means the City or Tenant and "Parties" means both the City and Tenant.

4. TERM AND EARLY TERMINATION

A. Term. This Parties respective performance shall commence on October 1, 2019 and expire on September 31, 2020, unless sooner terminated as provided herein.

B. Renewal. This Agreement shall automatically renew for one additional 1-year term under the same terms of this Agreement, unless either Party provides written notice to the other Party no later than 90 days prior to the expiration of this Agreement.

C. Termination. Either Party may terminate this Agreement upon issuing written notice to the other

Party. The notice shall specify the effective date of the termination.

5. GRANT OF LICENSE

A. Use of Facilities. The City shall provide Tenant with parking licenses to be used by Tenant and its authorized permit holders at the Parking Facility for the term of this Agreement as set forth in **§4.A**.

B. Timing Restrictions. The parking licenses granted under this Agreement shall only be valid Monday through Friday of each week. No overnight parking is permitted as part of this Agreement.

C. User Restrictions. Only currently registered vehicles that are legally allowed to be operated on public streets and right of ways may be issued a parking license and utilize the Parking Facility privileges granted in this Agreement.

D. Identification of License. All persons possessing parking licenses granted under this Agreement must display the appropriate means of identification that are issued to authorized permit holders to utilize the parking privileges granted herein. Such identification may include a card, decal, hangtag, entry on a license plate registry, or other means.

6. PAYMENT

A. License Fee. Tenant shall pay the City $80 per month for each parking license granted under this Agreement. The City may change the fee for each parking license by providing 30 days advanced notice to Tenant.

B. Billing. The billable term of each issued license shall begin on the day the license is issued to Tenant. Tenant shall issue payment to the City prior to the first day of each month for the term of this Agreement.

7. PARKING CONDITIONS

A. Use of Parking Facilities. The monthly parking permit issue under this Agreement authorizes designated Tenant and its authorized permit holders the ability to self-park and lock one vehicle for each permit in an available (i.e. not being used) parking space located within the Parking Facility. If a permit holder is unable to park in the Parking Facility due to full occupancy, the City may, at its sole discretion, offer parking to permit holders the ability to park at a different City-owned parking facility. Notwithstanding the foregoing, the City does not guarantee the availability of parking spaces under this Agreement and if the Parking Facility is at capacity and the City determined that no other City-owned facilities are available, Tenant's permit holders shall either wait their turn to gain entrance or find alternative parking at their own cost.

B. Management of Parking Facilities. The City reserves the right to manage parking of its facilities in the best interests of the City. Tenant acknowledges and agrees that management of City facilities may require the holders of the parking permits granted under this Agreement to use another parking facility or be relocated if necessary.

C. Removal. The City may remove any vehicle granted parking privileges under this Agreement at the owner's sole expense if reasonable efforts were made by the City to notify the owner about the need to remove the vehicle from the premises within a reasonable time. The determination as to removal of a vehicle is at the sole discretion of City and includes, but is not limited to, leaking of chemicals, oil, gas, or antifreeze from a vehicle. Notwithstanding the foregoing, in the event of a threat of imminent danger to life or property as determined by the City, a vehicle may be removed at the owner's sole expense without notification of the owner. Tenant is solely

responsible for all losses, damages, claims, liabilities, judgments, costs, and expenses arising directly or indirectly during the term of this Agreement out of any act, omission, or negligence of Tenant or its permit holders.

D. Acceptance of Risk. Parking is at Tenant and its designated permit holder's sole risk. The City shall not guard, assume care, custody, or control of any vehicle or its contents. The City shall not be responsible for any loss or damage caused to vehicles or their contents utilizing the City's parking facilities including fire, theft, damage, or loss directly resulting from the willful misconduct or negligence of the City. No bailment is created under this Agreement.

E. Reporting. Tenant shall require that as a condition of issuing a parking permit granted herein, the permit holder shall report any damage to the Parking Facility caused by the permit holder's vehicle. Such damage includes, but is not limited to, the leaking of any chemicals, oil, gas, or antifreeze.

F. Leaks. If a vehicle is discovered to be leaking any chemical, oil, gas, or antifreeze, the City may temporarily suspend the parking permit privileges of the permit holder until the permit holder provides the City with written proof that necessary repairs were made to prevent further leakage. Any suspension issued under this **§7.F** shall not suspend Tenant's obligation to pay the fee set forth in **§6.A**. Any vehicle whose permit to park is suspended may be removed at the owner's expense if the vehicle is found in the Parking Facility while the license is suspended.

G. Limitation on Use. The parking permits granted herein are for the exclusive use of the Tenant and its authorized permit holder. Parking permits shall not be loaned, altered, transferred or sold. Tenant agrees that misuse of a permit shall be deemed as theft of services and the permit holder shall be locked out and parking privileges in the Parking Facility rescinded.

H. Compliance. Tenant shall inform its permit holders that compliance with instructions for the use of permits is a condition of its use. If a permit holder fails to properly comply with use instructions, the maximum daily fee will be assessed.

I. Insurance. Tenant shall ensure that all permit holders possess minimum levels of automobile insurance as required by law.

8. ENTIRE AGREEMENT

This Agreement constitutes the entire agreement and understanding of the Parties with respect to the subject matter of this Agreement. All prior representations and understandings of the Parties, oral or written, are merged into this Agreement. Prior or contemporaneous additions, deletions, or other changes to this Agreement shall not have any force or effect whatsoever, unless embodied herein.

9. MODIFICATION

Except as otherwise provided by this Agreement, any modification to this Agreement shall only be effective if agreed to in a formal amendment to this Agreement, properly executed and approved by the Parties.

10. THIRD PARTY BENEFICIARIES

This Agreement does not and is not intended to confer any rights or remedies upon any person or entity other than the Parties. Enforcement of this Agreement and all rights and obligations hereunder are reserved solely for the Parties. Any services or benefits which third parties receive as a result of this Agreement are incidental to the Agreement and do not create any right for such third parties.

11. WAIVER

A Party's failure or delay in exercising any right, power, or privilege under this Agreement, whether explicit or by lack of enforcement, shall not operate as a waiver, nor shall any single or partial exercise of any right, power, or privilege preclude any other or further exercise of such right, power, or privilege.

12. CHOICE OF LAW

Vermont law shall be applied in the interpretation, execution, and enforcement of this Agreement. Any provision included or incorporated herein by reference which conflicts with Vermont law shall be null and void. Any provision rendered null and void by operation of this provision shall not invalidate the remainder of this Agreement, to the extent capable of execution.

13. JURISDICTION

All suits or actions related to this Agreement shall be filed and proceedings held in the State of Vermont.

14. ASSIGNMENT

Tenant's rights and obligations under this Agreement are personal and may not be transferred or assigned without the prior written consent of the City. Any attempt at assignment or transfer without such consent shall be void. Any assignment or transfer of Tenant's rights and obligations approved by the City shall be subject to the provisions of this Agreement.

— Signature Page Follows —

15. SIGNATURE PAGE

Persons signing for the Parties hereby swear and afform that they are authorized to act on behalf of their respective Party and acknowledge that the other Party is relying on their representations to that effect.

The Parties hereto have executed this Parking Agreement

TENANT
iMarket Solutions, Inc.
150 S. Champlain Street, 3rd Floor, Burlington, VT 05401

By: _____
Andrew Allen
Chief Technical Officer

Date: _____

CITY OF BURLINGTON
Department of Public Works

By: _____
Chapin Spencer, Director
Department of Public Works

Date: _____

City of Burlington
Department of Public Works

Technical Services Engineering Division
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Memo

Date: September 10, 2019

To: Public Works Commission

From: Phillip Peterson, Associate Public Works Engineer PMP 9/10/19

CC: Olivia Darisse, Public Works Engineer
Susan Molzon P.E., Senior Public Works Engineer

Subject: Ward Street and North Avenue Crosswalk Parking Prohibition

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Recommendations to the DPW Commission:
7 No-parking area.
No person shall park any vehicle at any time in the following locations:

- On the west side of North Avenue beginning at the driveway to 167 North Avenue and continuing south to the crosswalk at the intersection of North Avenue and Ward Street.

Purpose & Need:
The purpose of the recommended traffic regulation amendment is to be in compliance with the Vermont Agency of Transportation (VTrans) guidelines. The parking prohibition adjacent to crosswalks is based on the VTrans "Guidelines for Pedestrian Crossing Treatments." This need will improve sight lines between pedestrians and motorists, increasing safety for those using the crosswalk.

Project Checklist:

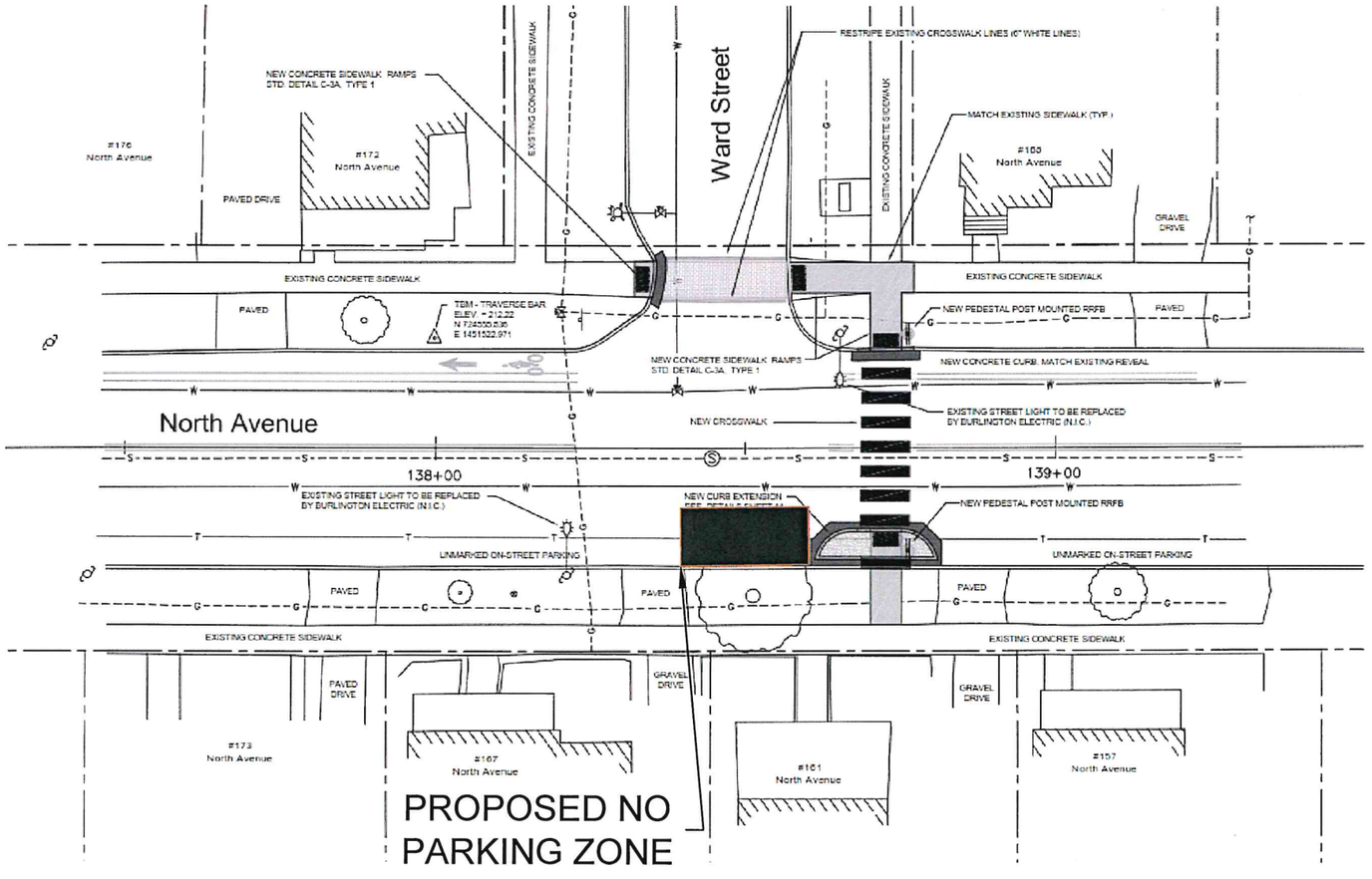
	N/A	Yes	No	Reference
Aligns with MUTCD standards and/or established City Policy?		X		Vermont Agency of Transportation "Guidelines for Pedestrian Crossing Treatments"
Aligns with City plans?		X		Vermont Agency of Transportation "Guidelines for Pedestrian Crossing Treatments"
Followed Public Engagement Plan?		X		These Traffic Regulation changes are defined as an INVOLVE project in the Public Engagement Plan (PEP).

Summary and Conclusion:
During the planning phase for the 2019 pedestrian safety project on North Avenue, a need to establish a no-parking zone was established by DPW Staff. Staff conducted a site visit and found the crosswalk requires a 10-foot parking prohibition on the north side of the crosswalk where parking is currently allowed (see Attachment-1). The 10-foot parking prohibition does not leave enough space to allow for a vehicle to park at this location (see Attachment-2). This prohibition will remove 1 parking spaces on the west side of North Avenue.

Public Engagement:
In preparation for the 09/18/19 DPW Commission Meeting, Staff placed flyers at each property along the block adjacent to the crosswalk at the intersection of North Avenue and Ward Street. Staff received one (1) email and one (1) phone call in regards to this matter (see Attachement-3). The email supports the Staff recommendation while the phone call supports the crosswalk, but would rather keep the parking.

Attachments:

1. Site map.
2. Site photos.
3. Public correspondence.



0 20' 40'

SCALE: 1" = 20'

PROPOSED NO PARKING ZONE
ADJACENT TO CROSSWALK AT
WARD STREET
AND
NORTH AVENUE

BURLINGTON PUBLIC WORKS ENGINEERING DIV.
645 PINE STREET
BURLINGTON, VT 05401
(802) 863-9094
(802) 863-0466 (Fax)

DESIGNED PMP	
DRAWN PMP	SCALE 1"=20'
CHECKED SM	DRAWING NO.
DATE 9/10/2019	SHEET 1 OF 1

Attachment 2

Attachment 3

Public input correspondence emails

Mon 8/12/2019

Dear Mr. Peterson,

The no parking next to the Ward St crosswalk seems like a good idea to me.

Thanks for asking for my feedback.

David Woolf

152 North Avenue

Public input correspondence phone calls

Tue 9/10/2019

Associate Engineer Phillip Peterson received a phone call from Jennifer Woods, resident of 173 North Avenue. Ms. Woods appreciates the crosswalk; however, she thinks the loss of parking will be difficult for the area. Ultimately, Ms. Woods supports the crosswalk, but hesitates to fully support the loss of parking.

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Department of Public Works

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Memo

Date: September 10, 2019

To: Public Works Commission

From: Phillip Peterson, Associate Public Works Engineer PMP 9/10/19

CC: Susan Molzon P.E., Senior Public Works Engineer

Subject: Removal of one Accessible (ADA) Parking Space at 23 Hayward Street

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Staff recommends that the Commission remove:
7A Accessible spaces designated.
No person shall park any vehicle at any time in the following locations, except automobiles displaying special handicapped license plates issued pursuant to 18 V.S.A. § 1325, or any amendment or renumbering thereof:

- In front of 23 Hayward Street.

Purpose & Need:
The purpose of the ADA space was to provide a resident reasonable access to their home, and this is no longer needed. The need is to provide public parking on Hayward Street.

Project Checklist:

	N/A	Yes	No	Reference
Aligns with MUTCD standards and/or established City Policy?		X		PROWAG
Aligns with City plans?	X			Vermont Agency of Transportation "Guidelines for Pedestrian Crossing Treatments"
Followed Public Engagement Plan?		X		These Traffic Regulation changes are defined as an INVOLVE project in the Public Engagement Plan (PEP).

Summary and Conclusion:

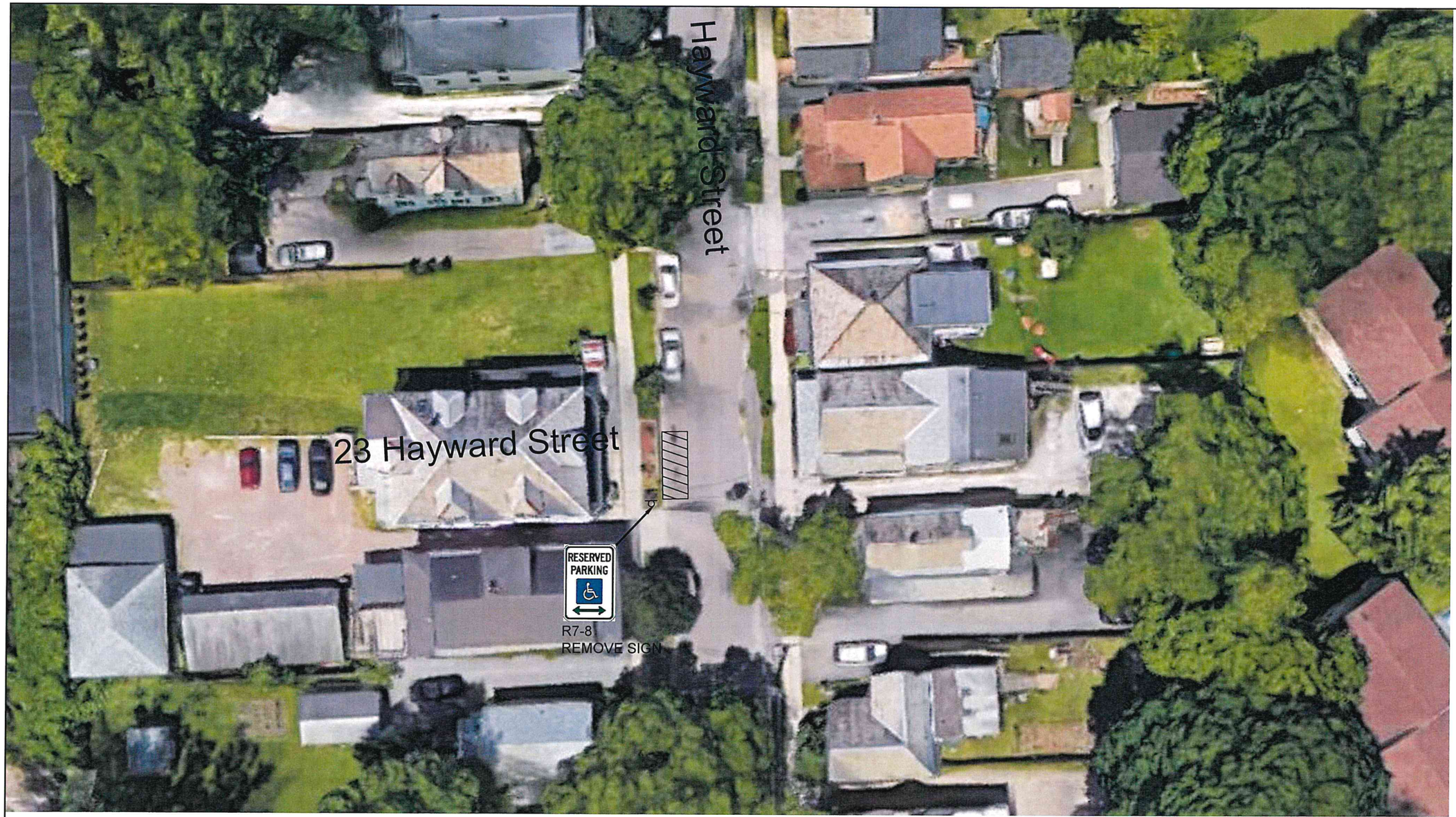
Staff received a request in August 2019 from Debbie Paradis, the landlord of 23 Hayward Street, to remove the on-street accessible (ADA) parking space (see Attachment-1) close to her property. Ms. Paradis states the ADA space was necessary for one of her tenants to have reasonable access to his home. As it turns out, the tenant that needed the ADA space just recently moved. Ms. Paradis states that due to her tenant moving, the ADA space should be removed so other residents and the public may utilize it.

Public Engagement:

In preparation for the 09/18/19 DPW Commission Meeting, Staff distributed flyers to the homes on Hayward Street. Staff received four (4) responses (see Attachment-2) from local residents, three (3) were over the phone and one (1) was via email; three (3) of the responses support the proposed removal of the ADA space, one (1) respondent was unsure what the best thing to do is.

Attachments:

1. Site map.
2. Public correspondence.



30' 0 30' 60'

SCALE: 1" = 30'

North

HAYWARD STREET
REMOVAL OF AN
ACCESSIBLE PARKING SPACE

BURLINGTON, VT PUBLIC WORKS

BURLINGTON PUBLIC WORKS ENGINEERING DIV.

645 PINE STREET
BURLINGTON, VT 05401
(802) 863-9094
(802) 863-0466 (Fax)

DESIGNED FMP	SCF NO. NA
DRAWN FMP	SCALE 1"=30'
CHECKED SM	DRAWING NO.
DATE 09/10/19	SHEET 1 OF 1

Attachment 2

Public input correspondence emails

Mon 8/19/2019

You were very instrumental in helping me have some antiquated no parking signs removed from in front of the College and Battery condominiums two years ago.

I have a new issue I wanted to run by you and seek your guidance. We own a few apartment buildings in Burlington. One of these is on Hayward Street and in front of the building there is a handicap parking space that was put there many years ago to accommodate one of our tenants. This tenant has moved after 18 years of tenancy and there are no other handicap tenants in the building. This space is a prime parking space in front of the building. Since the handicap tenant is no longer residing there, is it possible to have the handicap sign removed?

Any assistance in this matter would be greatly appreciated.

Debbie Paradis

Public input correspondence phone calls

8/22/2019
Associate Engineer Phillip Peterson received a phone call from David Tillis, a resident of Hayward Street. Please remove the ADA space.

8/26/2019
Associate Engineer Phillip Peterson received a phone call from Greg Ackle, a resident of Hayward Street. It's a good idea to remove the ADA space.

8/26/2019
Associate Engineer Phillip Peterson received a phone call from a resident of Hayward Street that did not want their name published. I do not have a need for ADA parking, however I support people that need the ADA parking. Conversely, I think we need more parking resources because we are so close to dealer.com. I guess I'm not sure what the best thing is.

8/27/2019
Associate Engineer Phillip Peterson received a phone call from Bobby Ibarra, a resident of Hayward Street. Please remove the ADA space.

City of Burlington
Department of Public Works

Technical Services Engineering Division
645 Pine Street, Suite A
Burlington, VT 05402
P 802-863-9094 / F 802-863-0466 / TTY 802-863-0450
www.burlingtonvt.gov/DPW

Memo

Date: September 10, 2019

To: Public Works Commission

From: Phillip Peterson, Associate Public Works Engineer PMP 9/12/19

CC: Susan Molzon P.E., Senior Public Works Engineer

Subject: Proposed Accessible (ADA) Parking Space on South Union Street

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Recommendations to the DPW Commission:
7A Accessible spaces designated.
No person shall park any vehicle at any time in the following locations, except automobiles displaying special handicapped license plates issued pursuant to 18 V.S.A. § 1325, or any amendment or renumbering thereof:

- In the first space south of College Street on the west side of South Union Street.

Purpose & Need:
The purpose is to provide accessible parking on street as recommended by the Public Rights-of-Way Accessibility Guidelines (PROWAG). The need for accessible parking in this location will be close to the Congregational Church, several homes, and businesses which would benefit the disabled community in this area.

Project Checklist:

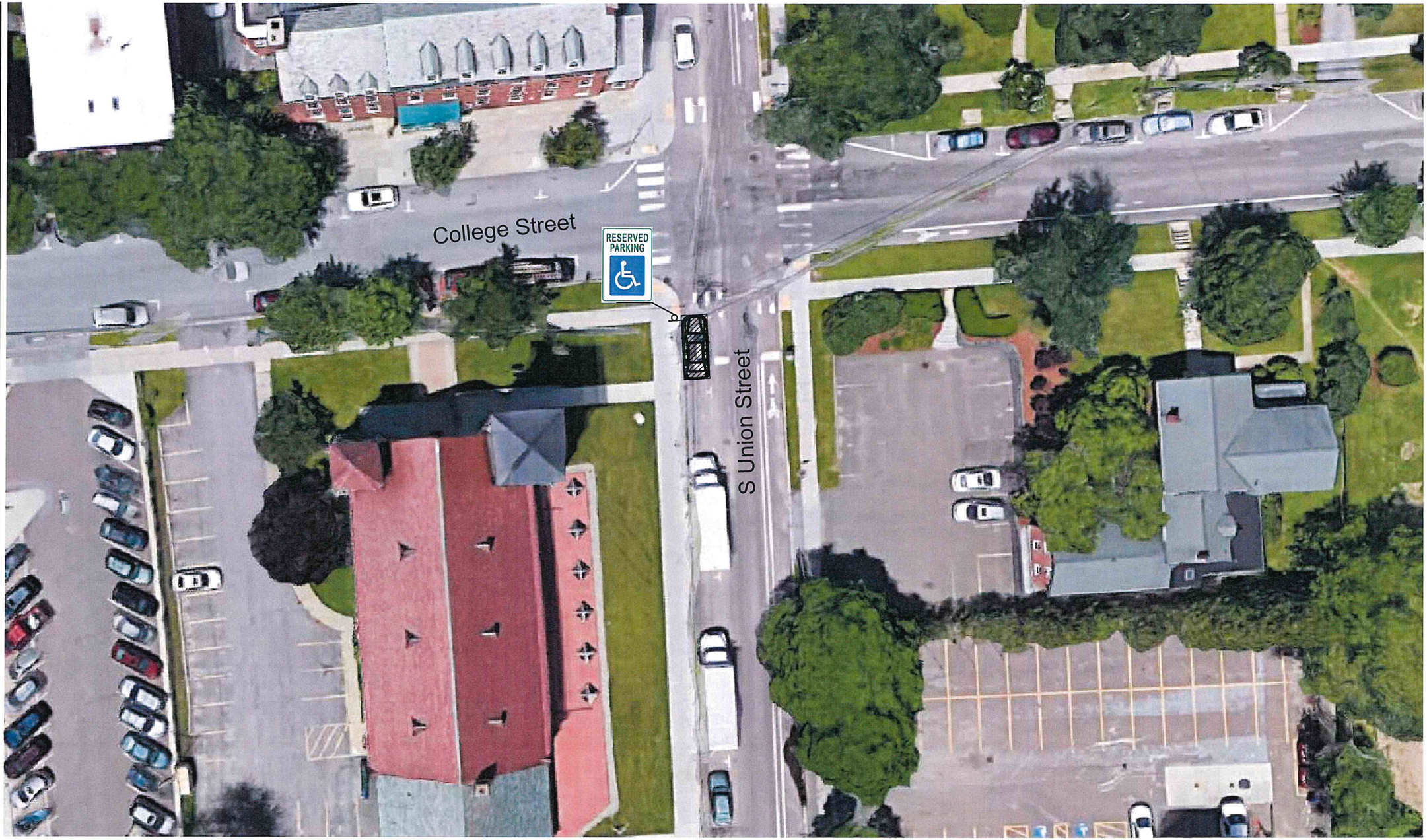
	N/A	Yes	No	Reference
Aligns with MUTCD standards and/or established City Policy?		X		PROWAG
Aligns with City plans?	X			
Followed Public Engagement Plan?		X		These Traffic Regulation changes are defined as an INVOLVE project in the Public Engagement Plan (PEP).

Summary and Conclusion:
Staff received a request from a member of the Congregational Church asking Staff to create an Accessible (ADA) space on the corner of South Union Street and College Street (see Attachment-1). The proposed accessible space will be close to several homes; having an accessible space would benefit the disabled community in this area. Although there is an ADA space along South Union Street which is close to the Congregational Church, there are several members of the Church which have accessibility needs. Additionally, the new YMCA, local daycare, and other businesses have added accessibility needs which cause a need for this proposed ADA parking space.

Public Engagement:
In preparation for the 09/18/19 DPW Commission Meeting, Staff placed flyers at each property along the block adjacent to the proposed ADA parking space. Staff received three (3) emails in regards to this matter (see Attachement-2). Two (2) emails support the Staff recommendation the other email supports ADA spaces, however they have additional concerns about parking resources in the area.

Attachments:

1. Site map.
2. Public correspondence.



30' 0 30' 60'

SCALE: 1" = 30'

North

PROPOSED ACCESSIBLE PARKING ON SOUTH UNION STREET

BURLINGTON, VT PUBLIC WORKS

BURLINGTON PUBLIC WORKS ENGINEERING DIV.

645 PINE STREET
BURLINGTON, VT 05401
(802) 863-9094
(802) 863-0466 (Fax)

DESIGNED PMP	
DRWN PMP	SCALE 1"=30'
CHECKED SM	DRAWING NO.
DATE 09/10/2019	SHEET 1 OF 1

Attachment 2

Public input correspondence emails

Thu 8/8/2019

Phil,
Let me formally request a new handicapped parking space on S. Union St at the SW corner of the intersection of So. Union and College.and a sight line review of egress from our parking lot on College St..
Andrea Rogers, College Street Church Trustee

Tue 8/27/2019

Hi Phillip,
We have no issues with placement of ADA parking on the corner by the church! Thanks for the info.

Vicky McCafferty
Creative Manager
GREATER BURLINGTON YMCA

Wed 8/28/2019

Hello Phillip

I am on the opposite corner of college and union from the proposed ADA space. While I do not object to this in principal my business depends on available parking nearby. My thought is that while you are eliminating one more space from public parking maybe you could also eliminate the massive truck zone along the side of the vacant memorial auditorium. that would open up at least three more spaces.

I hope you will give some consideration to this idea, Too many spaces have been lost recently

Jeff Towsley

September 13, 2019

TO: Public Works Commission

FROM: Nicole Losch, PTP, Senior Planner

CC: Elizabeth Gohringer, Associate Planner
Kim Furtado, Planning Intern

RE: Ethan Allen Parkway No Parking

Recommendations

Staff recommends that the Commission adopt:

Appendix C, 7 No-parking areas.
No person shall park any vehicle at any time in the following locations:

On the west side of Ethan Allen Parkway from North Avenue to Farrington Avenue.

Purpose & Need

The purpose of this parking restriction is to ensure safe parking and travel for all modes on Ethan Allen Parkway. The need is to implement planBTV Walk Bike recommendations for bikeway improvements on Ethan Allen Parkway and establish "No Parking" in Appendix C, as is reflected in Article 20-55(a)(6) General Prohibitions.

Introduction

planBTV Walk Bike recognizes Ethan Allen Parkway as an important corridor for people walking and biking. It provides direct access to nearly one-third of the New North End's neighborhoods, CP Smith Elementary School, Ethan Allen Park, and the Route 127 shared use path. planBTV Walk Bike's 5-year Action Plan recommends a northbound bike lane and southbound shared lane on Ethan Allen Parkway. The roadway width varies from 29' to 31' with on-street parking allowed near CP Smith and north of James Avenue. Parking is not restricted south of Farrington Avenue but is not well-utilized since the roadway is effectively too narrow

to park without encroaching on the greenbelt and adjacent travel lane. Curb begins north of Farrington Avenue and the CP Smith School Zone is between Farrington Avenue and James Avenue.

Public Engagement

This project falls under "Involve" on the Spectrum of Engagement. A neighborhood meeting was held on September 12th.

On September 4th,

- Letters were mailed to residents and property owners along Ethan Allen Parkway explaining the proposed changes and soliciting feedback;
- A Front Porch Forum post was sent to the neighborhood and Councilors were notified, and
- Councilor Dieng distributed letters and flyers to the neighborhood after September 7th.

1. Who is positively impacted?

People bicycling on Ethan Allen Parkway would have expanded facilities. People driving or bicycling past parked cars encroaching on the roadway would no longer have that experience. People driving northbound would no longer share the roadway with people bicycling in this section. Neighbors seeking moderate travel speeds should see a calming effect with additional lane markings.

2. Who may be negatively impacted and for how long?

Residents and guests in the project area who currently park on-street or on the greenbelt will be explicitly prohibited from parking on this section of Ethan Allen Parkway. This would be a permanent impact. On-street parking options will remain for these residents and guests on side streets (Lopes Ave, Sandy Ln, and Farrington Pkwy).

3. What are the main concerns, issues, and interests of the community?

At the community meeting and in emails beforehand, people are concerned that the bike lane is only in one direction; the bike lane doesn't continue to the Route 127 path; a protected lane or path would be more helpful for CP Smith Students; and the engagement window was too short to be effective.

4. Will any individuals, institutions, or groups be disproportionally impacted?

Guests of residents between North Avenue and Farrington Avenue currently using on-street parking will be most impacted. Drivers who are uncomfortable with bicyclists on the roadway will feel impacted.

5. Was the project recommended in earlier planning studies which included public engagement? Is additional public input needed or required?

This project was recommended in planBTV WalkBike, which included public engagement. Additional direct outreach was required to advance the parking changes as per the DPW Public Engagement Plan.

6. Are there any linguistic or cultural barriers to engaging with impacted residents?

There are no known linguistic or cultural barriers within the project area.

Observations, Considerations, and Alternatives

This project is currently being considered as a component of the recent Ethan Allen Parkway repaving. A community meeting was held to gain consensus on any pavement markings this fall or "do nothing" and potentially continue neighborhood conversations for a 2020 project. At the community meeting, 4 options were presented:

1. Provide a northbound bike lane from North Avenue to James Avenue, to be marked this fall.
2. Provide a northbound bike lane from North Avenue to Farrington Avenue, to be marked this fall.
3. Provide a northbound bike lane from North Avenue to the end of Ethan Allen Parkway, to be considered next spring after additional community engagement.
4. Do nothing and return the pavement markings that existed prior to paving.

When presented with a choice between Options 1 and 2 above, there was strong consensus to begin this project with Option 2 and avoid conflicts with school parking and a narrow roadway. We did not hear any concerns from residents living between North Avenue and Farrington Avenue. This allows time for DPW and the Burlington School District to work more directly to relocate the pick-up / drop-off school parking from Ethan Allen Parkway. For Option 1, all roadway features would be at their minimums: 7' parking, 10' travel lanes, and 4' bike lane.

When presented with all options, the greatest number of people at the meeting selected Option 4, "Do Nothing." This option received 10 straw-poll votes, while Option 2 received 9 votes. Outside of the meeting itself, we received emails and phone calls from 9 people who expressed support for the addition of bike lanes and 2 people who expressed opposition to any changes. Public comments received by email and phone are attached (multiple emails from any person were not counted multiple times).

In addition to the bikeway options, two alternatives were presented for the traffic calming features on Ethan Allen Parkway. Speed bump rumble strips and mountable medians were located within the school zone of CP Smith School. There was nearly unanimous agreement to replace the speed bumps with larger, more tapered speed humps. These treatments do not require Commission approval, but are provided here for context.

Conclusions

By implementing a northbound bike lane on Ethan Allen Parkway from North Avenue to Farrington Avenue, Burlington will be one step closer to meeting the goals outlined in planBTV WalkBike. Providing safer and more easily accessible bicycle infrastructure around the city has numerous positive impacts for both the wellbeing of residents and the City as a whole.

DPW values the voices of all residents who share the road, and is committed to creating an equitable, balanced transportation network. We strive to include all of these voices, especially residents, business owners, and property owners that are impacted by infrastructure changes, in our proposals.

Attachments

1. Public Feedback Log
2. Mailing Sent to Ethan Allen Parkway residents and property owners 9/4/19

Attachment 1: Public Feedback Log

Date	Message
9/6/2019	Good Morning. My wife and I have lived in the We have seen many changes over the years to Ethan Allen Parkway. The addition of a Bike Lane is a great idea. But it should only go as far as Farrington. CP Smith School does not have a drive through drop off point for parents dropping off children for school. The drop off and pick up periods puts a row of cars parked in front of the school. Their is not enough room for a car to pass without going into the other lane. The addition of a bike lane to James Avenue will only further restrict the flow of traffic. It creates an unsafe condition for both the driver and the children. Please reconsider ending the bike lane at Farrington. Residence living in the own travel trailers and boats mounted on trailers. When the Speed Humps were installed in front of CP Smith School (many years ago), the weight on the hitch from our travel trailer would actually cause the hitch to slide through the speed hump. The speed humps did not last long due to this fact. I would hope that you have considered the wear and tear on the small speed bumps caused by the trailer hitches. I did find it very odd that the proposal for the Ethan Allen Parkway bike lane has already been listed on the DPW website as out for design. One might think that you would ask the residences for their input first. It certainly looks like DPW has already made up their mind for the bike lane and input from the residences is just another task to be completed.
9/6/2019	I am writing to lend my support to voice my support for the opportunity to implement some bikeway improvements, bring Ethan Allen Parkway's traffic calming up to current standards, as well as implement improvement for pedestrians in coordination with repaving in 2019. Specifically I am interested in: 1. Replacing the small speed bumps with speed humps 2. Removing the raised centerline medians and, instead, narrow the road with a northbound bike lane from North Avenue to James Avenue 3. Adding shared lane markings from James Avenue to the Route 127 path entrance 4. The new crosswalk being added across Ethan Allen Parkway at Farrington Parkway 5. Curb ramps that are being updated at several intersections along Ethan Allen Parkway I live in , however my child attends Hunt middle school and when he bikes to school his route takes him through this area. His safety is paramount to me as is the safety of all children in Burlington. Additionally any measures we can take to encourage students to engage in active transportation will create happy healthy adults and citizens. Thank you for making sure that these improvements are made.

9/6/2019	Chapin, I just heard about a meeting being held at the Miller Center on 9/12 at 5 to apparently discuss road calming measures for Ethan Allen Parkway. My wife inadvertently saw it on Dieng's Facebook page. This is the first l have heard of it. Is this another typical under the radar meeting supposedly getting public input on what would be a controversial proposal? This means putting speed bumps, ect on Ethan Allen Parkway with minimum citizen involvement. As this literally involves over a thousand residents, you should insure each residence receives notification by leaflet. The time of the meeting, 5 o'clock is also unacceptable as most people are just leaving or driving home from work. Of course the goal may be to limit attendance. Whose meeting is this, and why isn't it at a convent time for people involved? What is the plan to better warn the meeting to get better attendance? A similar meeting held several years ago and warned by leaflet had over 100 people who opposed these same proposed measures.
9/9/2019	I am unable to attend during the Neighborhood Meeting this Thursday, but I wanted to provide my input on this project. As a resident of the neighborhood whose only in an out (by car) is EAP, I am in full support of the speed humps. I agree they keep the speed down on the roads they are installed on and that long, straight, and now very smooth section makes it easy to speed, even accidentally. I am also in full support of the bike lane on at least the Northbound side, ideally both lanes would have a bike lane, of EAP. As a daily bike commuter, that stretch is one of my more dangerous when cars are coming northbound and approaching home or heading southbound and just leaving home and maybe not paying their full attention (most accidents happen close to home?). I also feel very strongly that this bike path needs to continue clear to James Ave so the narrower section of road along the property line that is CP Smith has adequate biker protection. This section is usually congested with parking and busier than the other parts of EAP. There are so many kids and parents riding to CP Smith, I think its important to encourage that form of transportation and to provide it safely in both directions, if possible. Thank you for considering my input. I hope Thursday goes well for all.
9/10/2019	I want to register a vote of support for the proposed northbound bike lane to be added to Ethan Allen Parkway between North Ave and Farrington Parkway. This will be safer for kids riding to elementary/middle schools in the area as well as those of us seeking to bike to the bike path along the beltline to get over to the Intervale area, etc. Thanks for all you do to make our city easier to traverse by bike and foot as well as by car.

9/10/2019	With an already narrow road on EAP, the addition of unnecessary lanes to cater to a minimal number of bicyclists is unthinkable. DPW has made a complete mess of most roads in Burlington, not to the benefit of cars, but to bikes (what few there are), who continue to disobey the rules of the road and obstruct the flow of traffic with their unpredictable and unsteady moves. And with no enforcement on bikes, it will only continue to worsen.Your token memo states clearly what DPW is going to do, and from experience we know that DPW will do nothing to include the range of voices and perspectives of the people that have to navigate EAP every day. We've been thru this before in the NNE. You need to be transparent - it's a done deal, and the taxpayers know it, which is why this token memo is laughable. Hopefully we won't have the streets further narrowed and obstructed by the concrete anchor planters that have appeared in very inopportune locations in the city, making safe navigation impossible for everyone, especially delivery trucks.Why doesn't DPW just flat out say they don't want cars in the city? This is just another way to drive more taxpayers out of the city, and some out of VT. Have you noticed the amount of new real estate listings in the NNE? With the traffic mess DPW has created city-wide, along with soaring taxes, and a big hole in the ground, many folks are tired of the messes in Burlington, and are leaving
9/10/2019	Sorry I can't make the 9/18/19 meeting to discuss road changes etc. My thoughts on the subject are as follows: 1) If you add a bike lane headed north what are the bikers to do when they return south? If they are to use the same lane they they will be facing traffic vs going with it. Adding another lane south doesn't make sense because the road is not wide enough. 2) I have seen very few adults bike from the North End on this road. The majority of bikers are children headed to and from school and they are using the sidewalk which is a lot safer route. It therefore makes little sense to add any bike lane period. As far as speed is concerned, the police dept. should spend time monitoring motorists especially during off peak traffic time. Don't see the need for speed humps unless they are just before the school. What affect do they have on plowing in the winter and impact on emergency vehicles? I also have a great concern on how the mayor and city are spending so much money on projects such as the downtown park redo, curbs which extend into the road creating driving hazards, and beautification projects rather then on more serious matters such as fixing up Memorial Auditorium and tearing down the Moran Plant. If the city continues to reduce parking spaces in favor of so called bike safety then where are residents as well as visitors going to park. In my opinion we are setting the wrong priorities and the elderly are getting very little consideration. Thanks for listening to me.

9/11/2019	I want you to know, I initially thought it was Councilor Dieng who was responsible for pushing the new traffic plan for Ethan Allen Parkway. I apologized to him personally after he told me the DPW plan was already in place, and that he was only trying to get DPW to schedule a meeting in order to make residents aware of the plan. He also did your job by delivering letters to residents last weekend warning the meeting. I don't know how many letters he was able to deliver. Your email to me confirms my belief that DPW implements street changes with little or no effort to get input from the people affected by supposed Street upgrades. Your letter stated: "we are trying to fit this meeting in case we can coordinate any changes with the recent repaving project" implies the plan is already a "done deal", and this meeting is farce, and is only being held to placate the few residents who heard about your plan. DPW had over 2 years, while infrastructure upgrades were being done, to inform residents about your proposals via the North Avenue News. You chose not to. The reality is that residents should have been heavily involved before the plan was ever developed. If DPW actually was "striving to include a wide range of voices and perspectives in all your decisions" you would have also scheduled this meeting at a time convenient for people, and have more than one. Having a 5 o'clock meeting, during drive and dinner hour guarantees limited attendance. Your accelerated schedule, public meeting on 9/12 and going to the Public Works Commission Meeting on 9/18, is designed to limit discussion and dissent. To be blunt, I have no confidence in the supposed public process DPW uses, and if any potential feedback will be used to update the planned changes to Ethan Allen Parkway. Your use of "responding to neighborhood interests" is a farce. If that were true you would recognize that this subject was debated in a open public meeting held to discuss traffic concerns with Ethan Allen Parkway when Steve Goodkind was DPW Director. The meeting was leafleted to the whole neighborhood using this street. It was well attended, with over 100 residents of our neighborhood attending to discuss traffic concerns and calming proposals. The DPW proposals were rejected by almost everyone in attendance. Your inability to tell me how many people actually requested these changes says it all. By the way, your letter also implies you are only replacing existing speed bumps with speed humps and removal of a raised center line in order to add a bike lane from North Avenue to Farrington is confusing. I have lived in this area for over 40 years and there has never been any traffic calming on this section of Ethan Allen Parkway. Your plan to remove on street parking in order to install an upgraded Northbound bike lane will create a greater safety issue for people using the sidewalk, especially in the winter. This section of Ethan Allen Parkway has no curbing and a very narrow green belt. In fact, the few cars that occasionally park on the street, are partially on the green belt. Your plan forces traffic very close to the sidewalk which is used by school age kids going to CP Smith. The kids using bikes to go to CP Smith, will still use the sidewalk in the Fall and Spring. Councilor Dieng told me he thought installing a radar speed signal would be a cheaper and more successful alternative in making motorists aware of their speed, rather than speed humps. I'm sure your plans don't reflect any input of the real stakeholders, the people who use this road everyday to come and go to work. Last week I made a suggestion to upgrade the existing crosswalk, from the Park to sidewalk near Walgreens, with a pedestrian signal and was told by Chapin that a sign was already there to identify the crosswalk. My suggestion wasn't because of traffic speed, but because the crosswalk was used a lot, especially during the school year. Trees, poles and slope of sidewalk from park make it hard to see people accessing the crosswalk and the flashing crosswalk light will highlight the crosswalk is in use.

9/11/2019	I would like to express my support for adding a northbound bike lane betweenNorth Ave and Farrington Ave along Ethan Allen Parkway. This is a criticalconnection in Burlington's bike network, as outlined in Plan BTV Walk Bike. A bikelane would make travel along this corridor safer for all road users.Thank you for your consideration.
9/11/2019	I am writing in response to the letter that was hand delivered to my home on Lopes Avenue. Here is my response to the "calming of traffic on Ethan Allen Parkway." I have a conflict tomorrow and cannot be present at the meeting at the Miller Center Art Room. First of all, it is wonderful having a pot-hole free road after two years! You could not travel over 15 miles an hour on this road for fear of getting a flat tire because of the holes in the road. It is a pleasure to drive on now. I can't believe you are considering putting speed bumps on it! I would strongly suggest that before you go to the extreme and expense of installing speed bumps which will punish all of us that live in this area, both speeders and non-speeders, that you consider increased police presence to ticket speeders!! I do not agree that speed bumps are the solution!!
9/11/2019	I saw that there is a meeting tomorrow regarding Ethan Allen Parkway. Unfortunately, I won't be able to attend the meeting because of other commitments but I wanted to weigh in about the proposed changes. Our oldest goes to CP Smith School and because of that, we use Ethan Allen Parkway frequently. I think the new crosswalk that is being added across Ethan Allen Parkway at Farrington Parkway is a great idea! There are several students who will use it to walk to school and it will make it easier for the students to cross the street to enter the woods for school purposes. I was also glad to see that parking will still be allowed in front of CP Smith since this is where parents can park to pick up and drop off their children, as well as park for school events. However, I am a bit concerned that the road is going to be narrowed, especially if this is to occur in front of CP Smith (which is unclear from the plans). As it is, when you go to exit your car you have to be very careful that a car heading towards North Ave will not hit your door or even yourself! This can also be a bit harrowing when you are trying to get a child out of the car. If the road is narrowed, I worry that this will make exiting the car even more dangerous. Please let me know if you have any questions.
9/11/2019	Voicemail: Received letter flyer. Was mailing intended to only be on EAPkwy or the neighborhood? If neighborhood can weigh in, would like to express support for the proposed improvements. Avid bike rider, drives on Ethan Allen daily and would like to see these improvements.

9/12/2019	Due to numerous prior commitments, no one in my household is able to attend tonight's neighborhood meeting at the Miller Center to discuss adding a bike lane along Ethan Allen Parkway. I wish we could attend in person as this issue is very important to us. Please feel free to share my comments at tonight's meeting. For those of us that travel Ethan Allen Parkway frequently by car, bike or on foot, there is an opportunity to create a safe biking route along the Parkway. Ethan Allen Parkway is a heavily travelled route by kids on bike and on foot. In my opinion, the current situation in which bikers use the sidewalk alongside pedestrians because biking on the road is unsafe, needs to change. The city of Burlington provides limited busing and promotes biking to school, yet there is no designated bike line on a main corridor leading to C.P. Smith Elementary School. The sidewalk along Ethan Allen Parkway is congested with bikers and walkers twice a day during the school year. This route is also used by middle schoolers, kids playing sports at the fields behind C.P. Smith and other various activities. The sidewalk crosses past businesses, many driveways, and intersections. I have personally observed many a near miss as drivers are exiting and entering at these locations. As a mother of two elementary school aged children, this terrifies me. Something needs to change. I reviewed the City of Burlington's proposal to add a bike lane along the north bound side of Ethan Allen Parkway. While I believe that there are better long term solutions for a bike lane along Ethan Allen Parkway, this is a start with the potential for impact in the very near future. I would request that the City look to places like Montreal and U.S. cities with strong biking cultures for inspiration. I have loved biking in Montreal and found it to be very safe as many of their bike lines are divided not just with lines painted on the roadways, but with actual physical barriers and markers. Something along these lines would be ideal to create a truly safe biking and driving corridor. I am concerned that narrowing the driving lanes further and simply painting a dividing line on the north bound side is not a good long term solution. ON the northbound side, there is a drop off into a gully very close to the edge of asphalt. The southbound lane has manhole covers and some other features in the roadway that most drivers swerve to avoid – sending them over to the northbound lane and cars travelling north over into what you are proposing be the biking lane. The addition of speed humps is a great suggestion and will keep cars from making these quick adjustments at higher raters of speed, but cars travelling at 15-20 mph can still kill a person. I would suggest the city look at absorbing some of the Ethan Allen Park real estate along the northbound side for a long term solution. Bikers could travel along the existing pathway that passes by the park. Continue the path along the northbound lane instead of directing pedestrians to the crosswalk on Ethan Allen Parkway near Walgreen's back entrance (a crosswalk where NO ONE stops. Ever. Personally almost been hit there a couple of times.). A physically protected bike lane could run on the other side of the utility poles all the way to the last intersection near the southern edge of C.P. Smith's property where there is always a crossing guard stationed. I understand that this would be a large project, but it would make an enormous difference and could add to the city's biking trails. It could tie in beautifully to the Burlington biking paths and paths throughout Ethan Allen Park. This is very important to our neighborhood and everyone's safety. I am glad to see that this is finally getting some attention as it is long overdue. I will continue to push for a better long-term solution, but thank you for your work thus far.

9/13/2019	I apologize for missing the meeting re Ethan Allen Parkway last night, but would like express my interest in adding a northbound bike lane (on the park side) per our BTV Walk-Bike Master Plan. While I live in , my children and I bicycle along Ethan Allen Parkway frequently to visit friends or as part of our "Tour de Playgrounds" ride around the City. I know implementing a plan vision can be hard, especially if you're not hearing from those who really support it, so I want to express my extreme desire to see this plan implemented at every opportunity. Between our current climate emergency and how quickly I'm watching my children grow up in this City, I feel the urgency to act now. I don't want to have to wait until my kids are in college before the roads are safe for us. Thanks for reading my comments. I appreciate all you're doing for our City! There has been a lot of great projects and responsiveness to our City this summer and I am proud to call it home!
9/13/2019	I was not able to make the 5 p.m. meeting yesterday at the Miller Center due to work schedule; however, I would like to submit my feedback. I live on off of Ethan Allen . I very much am in favor of the proposed changes as outlined (i.e., speed hums, narrowed road with bike way lane, etc.). At least on the southern-most section of EA Parkway (James Ave to North Ave.) marking no parking on the sidewalk side should not be a problem at all, as people rarely if ever park there (and when they do, it is only temporarily). I am not sure this is the case farther down the road closer to the bike-lane access along Rte. 127. The only thing I would add ideally, if possible, would be curbs along the sidewalk side. between Farrington and North Avenue. Gratitude for these improvements!

Attachment 2: Mailing Sent to Ethan Allen Parkway residents and property owers 9/4/19

City of Burlington
Department of Public Works

Technical Services Engineering Division
645 Pine Street, Suite A
Burlington, VT 05402
P 802-863-9094 / F 802-863-0466 / TTY 802-863-0450
www.burlingtonvt.gov/DPW

September 4, 2019

Dear Ethan Allen Parkway Residents, Business Owners, and Property Owners:

In April 2017, City Council approved planBTV Walk Bike, Burlington's first comprehensive plan to improve walking and biking in Burlington, with the goal of making streets and travel safer. Hundreds of interviews were conducted with Burlington residents as part of the plan. Ethan Allen Parkway was identified as an important corridor to help safely connect bike networks and pedestrian infrastructure for residents, students, families, and commuters.

In coordination with repaving in 2019, several improvements are underway for pedestrians:

- A new crosswalk is being added across Ethan Allen Parkway at Farrington Parkway
- Curb ramps are being updated at several intersections along Ethan Allen Parkway

Repaving also presents an opportunity to implement some bikeway improvements and bring Ethan Allen Parkway's traffic calming up to current standards. In an effort to respond to neighborhood interests, we are proposing to expedite these improvements with final paving this construction season:

1. Replace the small speed bumps with speed humps
2. Remove the raised centerline medians and, instead, narrow the road with a northbound bike lane from North Avenue to James Avenue
3. Add shared lane markings from James Avenue to the Route 127 path entrance

What will these changes do?

1. The small speed bumps are very difficult to maintain and have failed in many other places around the city. Speed humps are replacing many of our older traffic calming devices, and traffic studies show they continue to keeps speeds below 25 miles per hour.
2. The raised centerline medians are intended to visually narrow the roadway and slow traffic. With the addition of the northbound bike lane, the road will be narrowed already.
3. In order to make room for the northbound bike lane, parking will be restricted on both sides of Ethan Allen Parkway from North Avenue to Farrington Avenue. No parking changes will be made near CP Smith School or north of James Avenue. These changes will not prevent any additional bikeway improvements that may be considered in the future.

We strive to include a wide range of voices and perspectives in all our decisions. We would like to hear from anyone who may be positively or negatively impacted by these changes. There are several ways to share your feedback:

- Please join us at a **Neighborhood Meeting on September 12th at 5:00pm in the Art Room at the Miller Community Center** (130 Gosse Court). For anyone unable to attend, feedback received by noon on the 12th can be shared with the neighborhood at the meeting.
    - The goal of this meeting will be to gain consensus on these proposed changes. If consensus can't be reached and additional time is needed, we will not attend the September Commission meeting and will continue to work with the neighborhood for potential changes that can be installed in spring 2020.

- If consensus is achieved at the neighborhood meeting on the 12th, we plan to attend the **September 18th Public Works Commission meeting** to make a recommendation and seek a decision related to parking between North Avenue and Farrington Parkway. The public will also have a chance to speak at that time. Public Works Commission meetings begin at 6:30pm and are held at the Department of Public Works, 645 Pine Street. Agendas are posted here in advance of the meetings: https://www.burlingtonvt.gov/DPW/Commission/Agendas.

- **Direct feedback can be shared anytime** with dpwplanning@burlingtonvt.gov or 863-9094 x3.

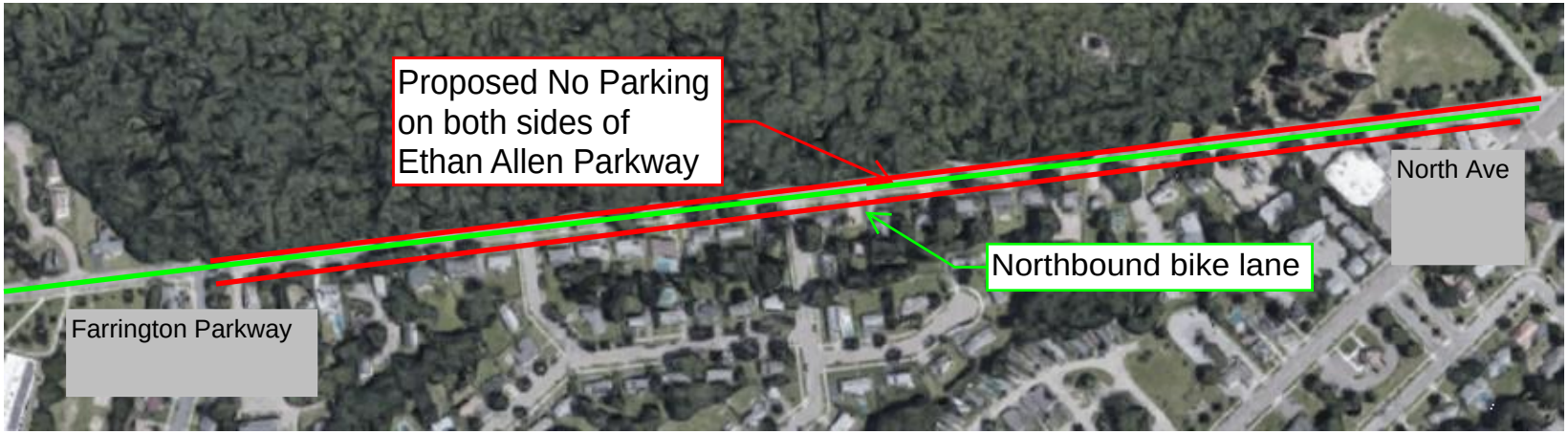
We look forward to hearing from you.

Sincerely,

The Public Works Planning Team: Nicole Losch, Elizabeth Gohringer, and Kim Furtado

dpwplanning@burlingtonvt.gov

863-9094 x3



Ethan Allen Parkway: North Ave to Farrington Parkway.

Ethan Allen Parkway: Farrington Parkway to end.

CITY OF BURLINGTON
DEPARTMENT OF PUBLIC WORKS

645 Pine Street, Suite A
Burlington, VT 05401
802.863.9094 VOICE
802.863.0466 FAX
802.863.0450 TTY
www.burlingtonvt.gov/dpw

To: DPW Commissioners

Fr: Chapin Spencer, Director

Re: **Northern Waterfront Parking Management**

September 13, 2019

In this month's packet, staff is requesting the Commission approve parking regulations for the northern waterfront that are consistent with Council-approved Development Agreement between the City and the Burlington Harbor Marina. At the July Commission meeting, there were a number of questions about the regulations, the timing of the request and DPW's role in the project. This memo seeks to answer these questions by providing additional context. I've also asked Assistant City Attorney Richard Haesler to attend the upcoming meeting to be a resource for the Commission if there are additional questions.

INITIAL LOT MANAGEMENT CONCEPT:
As the Burlington Harbor Marina (BHM) concept was being defined and negotiated between the City, largely CEDO, and the marina principals in 2014-2016, the intent at the time was to have the Northern Waterfront Lot managed by the City's Parks, Recreation and Waterfront Department. Parks manages a number of lots on the waterfront and the thought was to have them manage the Northern Waterfront Lot as well. As a result, the draft Development Agreement was brought to the City Council for their review and approval on 6/27/16 without prior engagement of the DPW Commission as there wasn't expected to be a regulatory parking role for DPW at that time. I did provide a Burlington Harbor Marina update along with BHM representative Jack Wallace at the 2/15/17 DPW Commission meeting given the proximity to our Water Plant and related infrastructure.

REASONS FOR DPW MANAGEMENT:
It was through my initiative, after the Development Agreement was approved by the City Council and then signed by the Mayor (10/27/17), that DPW sought management responsibilities for the Northern Waterfront Lot. While I hadn't fully recognized the benefits early in the project's development, I came to see three main reasons why I thought DPW would be the optimal manager of the lot:

- DPW already manages the adjacent parking resources (Lake Street, Lake Street extension, and the Water Plant lot) and it would allow for a coordinated management approach (rates, payment options, signage, enforcement, etc.).
- The permeable asphalt lot requires specific maintenance and in stormwater facility coordination with Parks, they are developing expertise for maintaining vegetative SW features and we are focusing on developing expertise for maintaining pervious hardscapes.
- The adjacent Water Plant is operated by DPW's Water Resources Division and its interests are implicated in lot usage as well.

DPW COMMISSION OPTIONS:
In my discussions with the City Attorney and the Parks Department, it is my understanding that the DPW Commission can either decide to adopt ordinances consistent with the Burlington Harbor Marina's Development Agreement and have DPW manage the lot, or it can decide not to have DPW manage the lot and the Parks Department will take over the lot's operation. While we have a great relationship with Parks and I am confident that they would do an excellent job, I still believe DPW is the optimal operator for the reasons bulleted above.

I hope this additional background is helpful. Please feel free to contact me with any questions prior to the Commission meeting

City of Burlington
Department of Public Works

Technical Services Engineering Division
645 Pine Street, Suite A
Burlington, VT 05402
P 802-863-9094 / F 802-863-0466 / TTY 802-863-0450
www.burlingtonvt.gov/DPW

Memo

Date: September 12, 2019

To: Public Works Commission

From: Phillip Peterson, Associate Public Works Engineer PWP 9/12/19
Susan Molzon, Senior Public Works Engineer

CC: Chapin Spencer, Director
Norman Baldwin, Assistant Director/City Engineer
Jeff Padgett, Interim Assistant Director - Parking & Traffic

Subject: Designation of City Managed Lot and Traffic Regulations

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Staff recommends the DPW Commission adopt:
See Attachment 1 for the corresponding site plan.

(18) Parking facility designations.

(a) Metered lot locations:

- The city-owned lot more commonly understood to be the Northern Waterfront Lot located north of Penny Lane.

(19) Parking rates.

(b) The rate of charge for parking in metered city lots shall be as follows:

- Northern Waterfront Lot: One dollar ($1.00) per hour with a maximum daily rate of eight dollars ($8.00) from May 1 through October 31 and forty cents ($0.40) per hour from November 1 through April 30 with the exception of spaces designated as Marina Parking. From October 16 to May 14, Marina employees shall have exclusive rights to park in any of the 4 parking spaces designated for use of the Marina, and located in the Northern Waterfront Lot, at no additional charge to the Marina. From May 15 to October 15, Marina guests shall have exclusive rights to park in any of the 23 parking spaces designated for use of the Marina, and located in the western section of the Northern Waterfront Lot (the "Marina Parking Spaces"), at no additional charge to the Marina. The general public shall be prohibited from parking in the Marina Parking Spaces from May 15 to October 15. In addition, 19 of the remaining 45 spaces in the Northern Waterfront Lot shall be reserved for exclusive use by the Marina on weekends and City Holidays during the

period from May 15 to October 15. A weekend period shall be deemed to commence at 6:00 pm on each Friday and terminate at 8:00 am on each following Monday morning. A holiday shall be deemed to commence at 6:00 pm the day before the holiday, and terminate at 8:00 am on the day following the holiday. In the event a holiday falls adjacent to a weekend the periods shall run sequentially as one period. The Burlington Harbor Marina will pay the City for the use of the Marina Weekend Spaces. The rate for the Marina Weekend Spaces shall be established by calculation of the number of weekend days and holidays applicable annually multiplied by the Burlington Department of Public Works Daily Parking rate as established for the applicable year multiplied by nineteen (19). The Daily Parking Rate shall not exceed the rate charges at the Perkins Pier Lot. Burlington Harbor Marina may elect to reduce its number of weekend/holiday spaces upon delivery of thirty (30) days' written notice to the City.

(23) Designation of fire lanes.

The following locations are hereby designated as fire lanes in which vehicles are prohibited from parking or obstructing:

- On either side of the section of the City-owned parcel commonly understood to be Penny Lane starting at its western terminus at the northwest corner of the Francis J O'Brien Water Treatment Facility and extending east to the intersection of Penny Lane and Lake Street.

Purpose & Need:

The purpose of this request is to provide parking management strategies for the newly developed waterfront area consistent with the executed Development Agreement and Parking Agreement between the City of Burlington and Burlington Harbor Marina, LLC, a Vermont limited liability company (see Attachment 2). The need is to provide adequate access for emergency response for the Fishing Pier, the Marina, and the water treatment facility and to ensure parking management is consistent with the Parking Agreement. These recommendations do not include traffic regulations for the plaza area located west of the Francis J O'Brien Water Treatment Facility because that area is within the leased land which will be managed by the Burlington Harbor Marina in accordance with the Development Agreement.

Project Checklist:

	N/A	Yes	No	Reference
Aligns with MUTCD standards and/or established City Policy?		X		National Fire Protection Association Codes, Vermont Public Trust Doctrine, City of Burlington Narrow Streets
Aligns with City plans?		X		Parking Agreement between the City of Burlington and Burlington Harbor Marina, LLC. Downtown Parking and Transportation Management Plan
Followed Public Engagement Plan?		X		These Traffic Regulation changes are defined as an INVOLVE project in the Public Engagement Plan (PEP).

Summary and Conclusion:

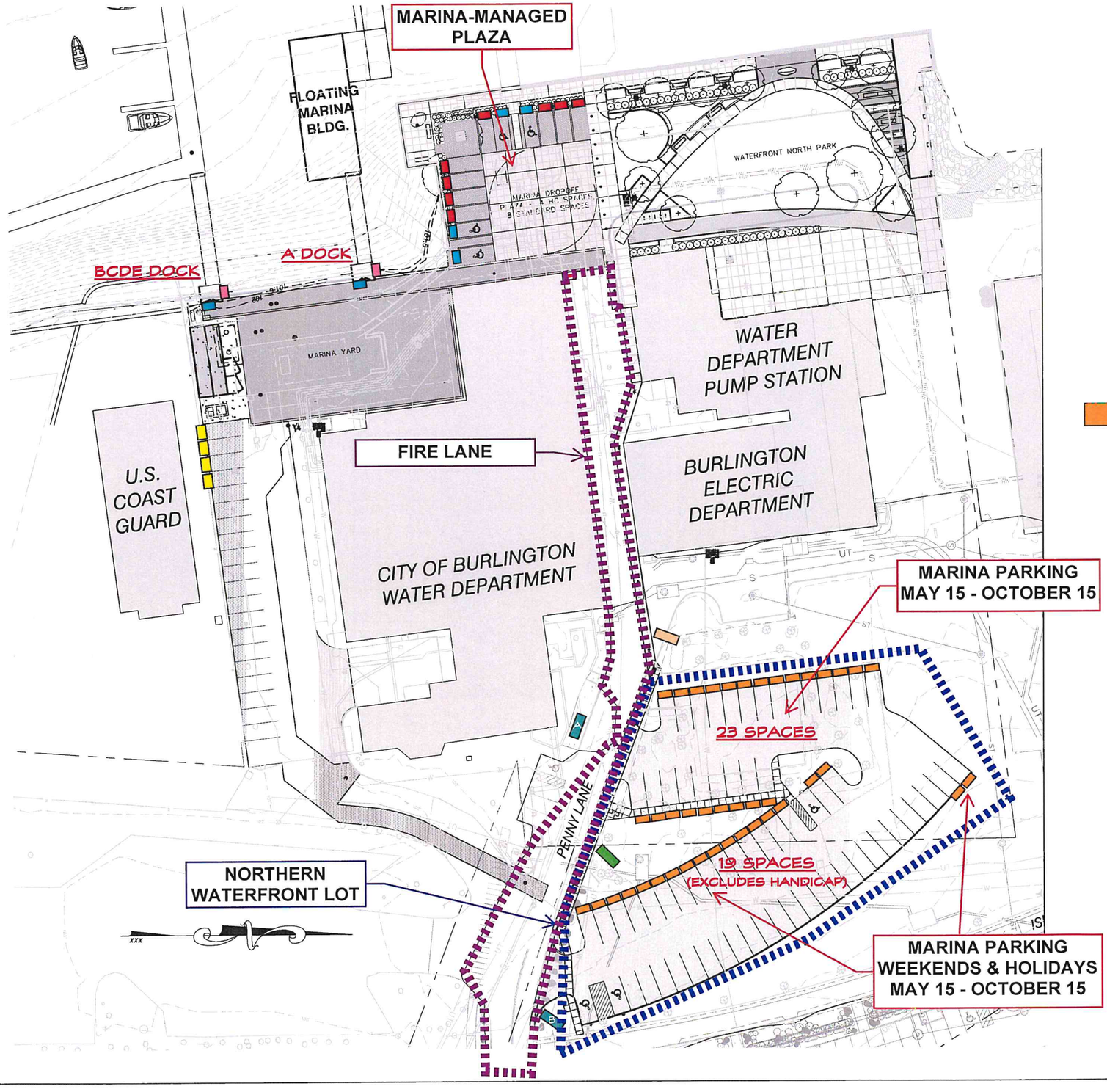
The new Northern Waterfront Lot is a City of Burlington municipal lot (see Attachment 1). The rate structure and installation of kiosks at the Northern Waterfront Lot meets the recommendations of the December 2015 Downtown Parking and Transportation Management Plan, which states "Build new parking capacity and/or new development along the waterfront..." Staff recommends the Commission approve the installation of parking kiosks to manage the lot. Staff recommends the Commission adopt the following rate structure for the Northern Waterfront Lot: $1.00 per hour with a maximum daily rate of eight dollars ($8.00) from May 1st – October 31st & $0.40 per hour from November 1st – April 30th; with the exception of 23 parking spaces designated for use by the Burlington Harbor Marina between May 15th to October 15th, this is in accordance with the Parking Agreement between the City of Burlington and the Burlington Harbor Marina, LLC.

Public Engagement:

The City of Burlington has conducted an extensive amount of public outreach in regards to the Waterfront Access North project which included the new public parking lot. Both the Waterfront Access North project and the Burlington Harbor Marina projects were approved by voters in March 2014 as part of the Public Investment Action Plan (PIAP) process. Specifically, the City of Burlington Community and Economic Development Office (CEDO) has managed public relations tasks associated with these projects. The overall determination by CEDO and the City Attorney is that the new Northern Waterfront Lot provides public access to the lake at a cost commensurate with City owned parking facilities, and under terms which meet the Public Trust Doctrine.

Attachments:

1. Site Plan.
2. Parking Agreement.
3. Development Agreement



SIGNS KEY

MARINA PARKING ONLY

APPROVED _____

DATE _____

notes

3678

BURLINGTON HARBOR MARINA

SIGNAGE SITE MAP

client
BURLINGTON HARBOR MARINA

scale
NTS

file name
SIGNAGE SITE MAP R5

date
05/22/19

drawing
JMHD

SPARKY POTTER DESIGN GROUP

WOOD & WOOD
DESIGN • SIGN SYSTEMS
DISPLAY SYSTEMS
CUSTOM MILLWORK
98 CARROLL ROAD
WAITSFIELD, VT 05673
802·496·3000
802·496·7916 FAX
info@woodandwoodsigns.com

Parking Agreement

This Parking Agreement is made by and between the **City of Burlington**, a Vermont municipal corporation ("City") and **Burlington Harbor Marina, LLC**, a Vermont limited liability company ("BHM") as of this 27th day of October, 2017.

WHEREAS, the parties have entered into a Development Agreement dated October 25, 2017 ("Development Agreement"); and

WHEREAS, the City has leased a parcel of land at the northern waterfront in Burlington, Vermont being a portion of a parcel used by the Burlington Water Department ("Marina Lot") to the Marina by Ground Lease dated October 25, 2017 (the "Lease"); and

WHEREAS, BHM has constructed the "Project" as defined in the Lease, including the "East Parking Lot", the "Public Park", the "Plaza", and the "Marina"; and

WHEREAS, BHM shall have access to parking spaces in the East Parking Lot, and employee parking and temporary and handicapped accessible parking spaces in the Plaza, all on the terms and conditions set forth herein.

NOW THEREFORE, the parties hereto agree as follows:

1. **General.**

The parties agree that the terms and conditions contained herein will govern the overall rights and responsibilities for use and maintenance of the East Parking Lot, the Public Park, the Plaza, and the employee parking spaces, all as shown on the plan attached hereto as Exhibit A (collectively, the "Parking Facilities"), and that it will be mutually beneficial to come to agreement on the day to day operations of their respective facilities. Therefore the parties agree to enter into an Operating Memorandum of Understanding, to be amended from time to time ("OMOU"), that will address those details and provide for periodic meetings to assess the ongoing operations of the Parking Facilities.

2. **Use of East Parking Lot.** The following provisions shall govern the use of the East Parking Lot:

A. During the period of May 15 to October 15, each year, Marina guests shall have the exclusive right to park vehicles in any of the 23 parking spaces designated for use of the Marina, and located in the western section of the East Parking Lot (the "Marina Parking Spaces"), at no additional charge to the Marina. The general public shall be prohibited from parking in the Marina Parking Spaces from May 15 to October 15 of each year. Designation of the Marina Parking Spaces via signage, or otherwise, shall be by agreement of the City and BHM and included in the OMOU.

In addition, 19 of the remaining 45 spaces in the East Parking Lot shall be restricted to exclusive use by the Marina on weekends and City Holidays during the period from May 15 through October 15 of each year ("Marina Weekend Spaces"). A weekend period shall be deemed to commence at 6:00 pm on each Friday and terminate at 8:00 am on each following Monday morning. A holiday shall be deemed to commence at 6:00 pm the day before the holiday, and terminate at 8:00 am on the day following the Holiday. In the event a Holiday falls adjacent to a weekend the periods shall run sequentially as one period. BHM will pay the City for the use of the Marina Weekend Spaces. The rate for the Marina Weekend Spaces shall be established by calculation of the number of weekend days and holidays applicable annually multiplied by the Burlington Department of Public Works Daily Parking rate as established for the applicable year multiplied by nineteen (19). The Daily parking Rate shall not exceed the rate charged at the Perkins Pier Lot. BHM may elect to reduce its number of weekend/holiday spaces upon delivery of thirty (30) days' written notice to the City. BHM agrees that it will implement a policy of prioritized use of the Marina Parking Spaces plus the Marina Weekend Spaces. Methodology for assuring such prioritized use shall be addressed in the OMOU. The remaining 45 parking spaces in the East Parking Lot (26 on weekends and holidays) will be managed by the City for short-term parking and made available to the public on a first-come first-served basis and in a manner designed to maximize parking efficiencies, working with other Waterfront stakeholders at rates commensurate with nearby hourly and daily public parking rates. The City shall provide BHM with four designated parking spaces in the East Parking Lot for use by BHM during periods between October 16 and May 14 each year, when the "Employee Parking Spaces" (as defined below) are used for the storage of snow.

B. Notwithstanding the City's obligations under 2(A) above, the City may, in its discretion, (i) allocate up to 10 parking spaces in the East Parking Lot for the exclusive use of another project; and (ii) allocate up to 24 additional parking spaces in the East Parking Lot during the period of October 16 to May 14, each year, for the exclusive us of another project ("Designated Use Spaces"). Such designation shall be subject to the same shared usage goals and objectives described above, namely, to maximize parking efficiencies for all Waterfront stakeholders.

C. BHM shall manage and control the use of the Marina Parking Spaces and the Marina Weekend Spaces during the time periods dedicated to BHM. The balance of the parking spaces shall be managed and controlled by the City, all in accordance with the OMOU.

3. **The Plaza.** The following provisions shall govern the use of the Plaza:

A. The parking spaces at the Plaza shall be designated as either short term public access spaces or handicapped accessible spaces, 24 hours per day, 7 days per week, except during events hosted by the Marina and open to the public, in

which case, there shall be no public access to parking spaces in the Plaza. It is understood by the parties that Marina guests, who are not handicapped, will use the Plaza only for dropping off passengers and gear, and that such use shall be at no additional charge to the Marina.

4. **Employee Parking.**

The Marina employees shall have exclusive access to 4 designated spaces located in the parking area located on the Marina Lot, adjacent to the Burlington Water Department Building ("Employee Parking Spaces"), at no additional charge to the Marina. The Marina shall cooperate with the Water Department in order to allow for deliveries to the Water Department, in accordance with the OMOU. In addition, BHM acknowledges that the Employee Parking Spaces may be relocated to the East Parking Lot in winter months, when needed by the City for snow storage.

5. **Hours and Dates of Operations.**

The Marina Parking Spaces shall be open and available to Marina guests 24 hours per day, 7 days per week from May 15th through October 15th. The Public Parking Spaces (all parking spaces in the East Parking Lot not designated as Marina Parking Spaces, Marina Weekend Spaces, or Designated Use Spaces) shall be open and available to the public daily from May 15th through October 15th on a schedule to be set annually on or before April 1 for each upcoming year by the Marina and the Burlington Department of Public Works.

6. **Signs.**

City shall permit BHM to erect signs, on City property within reasonable proximity of Marina Lot, directing clients and the public, to the Marina Lot and the East Parking Lot and Plaza, subject to all Permits and Approvals.

BHM shall, at its expense, obtain any and all Permits and Approvals before erecting such sign.

All signage (including but not limited to signage on the dock and wave attenuator directing boat traffic and boaters) shall be constructed, erected and/or installed solely at BHM's expense and shall comply in all respects with all applicable Federal, State and municipal permits regulating the appearance and placement of such signs.

7. **Street and East Parking Lot Lighting.**

The City shall be responsible for all costs and expenses related to utility metering and maintenance of lighting of the East Parking Lot and shall be reimbursed by the Marina for its pro rata share of the cost incurred for such lighting during the period from May 15th to October 15th each year.

The Marina shall be responsible for all costs and expenses related to utility metering and maintenance of lighting of the Plaza and the Employee Parking Spaces.

8. **Staffing, Security, and Revenue Management.**

The City shall be responsible for staffing, security, parking enforcement and revenue management of the all parking spaces in the East Parking Lot other than the Marina Parking Spaces and the Marina Weekend Spaces. The Marina shall be responsible for staffing and security, management and parking enforcement of the Marina Parking Spaces, Marina Weekend Spaces, Plaza and the Employee Parking Spaces.

9. **Cleaning.**

The East Parking Lot, Employee Parking Spaces, including all parking areas and sidewalks, shall be maintained by the City in clean and in presentable condition at all times at a standard at least equal to then applicable City parking lot standards.

The Plaza, including all parking areas and sidewalks, shall be maintained by the Marina in clean and in presentable condition at all times at a standard at least equal to then applicable City parking lot maintenance standards.

10. **Trash Removal.**

Rubbish from trash receptacles which service the East Parking Lot shall be removed by the City, at a frequency consistent with City policy for parking lots.

Rubbish from trash receptacles which service the Plaza shall be removed by the Marina as the party responsible for the maintenance of the Plaza.

11. **Snow Removal.**

Snow and ice shall be promptly removed from the East Parking Lot by the City consistent with City parking lot use policy and City snow removal policy in accordance with the OMOU. Snow and ice shall be promptly removed by the Marina from all portions of the Plaza, and the Employee Parking Spaces, including all entrances, driveways, parking areas and sidewalks to ensure accessibility in accordance with the OMOU.

12. **Repair and Maintenance.**

A. The City shall be responsible for the repair and maintenance of the East Parking Lot at its sole cost and expense, consistent with then applicable City parking lot maintenance policy, and subject to partial reimbursement by the Marina in accordance with the OMOU.

B. The Marina shall be responsible for the repair and maintenance of the Plaza and the Employee Parking Spaces, at its sole cost and expense, consistent with then applicable City parking lot maintenance policy and the OMOU

C. The paving, revenue control equipment, painting, lighting, plumbing, utility lines (sewer, water, electric), curbs, gutters and all other improvements required during the operation of the East Parking Lot and the Plaza shall be of a quality at least equal to then applicable City parking lot maintenance policy.

D. The City shall advise the Marina of any planned renovation or improvements to the East Parking Lot that would affect Marina guests or employees access to the Marina. The City shall make reasonable efforts to limit the impact of any renovation or improvement on the number of Marina Spaces or Marina Weekend Spaces, the Plaza or the Employee Parking Spaces.

13. **Access During City Waterfront Events.** A schedule of events shall be provided and approved in accordance with the OMOU.

14. **Dispute Resolution.**

A. Should a dispute arise between the parties as to the meaning or intent of any provision of this Agreement, or as to an obligation of a party hereunder, the parties to the dispute will first attempt to resolve such dispute by mutual negotiations and, if the dispute persists, the utilization of any experienced independent mediator. Should the dispute continue notwithstanding the efforts of the mediation process, the parties to the dispute agree to submit the dispute to final binding arbitration.

B. In the event of a material breach of this Agreement, which is discovered by the non-breaching party during the period in which this Agreement is being actively performed, a non-breaching party shall notify the alleged breaching party of the alleged material breach. Any non-breaching party may first endeavor to remedy the breach by direct discussions with the alleged breaching party. If such discussions fail to cure the breach within a reasonable period of time, not to exceed sixty (60) days, or if the circumstances require immediate action, the non-breaching party and the alleged breaching party will submit the matter to an experienced independent mediator for resolution of the matter. Should the parties fail to reach an agreement as a result of mediation, the matter shall be submitted to final binding arbitration. Claims for damages or other remedy for any breach of this Agreement that are discovered subsequent to the completion of this may be pursued directly through arbitration. Claims which do not involve breach of this Agreement shall be subject to arbitration and a party may pursue its judicial remedies for such claims.

C. Arbitration: Arbitration shall be initiated by written notice to the other side or sides involved in the dispute of intent to seek arbitration. Arbitration under this

Restated Agreement shall be governed by the Vermont Arbitration Act, except that any arbitration shall be completed and a decision rendered within 90 days of notice invoking arbitration. The parties to the dispute shall try to agree upon an arbitrator within ten (10) business days of the notice invoking arbitration. If the parties to the dispute cannot agree upon an arbitration, then, within three (3) additional business days, each party to the dispute shall select an arbitrator and the selected arbitrator shall select a third arbitrator. The parties to the dispute shall equally share the cost of arbitration.

15. **Notices.**

All notices hereunder shall be given in writing and shall be deemed delivered only upon receipt of the original or an email transmission, with evidence of deliver, at the addresses listed below, or at such other addresses provided to the other party hereunder in writing:

To the Marina: Burlington Harbor Marina, LLC
25 Cherry Street
Burlington, VT 05401
Attn: Jack Wallace
Email: jwallace@gmavt.net

To the City: City of Burlington
149 Church Street
Burlington, VT 05401
Attention: Noelle Mackay
Email: nmackay@burlingtonvt.gov

15. **Miscellaneous.**

This Agreement shall be binding on and shall benefit the parties hereto and their respective successors and assigns. This agreement shall run with the land and benefit the Marina Property until such time as the Ground Lease is terminated. This Agreement shall not be amended or restated without the express written consent of the parties hereto. In the event any term, covenant or condition herein contained is held to be invalid by any court of competent jurisdiction, such invalidity shall not affect any other term, covenant or condition herein contained, provided that such invalidity does not materially prejudice either party in their respective rights and obligations contained in the valid terms, covenants or conditions hereof. This Agreement shall be governed by and construed in accordance with the laws of the State of Vermont.

Acknowledgement of Arbitration

WE UNDERSTAND THAT THIS AGREEMENT CONTAINS AN AGREEMENT TO ARBITRATE. AFTER SIGNING THIS DOCUMENT, WE UNDERSTAND THAT WE WILL NOT BE ABLE TO BRING A LAWSUIT CONTAINING ANY DISPUTE THAT MAY ARISE WHICH IS COVERED BY THE ARBITRATION AGREEMENT, UNLESS IT INVOLVES A QUESTION OF CONSTITUTIONAL LAWOR CIVIL RIGHTS. INSTEAD, WE AGREE TO SUBMIT ANY SUCH DISPUTE TO AN IMPARTIAL ARBITRATOR.

IN WITNESS WHEREOF, this Agreement is executed by the duly authorized officers or representatives of the parties hereto.

Signature Page Follows

City of Burlington

By: _____
Miro Weinberger, Mayor

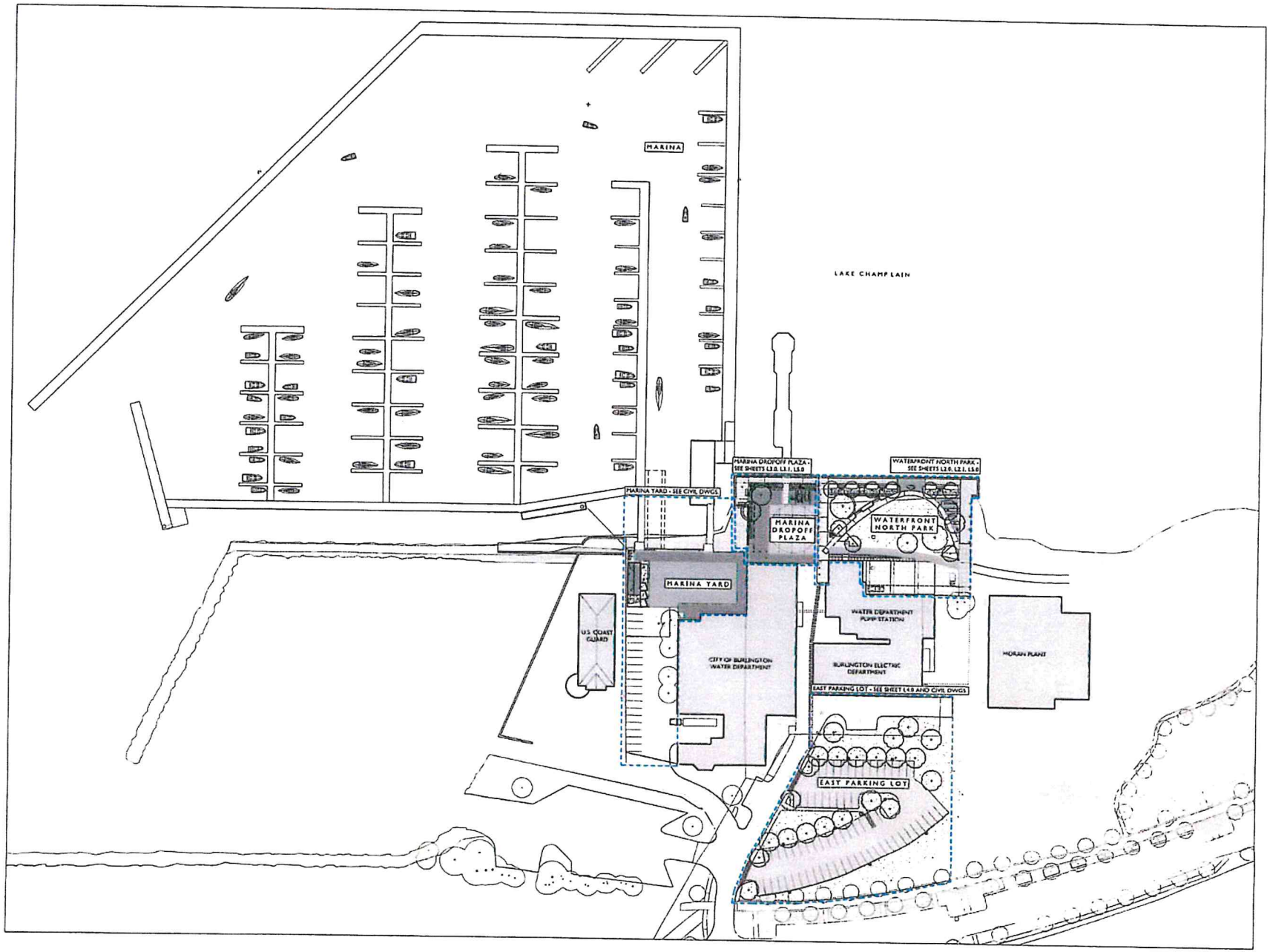
Burlington Harbor Marina, LLC

By: _____
Jack Wallace, Manager

Exhibit A

Site Plan

See attached



WAGNER - HODGSON

PERMITTING PLAN
01/13/17
(NOT FOR CONSTRUCTION)

BURLINGTON HARBOR MARINA

OVERALL SITE PLAN

REVISIONS

JOB NO. 423
SCALE 1" = 50'-0"
DATE 01.13.17

DRAWING NO.
L1.0

DEVELOPMENT AGREEMENT
City of Burlington - Burlington Harbor Marina, LLC

This Development Agreement is dated this 27th day of October, 2017, by and between the City of Burlington, a Vermont municipal corporation (the "City"), and Burlington Harbor Marina, LLC, a limited liability company organized under the laws of the State of Vermont ("BHM").

WITNESSETH:

WHEREAS, this Development Agreement was approved by the City Council in June of 2016, and is now being executed and delivered; and

WHEREAS, the City owns certain lands on the Burlington waterfront identified as 234 Penny Lane, in Burlington, Vermont as is more fully described on Exhibit A attached hereto (the "Marina Lot"); and

WHEREAS, the parties hereto entered into a Memorandum of Understanding dated May 28, 2015 ("MOU") whereby the parties entered into a due diligence period in order to assess the feasibility of the construction, management and operation of a Marina by BHM ("Marina"), to be located on the Marina Lot, with structures and docks extending into Lake Champlain, as shown on the Site Plan attached hereto as Exhibit B; and

WHEREAS, the Director of the City Department of Public Works commissioned a study of the impact of the Marina on the City water treatment facilities located adjacent to the Marina completed by the Dufresne Group and dated July 23, 2015 (the "WTP Report"); and

WHEREAS, the WTP Report calls for the displacement of the Marina parking area originally contemplated in the MOU; and

WHEREAS, BHM has agreed to construct a new parking lot identified below as the "East Parking Lot" to be shared by BHM and the City; and

WHEREAS, BHM shall remove the existing picnic pavilion adjacent to the fishing pier; and

WHEREAS, BHM shall construct a new Public Park adjacent to the Marina; and

WHEREAS, BHM shall provide and maintain public restrooms in its floating Marina facility; and

WHEREAS, the City may construct the replacement pavilion at a time and in a location to be determined; and

WHEREAS, the parties have decided to proceed with the "Project" (as defined below), subject to the terms and conditions of this Agreement; and

WHEREAS, the City shall Lease the "Marina Lot", as defined below, to BHM in accordance with the terms of the Term Sheet attached hereto as Exhibit C (the "Ground Lease");

WHEREAS, BHM shall construct the Project, in accordance with the terms hereof; and

WHEREAS, the name of the Marina shall be Burlington Harbor Marina.

NOW, THEREFORE, in consideration of the foregoing and the mutual promises set forth herein, the parties agree as follows:

Section 1. **Marina Lot.**

Subject to the terms of this Agreement the City shall lease the Marina Lot, along with the easements and rights of way necessary to access the Marina Lot, as shown on the Site Plan, to BHM, in accordance with the terms of the Ground Lease, and the Term Sheet attached hereto as Exhibit C.

Section 2. **Project.**

The "Project" shall include the construction of the Marina, the East Parking Lot, the Public Park, the Plaza and all related soil remediation, as is more particularly set forth herein.

(a) **Marina.**

Subject to the terms of this Agreement, and the Ground Lease, BHM shall construct and operate the Marina, which shall include the following amenities and improvements:

- Newly Constructed Wave Attenuation System
- 160 Boat Slips – a minimum of 40% of which shall be offered to transient boaters on a daily weekly, or monthly basis;
- Pump-out Facilities
- Fuel Dock
- Provision for Water Taxi Stand;
- A Floating Marina Facility to include:
  - Management and staff offices;
  - Public Restrooms;
  - Guest Bathing and Laundry facilities;
  - Store & Chandlery;
- Dockmaster Facility
- Marina access, support infrastructure, staging, storage, and facilities area (New Marina Lot on the attached Site Plan) which will also provide for boat launching and hauling facilities and will be used as event space.

(b) **East Parking Lot**.

Subject to the terms of this Agreement and the Parking Agreement, BHM shall construct a new parking lot located easterly of the Burlington Electric facility and the north of Penny Lane as shown on the Site Plan and identified as the "East Parking Lot."

The Parking Agreement shall include provisions related to:

i. Design review and approval by the City;
ii. Design and construction specifications;
iii. Construction schedule;
iv. Operation and maintenance of the East Parking Lot.

(c) **Public Park.**

Subject to the terms of this Agreement and the Ground Lease, BHM shall construct a new public park in the area northerly of the Marina Lot and westerly of the City Water Department Building, as shown on the Site Plan attached as Exhibit B, including the following elements ("Public Park"):

- Public Park adjacent to existing Fishing Pier to include landscape, hardscape and accessory treatments (such as benches) of equivalent quality to the existing Burlington Waterfront Park.

- Development of hardscape in the area west of the Water Department (old sailing center space), with a design to be agreed upon by the parties.

(d) Subject to the terms of this Agreement and the Ground Lease, BHM shall construct a plaza to include short-term, ADA and drop off parking spaces, as shown on the Site Plan (the "Plaza").

Section 3. **Parking Agreement.**

Subject to the terms of this Agreement, and the Parking Agreement, the Project shall include the following:

(a) BHM shall construct, to City parking lot design and construction standards:

(i) the Plaza located within the boundaries of the Marina Lot containing 10 parking spaces, 4 of which are handicapped restricted; and

(ii) the East Parking Lot, which shall consist of 68 parking spaces;

(iii) the 4 Marina employee parking spaces, located on the Marina Lot, and shown on the Site Plan attached hereto as Exhibit B.

(b) As proposed, the 160-slip Marina would require 80 spaces under current City zoning regulations (.5 per slip). The parties agree the Marina zoning permit application will include a request for a waiver of the parking requirement to an allocation of 48 parking spaces. The request will be based on the following assumptions: (i) the maximum number of seasonal slips requested will be 96 (60% of 160), reducing the requirement for parking spaces to 48 (.5 per slip); and (ii) the users of the 64 transient boat slips are less likely to need parking, as they arrive at the Marina by boat. The distribution of parking spaces allocated to the Marina, to satisfy minimum parking requirements, will be proposed to the DRB as follows:

i) 42 of the 68 parking spaces in the East Parking Lot; and
ii) 4 employee parking spaces on the Marina Lot as shown on the Site Plan attached hereto as Exhibit B; and
iii) 2 handicapped parking spaces on the Marina Lot as shown on the Site Plan attached as Exhibit B.

In the event the number of boat slips permitted to be constructed by the Marina is less than 160, the seasonal component of which being less than 96, the number of parking spaces allocated to the Marina shall be reduced in proportion to the reduction in the number of slips. In the event the DRB does not grant the waiver referred to herein, the City will make best efforts to work with BHM to facilitate an acceptable parking agreement necessary to satisfy City zoning requirements.

(c) The parking lots shall be used as follows:

(i) The Plaza shall provide 2 of the 4 handicapped parking spaces required to satisfy ADA parking requirements for the Marina. The other 2 handicapped parking spaces in the Plaza shall satisfy the existing fishing pier handicapped parking requirements. The Plaza shall be restricted to short-term use for drop-offs only.

(ii) The East Parking Lot shall be used as follows: the 23 parking spaces located in the western section of the East Parking Lot shall be restricted to exclusive use by the Marina during the period from May 15 through October 15 of each year. During the off-season period of October 16 to May 14 each year, these 23 spaces shall be made available to the public on a first-come first-serve basis. Nineteen (19) of the remaining 45 spaces in the East Parking Lot shall be restricted to exclusive use by the Marina on weekends and City Holidays during the period from May 15 through October 15 of each year. A weekend period shall be deemed to commence at 6:00 p.m. on each Friday and terminate at 8:00 a.m. on each following Monday morning. A holiday shall be deemed to commence at 6:00 p.m. the day before the holiday, and terminate at 8:00 a.m. on the day following the holiday. In the event a holiday falls adjacent to a weekend the periods shall run sequentially as one period. BHM will pay the City for the use of the 19 additional weekend/holiday parking spaces. The rate for these parking spaces shall be established by calculation of the number of weekend days and holidays applicable annually multiplied by the Burlington Parks & Recreation Department's Daily Parking Rate as established for the applicable year multiplied by nineteen (19). BHM can elect to reduce its number of weekend/holiday spaces with thirty (30) days' notice. BHM agrees that it will implement a policy of prioritized use of the 23 (plus the additional 19 spaces on weekends and holidays) exclusive use spaces in the East Parking Lot. The remaining 45 (26 on weekends and holidays) will be managed by the City for short-term parking and made available to the public on a first-come first-serve basis and in a manner designed to maximize parking efficiencies and working with other Waterfront stakeholders.

(iii) The 4 parking spaces behind the Water Treatment Facility (on the Marina Lot) shall be used for Marina employees only.

(d) Notwithstanding the City's obligations under (c) (ii) above, the City may, in its discretion, allocate up to 10 parking spaces in the East Parking Lot to another project for its exclusive use but with the same shared usage goals and objectives described herein for the East Lot to maximize parking efficiencies for other Waterfront stakeholders.

(e) The parties shall enter into a Parking Agreement (the "Parking Agreement") in the form of the agreement to be included as an attached to the Ground Lease which will govern:

(i) The construction, use and maintenance of the Plaza located on the Marina lot; and

(ii) The construction, use and maintenance of the East Parking Lot located on City land; and

(iii) The terms of use of the Marina Employee spaces which are located on the Marina Lot.

Section 4. **Permitting Contingency**

BHM shall bear all of the costs and expenses of obtaining the final and unappealable permits and approvals from all governmental authorities with jurisdiction over the Project including, but not limited to: subdivision

approval for the Marina Lot, local COA Level I approval, State of Vermont Water and Wastewater Permit, State Stormwater Permit or Amendment (if required), State Lake Encroachment Permit, US Army Corps of Engineers General Permit for the construction and use of the Marina ("Permits and Approvals"). BHM shall compensate the City for any reasonable design, permit and construction costs incurred by the City relative to improvements to the Project (including any necessary off-site improvements) provided that the costs are approved by BHM in advance, which approval shall not be unreasonably withheld. Subject to Marina compliance with the terms of this Development Agreement and being consistent with the terms and conditions thereof, the City shall cooperate with BHM's efforts in obtaining the Permits and Approvals. The Parties' obligations under this Agreement shall be subject to BHM obtaining the Permits and Approvals consistent with this agreement or on terms otherwise satisfactory to the Parties by December 31, 2017, subject to extension by mutual agreement (the "Permit Contingency Period"). The Permitting Contingency shall be deemed satisfied upon submission by BHM of a stamped engineer's affidavit evidencing all permits necessary to commence construction of the Project have been obtained.

The City shall allow any previously permitted parking spaces for fishing pier and Water Department lost as a result of the Project to be relocated.

The City shall assist BHM in showing the State of Vermont permitting authorities that there is no space on land to provide the Marina facilities that are to be located in the floating Marina facility. The City shall support the application by BHM for Permits and Approvals and shall cooperate with BHM in accordance with Section 17, below. In the event BHM is unable to obtain the Permits and Approvals, with satisfactory terms, during the Permit Contingency Period including all extensions, this Development Agreement and the Ground Lease shall terminate.

Section 5. **Ground Lease.**

The Mayor and the City Administration are hereby authorized to execute and deliver a Ground Lease for the Marina Lot, which shall contain the provisions set forth on the Ground Lease Term Sheet attached hereto as Exhibit C, along with customary ground lease provisions. The Ground Lease shall be held in escrow pending completion of the Ground Lease Pre-Conditions set forth below. The Ground Lease and the Parking Agreement shall be completed, executed and delivered into escrow, upon terms acceptable to the parties, no later than June 30, 2016. The Completion Guarantee in a form acceptable to the parties shall be attached to the Lease prior to placing in escrow lacking signatures and final Project cost amount.

Section 6. **Ground Lease Pre-Conditions.**

The Ground Lease and Parking Agreement shall be released from escrow by the City upon receipt of the following from BHM:

(a) A legal opinion, delivered in reliance upon an engineer's opinion confirming that BHM has all Permits and Approvals necessary for the commencement of construction of the Project within the Permit Contingency Period; and
(b) Written financing commitments on terms satisfactory to BHM, along with the Project budget, and sources and uses sufficient to develop the Project, within 90 days of the end of the Permit Contingency Period, but in no event later than April 1, 2018; and
(c) Project schedule; and
(d) A Guaranteed Maximum Price provided by BHM for construction of the East Parking Lot and the "Additional Public Improvements" referenced in Section 12 herein; and
(e) Completion Guarantee to the benefit of the City for the total cost of the Project as described in Section 2 (a), (b) and (c).
(the "Ground Lease Pre-conditions")

The Ground Lease Pre-conditions shall be to the City's satisfaction, which shall not be unreasonably withheld. The Ground Lease Pre-conditions shall be deemed acceptable to the City if the City fails to communicate a reasonable objection within 10 days of receipt thereof. In the event of a reasonable objection by the City, BHM shall have 30 days to re-submit the applicable Ground Lease Pre-Condition, In the event the Ground Lease Pre-conditions have not been met by April 1, 2018, this Agreement, and Ground Lease and the Parking Agreement shall terminate.

Section 7. **Real Estate Taxes.**

It is the intention of the parties that BHM shall pay all property taxes on the real and associated improvements levied on the Marina by the City of Burlington commencing with the release of the Ground Lease from escrow pursuant to the provision of this Development Agreement and the attached Ground Lease. In addition, BHM shall pay all Business and Equipment Taxes levied by the City of Burlington on the personal property of the Marina. BHM hereby waives any right to appeal real estate taxes imposed by the City on the basis of a legal argument that the City cannot include floating or fixed waterside improvements in its assessment of the Property. BHM shall also pay its annual pro rata share of PILOT payments on the Marina Lot which is paid by the City of Burlington Water Department for its property located at 234 Penny Lane.

Section 8. **Operations of the Marina.**

Upon completion, the Marina shall be open and accessible to the public and to clients, in accordance with the terms of the Ground Lease.

Section 9. **Pavilion Relocation.**

The parties acknowledge that BHM's current plan incorporates land owned by the City (and managed by Burlington Parks & Recreation) that is currently utilized for a lakefront picnic pavilion. The pavilion was built with U.S. Department of the Interior – Land and Water Conservation Fund grant money, and the parties understand and acknowledge that the pavilion cannot be moved without applicable Federal and/or State authorization. The City shall be responsible for getting all necessary authorizations for removal of the pavilion no later than sixty (60) days following the execution of this Agreement. Thereafter, and provided the necessary authorizations have been obtained, as part of the development plans for the Marina, BHM shall remove this structure. In the event the City fails to obtain said authorizations within sixty (60) days of the date of this Agreement, the Permit Contingency Deadline and the Ground Lease Preconditions shall be extended *by the number of additional days required to obtain necessary approvals* BHM acknowledges and agrees that the City may, at some time in the future, at its sole discretion, relocate the pavilion to any portion of the northern waterfront except the Marina Lot. BHM shall provide public restroom facilities in the Marina facility. Daily access to public restrooms shall be provided from May 15 through October 15 from 8:00 a.m. to 5:00 p.m., Sunday through Thursday and 8:00 a.m. to 7:00 p.m. Friday through Saturday.

Section 10. **Compatibility with Water Department Operations**

BHM acknowledges that the Project is located directly adjacent to the City of Burlington Water Department and will work in good faith with the City to assure on-going and future operations of its Water Department. To determine feasibility, compatibility, and potential constraints between the Water Department and BHM, a report was commissioned by the Water Department and prepared by The Dufresne Group, dated July 7, 2015 (Exhibit D).

Consistent with the findings of the Dufresne Group report, BHM agrees to the following:

To assure adequate access for tractor-trailer deliveries to the Water Plant, BHM agrees to restrict parking during scheduled delivery dates or move vehicles in a timely fashion to allow for unimpeded truck access and deliveries.

BHM shall provide adequate protection if necessary based on the proposed uses of the area above the utilities as determined by the City, with concrete encasement (or other City approved approach which adequately addresses Dufresne Group report concerns) for existing underground infrastructure (e.g. pipes/water lines) under the area west of the WTP.

The Marina Lot shall not include the berm on the southern side of Water Plant Building.

The Ground Lease shall provide the Water Department with rights of access to the Water Department building for purposes of its maintenance, repair and operations at all points where the Marina Lot abuts the Water Department building.

Marina will grant access across the Marina Lot and upon or under the Marina waterside improvements to the City for Water Department repair, maintenance or operational needs. Where feasible, City shall make all reasonable efforts to coordinate such maintenance, operations and repairs with Marina; shall include consideration being given to off-season scheduling. City shall return the Marina Lot to its pre-existing condition upon completion of such work. City shall not be liable for claims for lost business during such maintenance, operations or repairs. The City reserves the right to maintain, repair, replace, expand or otherwise address its operational needs relating to underground/underwater piping serving the City's Water Department. Marina construction and operations shall not create impacts to the flow vault outside of the southwest corner of Water Department Building such that removal of the flow vault or any other costs for mitigation of said impacts is required unless approved by the City and funded by BHM.

The Marina's dock layout shall be designed to ensure the protection of the Water Department's 30" water intake pipe. Prior to commencing the permitting process for the floating dock system and anchoring, BHM shall submit its dock layout to DPW for review and approval, which shall not be unreasonable withheld or delayed.

The parties each covenant and agree for themselves and their successors and assigns that any construction, maintenance, repairs or replacements performed pursuant to an access right granted or reserved hereunder or under the Ground Lease shall be coordinated with the owner of the affected property, and that any disturbed property shall be promptly restored to its prior condition in a good and workmanlike manner.

Section 11. **Tax Increment Financing (TIF) Funding Considerations.**

Subject to the contingencies and provisions set forth in this Agreement, and as a portion of the Project, BHM shall construct the East Parking Lot, the Park, the Plaza, and shall be responsible for related soil remediation (collectively, the "Project Public Improvements"). The parties acknowledge and agree that the construction of the Project Public Improvements must be bid and accounted for separately from BHM's private improvements. The parties further agree that all bids and contracts for the Project Public Improvements shall be made available for City review and approval, which approval shall not be unreasonably withheld and shall be delivered within ten (10) days of receipt.

The Project Public Improvements shall be paid for as follows:

A: Pursuant to voter approval of a March 4, 2014 ballot item, the City shall contribute up to $500,000 in funds for the TIF eligible public infrastructure in support of the Project Public Improvements. The portions of the Project Public Improvements designated for the use of these specific TIF Funds ("BHM TIF Eligible Work") are:

1. Soil remediation including testing, environmental assessment, inspections, permits and fees and expenses. And all costs related to handling, storing, placing and capping soils on site as described in the CAP amendment related to this Project;
2. 57% of the cost of construction of East Parking Lot including design, engineering, inspections, permits and fees and expenses and all costs to construct lot and landscaping within project limits shown and as described on the attached Budget, attached hereto as Exhibit E (the "Budget"); and
3. 50% of the cost of construction of the Public Park , including design, engineering, inspections, permits and fees and expenses and all costs to construct the park within project limits shown and as described in the Budget; and
4. The Plaza, including design, engineering, inspections, permits and fees and expenses and all costs to construct the plaza within project limits shown in the Budget.

In the event the cost of the work is less than budgeted such that requests for payment total less than $500,000, the balance of funds shall be applied towards the Additional TIF Public Improvements as described below.

B: Additionally, pursuant to the voter approval of the ballot item referenced above, which allowed for advancement of several additional projects on the City's northern waterfront, the City has determined that it makes economic sense to complete the above-referenced Public Park and the East Parking Lot within the scope of work for the Project. Therefore, the City will utilize up to $298,646.00 of additional voter approved TIF funds to pay for the actual cost to construct the remainder of the Project Public Improvements, as follows: ("Additional TIF Eligible Work")

1. 43% of the cost of construction of the East Parking Lot, including design, engineering, inspections, permits and fees and expenses and all costs to construct lot and landscaping within project limits shown and as described on the attached Budget (to be funded by utilizing voter approved Waterfront Access North (WAN) project TIF funds; and
2. 50% of the cost of construction of the Public Park, including design, engineering, inspections, permits and fees and expenses and all costs to construct park and landscaping within project limits shown and as shown in the Budget (to be funded by utilizing voter approved New Moran project TIF funds).

Payment to BHM of the TIF Funds shall be made upon completion of the Project Public Improvements listed above. Payments shall be in the form of reimbursement for documented expenses related to each of the East Parking Lot, the Plaza, the Park and soil remediation. BHM shall provide copies of original invoices and lien waivers as proof of payment for eligible expenses.

Payment by the City shall be made within sixty (60) days of submission of a completed request for payment by BHM. The City shall notify BHM with ten (10) days of receipt of a request for payment if it deems the request to be incomplete.

Under the terms of this Agreement the City will make best efforts to not make, request or cause changes to the Project Public Improvements. In the event a change to the Project Public Improvements is deemed necessary by the City, such that without such change the Project Public Improvements may not proceed to the satisfaction of the City and that such change causes an increase to the cost of the Project Public Improvements, the parties agree to work in good faith to amend this Agreement to allow the Project to proceed, including

increasing or decreasing the scope of work or changing specification or schedule of work prior to the Lease preconditions being met. This includes changes necessitated in order to obtain permits for the Project Public Improvements. Provided however, if the cost of construction of the East Parking Lot, as shown on the Site Plan attached as Exhibit B, exceeds the amount shown in the Budget, BHM shall be responsible for payment of the excess cost.

The term "completion" as used in this Section shall mean, for each item of TIF Eligible Work listed above, construction is complete in conformance with the Lease, or the Parking Agreement, and the improvements have obtained all governmental approvals required in order to use such improvements including Certificate of Occupancy from the City, if applicable. In addition, BHM shall have delivered all documentation required by the City and the Vermont Economic Progress Council for the use of TIF Funds with its request for payment, and BHM has provided documentation of payment for the work in the form of lien waivers.

Section 12. **Public Trust Doctrine.**

The parties agree and acknowledge that the City has certain responsibilities with respect to lands that have been dedicated to the public trust. BHM agrees to work in good faith with the City and to take such reasonable actions as may be necessary or appropriate to enable the City to carry out its responsibilities under the public trust doctrine, and agrees that the Project is intended promote the public's access to, and use and enjoyment of, the Burlington Waterfront and to further the purposes of the public trust doctrine.

Section 13. **Public Access Agreement.**

The parties acknowledge that the Marina shall be accessible to the public.

BHM hereby agrees that the following areas of the Marina that will be open in season, during business hours, to pedestrians and the general public (not solely Marina clientele): the public restroom facilities; store and chandlery; and the water taxi stand. It is also agreed that the Marina's entire perimeter dock (i.e. the wave attenuation system) shall be open to the general public daily from 7 a.m. to 10 p.m. This area is depicted on the Site Plan.

The City acknowledges and agrees that BHM will be installing security measures typically found within public marinas (which may include the limited use of card entry systems in agreed upon locations and security cameras). These installations will limit public access to areas not listed above as generally accessible to the public, for the benefit of boat owners using the Marina.

Section 14. **Stakeholder Cooperation.**

To successfully execute and operate the Marina, the City and BHM recognize the need to coordinate with other Waterfront property owners and stakeholders, including, but not limited to the Lake Champlain Transportation Company, The United States Coast Guard, Lake Champlain Community Sailing Center, Burlington Water Department, Burlington Electric Department and Burlington Parks & Recreation Department.

Section 15. **Wind & Wave Engineering Study.**

BHM shall use the design outlined in the Wind & Wave Study commissioned by BHM in order to design the floating breakwater system that is to be built as part of the Marina.

Section 16. **South Harbor Marina.**

The parties hereby acknowledge that the US Army Corps of Engineers ("ACOE") shall require a master plan application in order to approve any new expansion of marine facilities in the Burlington Harbor ("Harbor Master Plan Application"). The City has proposed development of a marina located in the City's southern harbor, adjacent to Perkins Pier, which will need to be incorporated into the Harbor Master Plan Application. The City shall work cooperatively and expeditiously with BHM to draft the Harbor Master Plan Application. The City acknowledges that ACOE may limit the number of slips that may be added in the Burlington Harbor. The City shall give preference to Permits and Approvals for 160 boat slips by BHM, and shall phase any future south harbor expansion if required for ACOE approval of the Marina. In addition, the City agrees to make best efforts to provide, under the timeframes outlined in this Agreement any necessary documentation, studies, engineering, required for the south harbor expansion, at the City's sole cost and expense. BHM shall be responsible for such documentation, studies, engineering, required for the Marina, at BHM's sole cost and expense. In the event that permitting requirements for the South Harbor are not provided or met within the timeframes outlined in this Agreement then the Permit Contingency Period shall be extended accordingly.

Section 17. **Stormwater Management Fees and Costs.**

BHM shall be responsible for the costs of its pro rata share of the necessary stormwater system operation and maintenance costs; stormwater system inspection costs; state stormwater operational permit fees; as well as the city's stormwater fees relating to impervious area of the Marina Lot as well as its prorate share of the East Parking Lot costs and fees attributable to its May 15 to October 15 exclusive use of 23 spaces in said lot.

Section 18. **Site of East Parking Lot.**

The City shall ensure that the site of the East Parking Lot, to be constructed by BHM, is left in the condition anticipated in the City's WAN Plan upon the commencement of the Ground Lease.

Section 19. **Right to Modify Property Description.**

The parties hereto reserve the right to modify the description of the Marina Lot, as shown on the Site Plan, to conform to the requirements of the Permits and Approvals, as the same may be amended, changed or modified from time to time.

Section 20. **Authority.**

Each of the parties hereto represents and warrants that it has the power and authority to enter into and perform the terms of this Restated Agreement in accordance with its terms.

Section 21. **Force Majeure.**

Neither the City nor BHM shall be deemed in violation of this Agreement if they are prevented from performing any obligations hereunder by reason of strikes, boycotts, labor disputes, acts of God, acts of the public enemy, acts of superior governmental authority, severe weather conditions, riots, rebellion, sabotage, or any other circumstances for which they are not responsible or which is not under their control, and the party experiencing force majeure gives written notice to the other party identifying the nature of such force majeure, and when it began. The party experiencing force majeure shall take immediate action to attempt to remove

such causes of force majeure as may occur from time to time and its operations under this Agreement shall be resumed immediately after such cause has been removed, provided that neither party shall be required to settle any labor dispute except upon terms that party deems acceptable. The suspension of any obligations under this Section shall not cause the term of this Agreement to be extended and shall not affect any rights accrued under this Agreement prior to the occurrence of the force majeure. The party giving notice of the force majeure shall also give notice of its cessation.

Section 22. **Dispute Resolution.**

(a) Should a dispute arise between the parties as to the meaning or intent of any provision of this Agreement, or as to an obligation of a party hereunder, the parties will first attempt to resolve such dispute by mutual negotiations and, if the dispute persists, the utilization of any experienced independent mediator. Should the dispute continue notwithstanding the efforts of the mediation process, the parties shall submit the dispute to final binding arbitration.

(b) In the event of a material breach of this Agreement, which is discovered by the non-breaching party during the period in which this Agreement is being actively performed, the non-breaching party shall notify the alleged breaching party of the alleged material breach. The non-breaching party may first endeavor to remedy the breach by direct discussions with the alleged breaching party. If such discussions fail to cure the breach within a reasonable period of time, not to exceed thirty (30) days, or if the circumstances require immediate action, the non-breaching party and the alleged breaching party will submit the matter to an experienced independent mediator for resolution of the matter. Should the parties fail to reach an agreement as a result of mediation, the matter shall be submitted to final binding arbitration. Claims for damages or other remedy for any breach of this Agreement that are discovered subsequent to the completion of this Agreement may be pursued directly through arbitration. Claims which do not involve breach of this Agreement shall be subject to arbitration and a party may pursue its judicial remedies for such claims.

(c) Arbitration shall be initiated by written notice to the other side or sides involved in the dispute of intent to seek arbitration. Arbitration under this Agreement shall be governed by the Vermont Arbitration Act, except that the parties shall make good faith efforts to complete and have a decision rendered within forty-five (45) days of notice invoking arbitration. The parties shall try to agree upon an arbitrator within five (5) business days of the notice invoking arbitration. If the parties cannot agree upon an arbitration, then, within three (3) additional business days, each party shall select an arbitrator and the selected arbitrator shall select a third arbitrator. The parties shall equally share the cost of arbitration.

Section 23. **Assignment.**

This Agreement shall not be assigned by any party without the advance written approval of the other, which shall not be unreasonably withheld, except that BHM may assign its interest in this Agreement, the Ground Lease and the Parking Agreement, to any bank or financing entity(ies) from which it acquired Project Financing and/or to any entity owned, controlled, managed or merged with BHM or any of its principals.

Section 24. **Indemnification.**

Each party shall, from and after the date of execution of this Agreement, defend, indemnify and hold harmless the other party (together with its representatives, officers, employees and agents) from and against all loss, liability, damages, claims, proceedings, costs (including costs of defense and attorneys' and professionals' fees incurred in defense or incurred in enforcement of this indemnity), expenses, demands, suits and causes of action (all of the foregoing collectively referred to as "Liabilities") arising out of damage to any property or death or injury to any person sustained on the Marina, or arising (directly or indirectly) out of or in

connection with the possession, use, occupation or control of the Marina or the development of or the construction of improvements on the Project, by the indemnifying party and from and against all Liabilities arising out of damage to any property or death or injury to any person anywhere occasioned, or claimed to have been occasioned, by any act, neglect or default of, or work performed by, the other indemnifying party, its agents, employees, licensees or contractors (except to the extent such damage, death or injury shall be caused by the affirmative act or negligence of the claiming party or its employees or agents). Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist for the benefit of a party or person to be indemnified under this Section.

Section 25. **Amendment.**

This Agreement shall not be varied in its terms by any oral agreement or representation, or otherwise than by an instrument in writing of subsequent date hereto executed by the party to be bound thereby.

Section 26. **Invalid Provisions.**

In the event any term, covenant or condition herein contained is held to be invalid by any court of competent jurisdiction, such invalidity shall not affect any other term, covenant or condition herein contained, provided that such invalidity does not materially prejudice either party in their respective rights and obligations contained in the valid terms, covenants or conditions hereof.

Section 27. **Construction.**

The language in all parts of this Agreement shall in all cases be construed simply according to its fair meaning and not strictly construed against either party, as it is agreed that both parties participated in the drafting hereof.

Section 28. **Miscellaneous Provisions.**

(a) The rights granted to BHM under the Development Agreement shall be limited to the Marina and the East Parking Lot and the Development Agreement shall not grant BHM rights to other properties owned by the City,

(b) The parties shall work cooperatively to meet the following reporting requirements necessary to meet the annual HUD / BEDI and 108 loan benchmarks:

- Report of all green development standards and energy start standards utilized in construction (upon completion of construction)
- Report of the number of construction jobs created (upon completion of construction)
- Report of Business sales volumes (annually)
- Report on jobs created (annually)

(c) All notices required to be delivered under the terms of this Agreement shall be given in writing and delivered by hand or by email with proof of delivery to the following addresses:

For City: Miro Weinberger, Mayor
City of Burlington
City Hall

149 Church Street
Burlington, VT 05401

With a copy to:

Office of the City Attorney
149 Church Street, Rm. 11
Burlington, VT 05401

For BHM:

Jack Wallace
Charles DesLauriers
Managing Members
25 Cherry Street
Burlington, VT 05401
jwallace@gmavt.com

With a copy to:

Catherine Dingle
Murphy Sullivan Kronk
275 College Street
PO Box 4485
Burlington, VT 05406-4485
cdingle@mskvt.com

- **Signature Page Follows** -

IN WITNESS WHEREOF, this Development Agreement executed by the duly authorized officers or representatives of the City of Burlington and Burlington Harbor Marina, LLC as of the day and date first above written.

THE CITY OF BURLINGTON

By: _____
Miro Weinberger, Mayor
Duly Authorized Agent

STATE OF VERMONT
COUNTY OF CHITTENDEN, SS.

At Burlington, in said County, on the 27th day of October, 2017, personally appeared, Miro Weinberger, Mayor of the City of Burlington and acknowledged this instrument by him, sealed and subscribed to be his free act and deed, and the free act deed of the City of Burlington.

Before me,

_____
Notary Public

_____
Commission Expires 2/10/2019

BURLINGTON HARBOR MARINA, LLC

By: _____
Jack Wallace, Managing Member
Duly Authorized Agent

STATE OF VERMONT
COUNTY OF CHITTENDEN, SS.

At Burlington, in said County, on the 27th day of October, 2017, personally appeared, Jack Wallace, Duly Authorized Agent of the Burlington Harbor Marina, LLC, and acknowledged this instrument by him, sealed and subscribed to be his free act and deed, and the free act and deed of the Burlington Harbor Marina, LLC

Before me,

_____
Notary Public

Colleen Horigan
_____
Commission Expires 2/10/2019

Exhibit "A"

To Development Agreement

Legal Description of the Marina Lot

Being a lot of land containing 0.632 acres, more or less, as shown as Parcel C on a Plan entitled "Proposed Lot Line Adjustment of Parcels B &C of City of Burlington at Proposed Burlington Harbor Marina 234 Penny Lane, Burlington, VT" dated January 24, 2017 and prepared by Civil Engineering Associates, Inc. and recorded in Map Slide 534D of the City of Burlington Land Records.

Also being a portion of property conveyed to the City of Burlington in the following deeds:

1. Quitclaim Deed from Charles M. Hays and Edward C. Smith, Receivers, and Central Vermont Railroad Co. to the City of Burlington, dated July 14, 1897 and recorded in Miscellaneous Volume 42 at Page 418 of the City of Burlington Land Records.

2. Warranty Deed from Central Vermont Railway, Inc. to The City of Burlington dated April 29, 1942 and recorded in Volume 117 at Page 632 of the Burlington Land Records.

The leased premises shall include non-exclusive easements and rights of way over Penny Lane and all other existing travelled ways necessary for pedestrian and vehicular access to the Marina Lot and for the construction, maintenance and use of the Project and the Marina Lot. These easements and rights of way shall include the right to access the Marina Lot from Penny Lane and the East Parking Lot to the area between the City of Burlington Water Department Building and the City of Burlington Electric Department Building, as well as to the parking lot, located on the southerly side of the City of Burlington Water Department Building

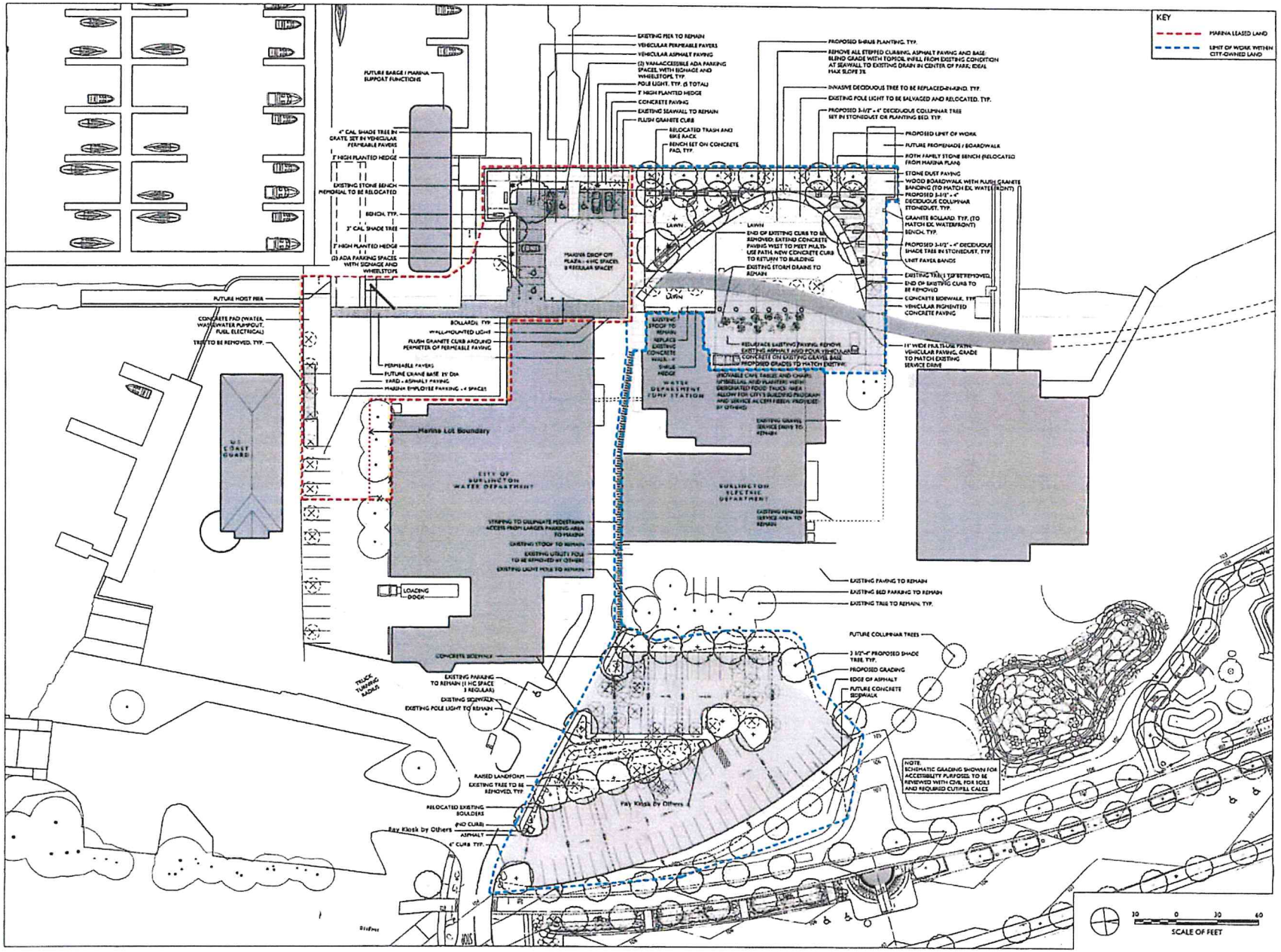
Reference is hereby made to the aforementioned instruments, the records thereof and the references therein in further aid of this description.

Exhibit "B"

To Development Agreement

Proposed Conditions Plan

See attached



WAGNER

EXHIBIT 1

BURLINGTON WATERFRONT NORTH

PROPOSED CONDITIONS PLAN

REVISIONS

JOB NO 423

SCALE 1" = 30'-0"

DATE 03.31.16

DRAWING NO

LI.0

EXHIBIT C

TERM SHEET – GROUND LEASE

Ground Lease Terms:

- Location: 234 Penny Lane, Burlington, VT (see proposed Site Plan – Exhibit B).
- Landlord: City of Burlington
- Tenant: Burlington Harbor Marina, LLC
- Commencement date: Upon satisfaction of Lease Preconditions described in Development Agreement.
- Construction Term: 2 Years after Commencement Date or until commencement of operation of Marina, whichever is earlier, but in no event later than May 1, 2019, to be extended if the Permit Contingency Period is extended in accordance with the Development Agreement ("Construction Term").
- Operating Term:
  40 years following termination of the Construction Term ("Operation Term").

Tenant Improvements: All Tenant improvements to the real property subject to the Lease, shall be the property of the Tenant through the term of the Lease. Upon expiration of the Operating Term, the ownership of all improvements to the leased real property, including the wave attenuator with all appurtenances, improvements made with TIF funds, and floating docks and appurtenances, including but not limited to, dock boxes and pedestals, shall revert to the Landlord and all remaining personal property, including the floating barge and building, equipment, furniture, and inventory, shall remain the property of the Tenant.

- Annual Construction Term Rent: 0$ for first 12 months. Then $12,000 payable in pro rata monthly amounts for second 12 months or until conclusion of Construction Term.
- Annual Rent – First Year of Operating Term:
  $27,500 Base Rent plus Additional Rent of 5% of total Marina revenue amount that exceeds $565,000. Base rent is payable in four (4) equal installments paid quarterly in advance. Additional Rent is due in arrears the following (2nd) year with the June 1 payment. In the event the commencement of operation of the Marina occurs after July 15th resulting in a partial season the Base Rent will be adjusted pro rata with the remaining quarterly payments due. The First year of operation would then conclude on December 31st of that year.
- Annual Rent after First Year of Operating Term:
  $55,000 Base Rent plus Additional Rent of 5% of total Marina revenue amount that exceeds $1,130,000. $55,000 Base rent shall be adjusted annually to reflect

the change in CPI-U from one lease year to the next and shall be payable in two (2) equal installments paid in advance on January 1 and June 1. Additional Rent is due in arrears for the previous year and is due with the June 1 payment.

- Property Taxes: All property taxes, business personal property taxes and pro-rata share of the Water Department's PILOT relative to the area of the Marina Lot as a percentage of the Water Department parcel it is a part of shall be paid by Tenant. Specific details to be included in the Development Agreement and/or the Lease.

- Right of First Refusal: Landlord shall have right of first refusal on any sale of the tenant improvements to the real property (as defined in the development agreement) during the term of the lease. During the term of the Ground Lease, Tenant shall have a right of first refusal on the sale of the land subject to the Ground Lease.

- Assignment and Subletting: As permitted in the Development Agreement and as otherwise agreed to in writing by the parties.

- Both Landlord and Tenant shall cooperate in providing information to the public concerning their respective Marinas on their websites, particularly to avoid confusion as to location and other details.

Parking Agreement:

- Parking in Ground Lease Parcel (Marina Lot): The ground lease shall provide that BHM shall have the sole right to use the parking on the Parcel, subject to permit and ADA requirements. Such ground lease and permitting is expected to allow for vehicles to be permitted for up to 15 minutes in temporary loading/unloading area(s) in the Drop Off Lot and parking for four (4) employees in the South Lot.

- Parking Agreement: In addition to parking provided under the terms of the ground lease, the parties will enter into a parking agreement detailing the shared use of the East Lot for in season Marina customer parking. Tenant will not be charged for the twenty-three (23) spaces of designated exclusive seasonal use parking but will be liable for its pro rata share of in season maintenance based on that number of spaces and number of days of permitted use. The nineteen (19) spaces for weekend and holiday use will be charged based on a formula of the existing Parks and Recreation day rate times the number of applicable number of weekend days and holidays.

Exhibit "D"

To Development Agreement

Defresne Henry Report

See attached

DUFRESNE GROUP CONSULTING ENGINEERS

54 Main Street, P.O. Box 8, Winooski, VT 05089 (o) 802.671.2001 | (f) 802.654.3913 | (e) info@dufresnegroup.com www.dufresnegroup.com

July 7, 2015

Steve Roy, PE,
Burlington Public Works
53 Lavalley Lane
Burlington, VT 05401

Re: Concerns regarding a Proposed Marina near the Water Treatment Facility
DG: 4150008

Dear Steve:

We are pleased to submit this engineering report addressing City concerns regarding a proposed marina project adjacent to the Water Treatment Plant at 234 Penny Lane. This report is based on the May 18, 2015 request for technical assistance.

Executive Summary:

Our analysis indicates that although the proposed marina requires almost no physical improvements such as buildings and other "permanent" facilities, planned marina use such as parking and access to the launching area on the south side of the treatment building would unduly restrict chemical deliveries at the Water Treatment Facility. Relocation of these facilities is possible, but there are disadvantages related to alternative locations include land acquisition and extended traffic delay in the alleyway during chemical deliveries. In addition, even if the liquid chemical fill stations are relocated, access to the existing loading dock would still be required for dry materials.

Although our analysis indicates that many potential process enhancements that may be required to meet future regulations could be completed without an expansion of the existing roof lines, restricting available space for future unit operations would limit flexibility in implementing potential treatment schemes. Finally our analysis indicates that the security risk of long-term parking adjacent to the south wall of the facility would not be acceptable.

Eight areas of concern previously identified by City Staff are further evaluated in regard to a potential marina project in close proximity to the Burlington Water Treatment Plant (WTP) on Penny Lane. We summarized the results of our investigations listed below by the item of concern.

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297 South Main Street, Barre, VT 05641 (o) 802.479.3695 | (f) 802.479.2261 | (e) d_g_barre@dufresnegroup.com
520 Portland St., Suite 102, St. Johnsbury, VT 05819 (o) 802.748.8595 | (f) 802.748.4514 | (e) d_g_stj@dufresnegroup.com
1538 Depot Street, Manchester Center, VT 05255 (o) 802.768.8291 | (f) 802.768.8315 | (e) dg_manchester@dufresnegroup.com Dufresne Group is owned by Dufresne & Associates, PC

1. *The Water Plant footprint is bound by a small area which is needed to perform maintenance tasks. On example is removal of vertical turbine pumps from the ABW filter area on the west side of the building. How can conflicts be averted?*

Although the available area around the existing Water Treatment Facility is already constricted and the marina project would further limit the area available for operational tasks, we did not find that with the exception of chemical and dry goods deliveries (which is discussed under Item 3) the proposed use of the areas identified by the marina would unduly restrict maintenance tasks required to be performed by WTP operational staff.

2. *As future regulations develop that may require different treatment, can the area as depicted with the Marina allow room to upgrade, replace, or expand the water purification processes such as GAC or other technologies?*

Although regulatory standards and requirements will likely be significantly more stringent in the future, the facility has substantial flexibility due to a large pretreatment unit operation which is not used. The unused tankage provides opportunity for both Granular Activated Carbon (GAC) contactors that would reduce total organic carbon prior to disinfection and for a Dissolved Air Floatation (DAF) unit that would support enhanced coagulation to reduce total organic carbon (TOC) in the water applied to the filters. It is also recommended that new processes such as Miex® be reviewed, which may allow effective treatment and eliminate the need for both of these unit operations. In addition, conversion of primary disinfection using free chlorine to ultraviolet light units would not require a building addition. Also secondary disinfection methods using monochloramine could be completed without any roof line changes. The only potential treatment method that would not be available to the facility would be ozonation. The need to provide storage for large liquid oxygen tanks would conflict with the area proposed for parking along the south side of the facility. An alternative location for these tanks was not identified.

3. *Delivery of chemicals and other materials for water treatment operations is a routine occurrence and cannot be impinged upon by parking displacing this activity.*

Chemical deliveries are made about twice per month to the loading dock on the southeast side of the Water Treatment Facility. The existing access area south of the facility is not adequate for the size of some of the existing trucks attempting to access the loading dock and the chemical fill stations. The trucks spend hours jockeying into position and in the past some trucks have been damaged without any vehicles parked in this area. Although the marina developer would propose an increase in width of this area, chemical deliveries to the existing fill stations would not be possible if cars are parked in this area. This issue was identified as a significant conflict. Potential mitigation measures were identified including use of the area for WTP employees only, a valet system for marina staff to transfer cars when needed, and to relocate the chemical fill stations to other areas. The alternative of using the area exclusively for

WTP staff was viable but burdensome. The alternative of using marina personnel to transport cars to suit chemical delivery was found not viable. The relocation of the chemical feed lines may be feasible but required negotiation of turnaround areas with the State of Vermont and possibly the Coast Guard. In addition, it should be recognized that the flow of traffic through Penny Lane alleyway will be greatly constricted during chemical deliveries. We estimate the cost of relocating the chemical fill stations at $40,000, not including land acquisition or the alternative access to the State boat launch.

4. *Our active 30-inch water intake is laid on the lake bottom and cold be susceptible to boat anchors or sinking docks/vessels from storm events. What types of mitigation measures could be implemented.*

The potential effects of the marina project on the intake line were investigated and found not to be significant. However, methods yet to be defined for anchoring the dock system to the lake bottom should be reviewed for potential effects on the intake line after specific methods are proposed.

5. *There are extensive water utilities on the west side of the filter plant near the existing picnic shelter.*

Marina officials propose use of the area near the picnic shelter to be used as boat storage, maintenance, loading, and launching area. This area is underlain by numerous large diameter pipes and appurtenances. After analysis of the potential wheel loading effects on these existing pipes, concrete encasement is recommended for protection of two large diameter pipes. This work is estimated at $35,000 not including porous pavers for restoration of the surface. In addition, in order to facilitate the marina project the existing flow control vault is recommended to be demolished and the meter relocated for an estimated construction cost of $25,000.

6. *There are extensive water and electric utilities on the north side of the alley that must be unhindered by above activities other than the roadway itself.*

The developer indicated there were no plans for this area and this item was not investigated.

7. *Determine if the plans to remove an existing earthen berm on the south side of the water plant to accommodate additional parking for the proposed marina will compromise the integrity of the structure. This will most likely require a structural analysis of the wall to ensure its stability with appropriate factors of safety due to reduced support.*

In order to maximize the available space for the westerly boat loading area and for parking along the south side of the Water Treatment Facility, a grass berm is proposed for removal. This would lower grade by four feet in this area which is a concern for

protection of existing utilities and for frost penetration along the footing in this area. After structural analysis, there is concern that the existing footing would not have adequate protection in the southwest corner of the building where the slab is stepped up for the ABW filter. We estimate the cost for protecting the building footings at this location at $100,000. But most of the footing along southerly elevation is not affected by the four foot grade modification. However, concrete encasement and insulation is warranted in this area for protection of utilities. The cost for this encasement and insulation is estimated at $25,000.

8. *An additional task was included in the scope of services to review existing security measures at the Water Treatment Facility and make any recommendations for improvement if deemed necessary based on any security implications related to the potential marina project.*

Security measures were investigated and found to be inadequate at the facility given the open public atmosphere around the facility and the existing system should be investigated and upgraded by a security firm. The potential for long-term parking directly adjacent to the south wall as proposed by the marina developer was found to pose significant adverse risks and found to be not acceptable for security reasons.

Planning Objective:

Conduct an engineering review of previously identified local concerns regarding construction and operation of a proposed marina project as it affects the current operation and potential future expansion or upgrade of the Water Treatment Plant (WTP). With one additional task, the concerns previously identified by Public Works officials are as contained in the request for technical assistance and our proposal of June 1, 2015. These concerns are as follows:

1. The Water Plant footprint is bound by a small area which is needed to perform maintenance tasks. One example is removal of vertical turbine pumps from the ABW filter area on the west side of the building. How can conflicts be averted?
2. As future regulations develop that may require different treatment, can the area as depicted with the Marina allow room to upgrade, replace, or expand the water purification processes such as GAC or other technologies?
3. Delivery of chemicals and other materials for water treatment operations is a routine occurrence and cannot be impinged upon by parking displacing this activity.
4. Our active 30-inch water intake is laid on the lake bottom and could be susceptible to boat anchors or sinking docks/vessels from storm events. What types of mitigation measures could be implemented?
5. There are extensive water utilities on the west side of the filter plant near the existing picnic shelter.
6. There are extensive water and electric utilities on the north side of the alley that must be unhindered by above activities other than the roadway itself.

7. Determine if the plans to remove an existing earthen berm on the south side of the water plant to accommodate additional parking for the proposed marina will compromise the integrity of the structure. This will most likely require a structural analysis of the wall to ensure its stability with appropriate factors of safety due to reduced support.
8. An additional task was included in the scope of services to review existing security measures at the Water Treatment Facility and make any recommendations for improvement if deemed necessary based on any security implications related to the potential marina project.

Existing Information:

The informational database for this was provided by both the City of Burlington as relating to the design and operation of the Water Treatment Facility and the marina developer and their consultant. The database is summarized as follows:

1. A set of Record Drawings dated May of 1981.
2. A set of Record Drawings dated October 1993 for the CT Improvement Project by Hoyle, Tanner & Associates, Inc.
3. A 1"=20 feet Progress Plan for the Burlington Harbor Marina Project showing Existing Conditions Partial Site Plan dated 6/3/2015 Drawing No. C1.0 by Civil Engineering Associates, Inc.
4. A 1"=50 feet Progress Plan for the Burlington Harbor Marina Project showing Existing Conditions Partial Site Plan dated 6/3/2015 Drawing No. C1.0 by Civil Engineering Associates, Inc.
5. Information provided by City staff regarding existing operational methods and historical data for the Water Treatment Facility.

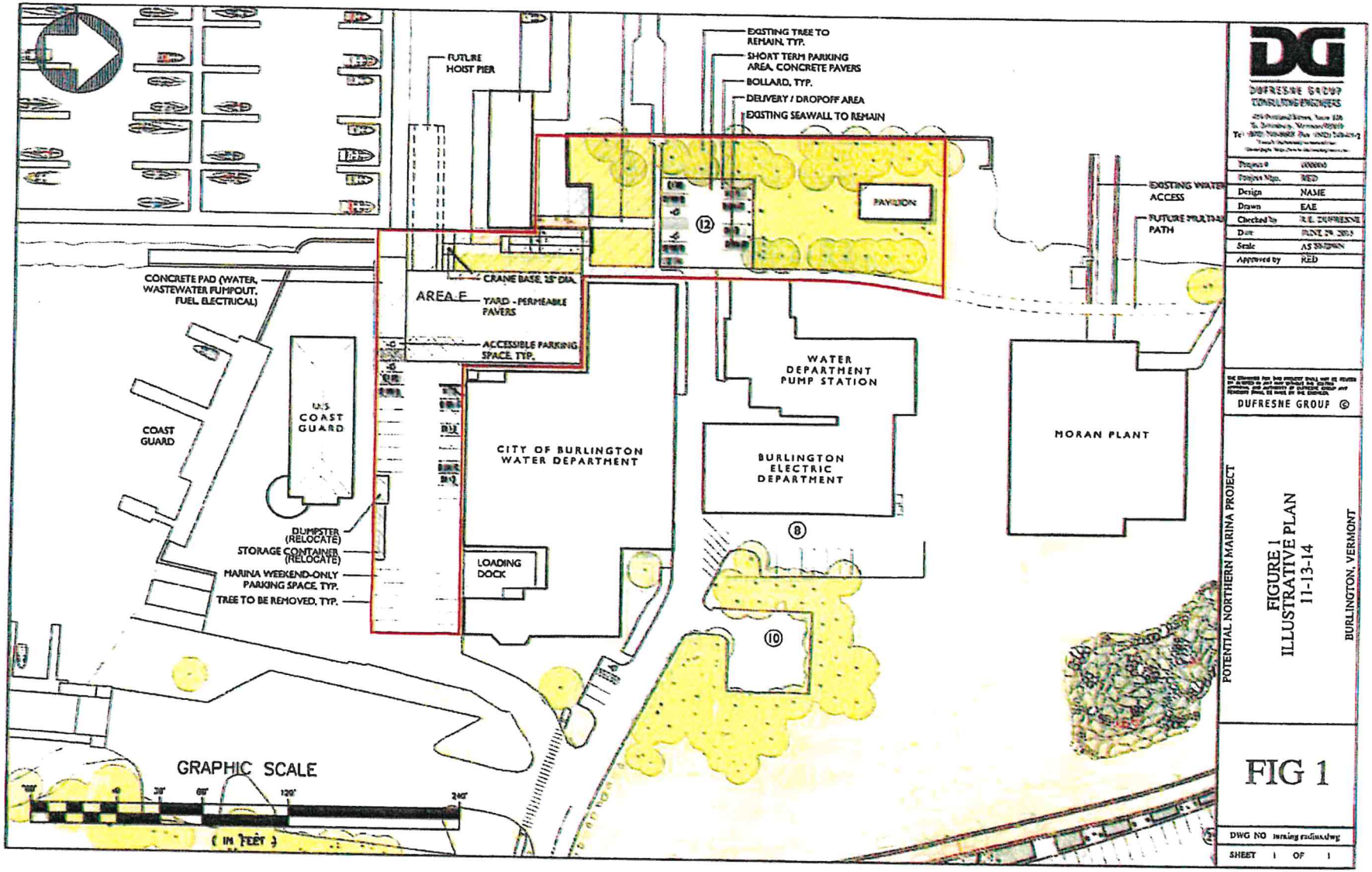
Engineering Analysis:

Our analysis of the potential adverse effects on the Water Treatment Facility is described by task as follows:

1. Conflicts with Maintenance Tasks:

Based on the November 13, 2014 Illustrative Plan prepared by the developer, the marina project would utilize the area between the south wall of the Water Treatment Facility and the fence that borders the northern boundary of the Coast Guard Building and all lands to the west of the Water Treatment Facility as shown in Figure 1. Based on presentations and discussions with the developer, Burlington Harbor Marina, LLC, at the initial project meeting on June 18, 2015, the planned uses include:

a. South Side:
   1) Access to and from the boat loading and unloading area
   2) Short and long-term parking for boat owners
   3) Temporary storage of boats awaiting launch
   4) Storage of some boats over the winter



DUFRESNE GROUP
CONSULTING ENGINEERS

Project #	(000000)
Project Mgr.	RED
Design	NAME
Drawn	EAE
Checked by	R.E. DUFRESNE
Date	JUNE 29, 2015
Scale	AS SHOWN
Approved by	RED

POTENTIAL NORTHERN MARINA PROJECT

FIGURE 1
ILLUSTRATIVE PLAN
11-13-14

BURLINGTON, VERMONT

FIG 1

DWG NO marina radius.dwg

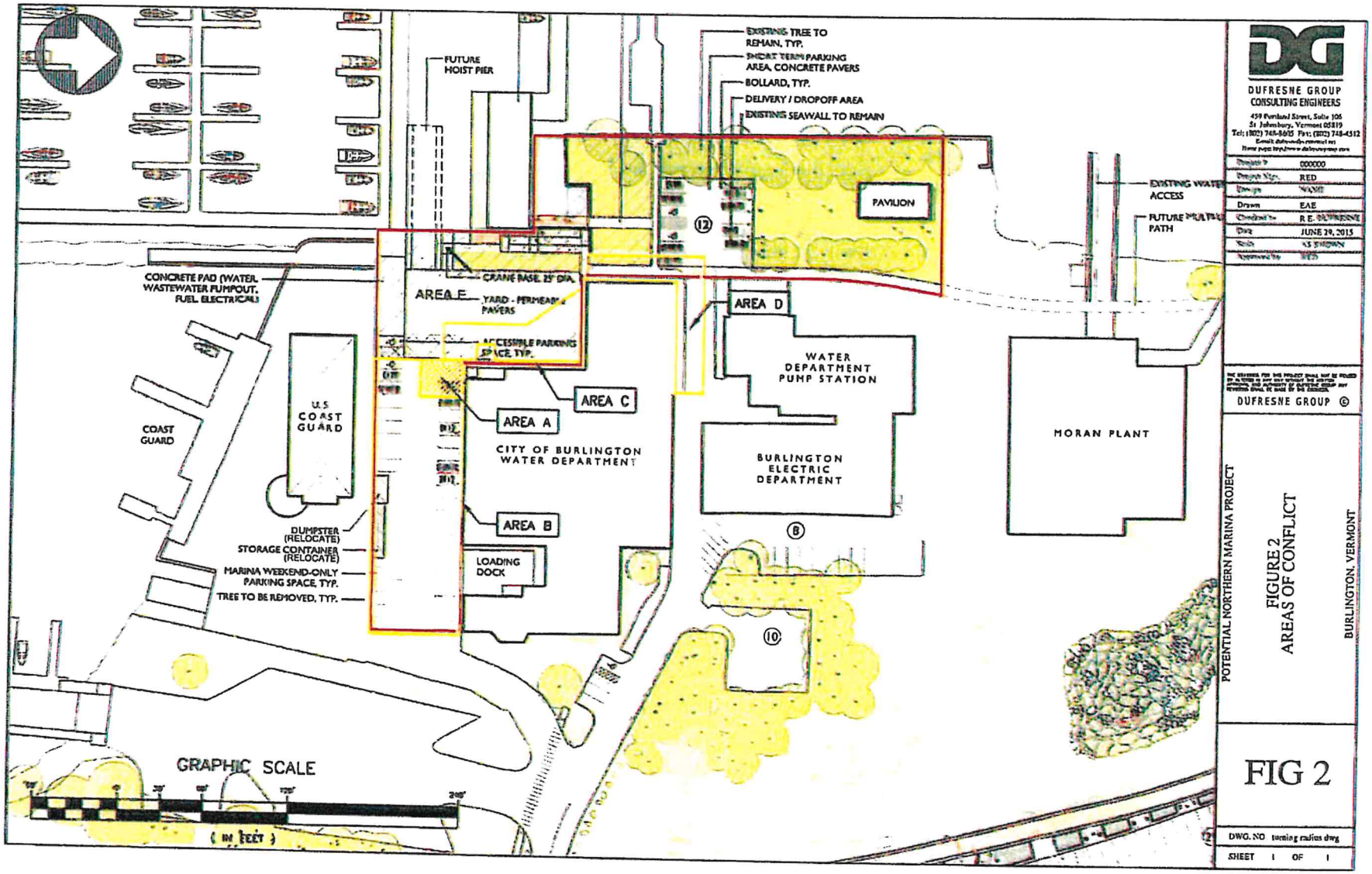
SHEET 1 OF 1

b. West side (from south to north):
   1) Crane base (or use of a portable wheel based crane) for loading and unloading boats
   2) Unloading and launching boats using the crane
   3) Holding area for boats awaiting maintenance or loading
   4) Public dock access
   5) Floating Marina support building
   6) Short-term parking
   7) Pavilion

Based on discussions with operational staff at the Water Treatment Facility, we inventoried the routine and infrequent maintenance tasks at the Water Treatment Facility that would potentially conflict with planned usage or activities at the marina. The tasks that conflict with the area of planned marina usage are shown by location in Figure 2 and described in Table 1.

TABLE 1
AREAS OF POTENTIAL CONFLICT
POTENTIAL MARINA PROJECT
BURLINGTON, VERMONT
JULY 1, 2015

Area Description	WTP Use	Proposed Marina Use
Southwest WTP Building Corner (Area A on Figure 2).	Crane location to remove/install stage 1 filtered water pumps. Estimated frequency is twice every ten years for about half a day (remove and then reinstall a month later).	Access to the boat loading and unloading area. Short and long-term parking for boat owners. Temporary storage of boats awaiting launch. Storage of some boats over the winter.
Southwest area between Coast Guard Fence and South WTP Building Wall Location Area B on Figure 2. Under the marina project, the proposed modifications include removal of the berm to allow parking adjacent to the WTP building.	Berm at South Wall provides cover and protection of numerous underground utilities. The existing access area facilitates bulk tank chemical deliveries. These deliveries currently average about twice per month. The existing access area barely provides sufficient access for deliveries.	Access to the maintenance crane and the boat loading and unloading area via the central portion of the proposed parking area. Short and long-term parking and limited winter boat storage would be along the north and south portions of this area.
Picnic Area west of WTP Area C on Figure 2.	Numerous underground utilities including a flow meter vault. There are several large diameter pipes with shallow bury depth in this area.	Access as staging area for the boat loading and unloading using crane. Area would also be used for boat maintenance.
Area northwest of Main Plant shown as Area D on Figure 2	Access for large vacuum truck for removal and/or replacement of sand media.	Green space and pedestrian walk way.


FUTURE HOIST PIER
EXISTING TREE TO REMAIN, TYP.
SHORT TERM PARKING AREA, CONCRETE PAVERS
BOLLARD, TYP.
DELIVERY / DROPOFF AREA
EXISTING SEAWALL TO REMAIN
PAVILION
EXISTING WATER ACCESS
FUTURE MULTI-USE PATH
CONCRETE PAD (WATER, WASTEWATER PUMPOUT, FUEL, ELECTRICAL)
CRANE BASE, 25' DIA.
AREA E
YARD - PERMEABLE PAVERS
ACCESSIBLE PARKING SPACE, TYP.
AREA D
WATER DEPARTMENT PUMP STATION
AREA C
AREA A
CITY OF BURLINGTON WATER DEPARTMENT
U.S COAST GUARD
COAST GUARD
MORAN PLANT
BURLINGTON ELECTRIC DEPARTMENT
AREA B
DUMPSTER (RELOCATE)
STORAGE CONTAINER (RELOCATE)
MARINA WEEKEND-ONLY PARKING SPACE, TYP.
TREE TO BE REMOVED, TYP.
LOADING DOCK
GRAPHIC SCALE
(IN FEET)
DUFRESNE GROUP
CONSULTING ENGINEERS
459 Portland Street, Suite 106
St Johnsbury, Vermont 05819
Tel: (802) 748-8655 Fax: (802) 748-4512
Project # 000000
Project Mgr. RED
Design NONE
Drawn EAE
Checked by R.E. DUFRESNE
Date JUNE 29, 2015
Scale AS SHOWN
Approved by RED
DUFRESNE GROUP ©
POTENTIAL NORTHERN MARINA PROJECT
FIGURE 2
AREAS OF CONFLICT
BURLINGTON, VERMONT
FIG 2
DWG. NO turning radius dwg
SHEET 1 OF 1

As described in Table 1, there are some usage conflicts in the southern and western areas as follows:

A. Area A. Under the marina project, a portion of this area would be used for parking and for loading and unloading boats using a permanent or portable crane. This proposed use would at very infrequent time's conflict with the required maintenance procedure of removing or reinstalling filtered water pumps that are removed through roof hatches in the roof using a crane. The need would not be predictable but is likely not immediate since there are three pumps and only one pump is required to meet typically daily demand. Removal of a pump could be scheduled a week or so after the need arises. The procedure would take about four hours for mobilization, pump removal (or installation), and demobilization and is estimated to occur about three times every ten years based on the life of such mechanical systems. Potential mitigation measures would include:
   1. Notification of marina staff by WTP staff of the need for a portable crane at the location shown to remove or install the pump/motor. Marina staff would convey the need to set up a crane to remove the pump/motor and barricade the area to prevent parking or storage by uninformed individuals. However, since some vehicle owners may likely be out of touch for over a week, it seems beneficial that the marina owners would require vehicle keys be left with the marina management for such a situation.

B. Area B. Under the marina project, long-term parking and winter boat storage along the south wall of the Water Treatment Facility and the northern fence of the Coast Guard complex would restrict bulk delivery of chemicals to the WTP. Potential mitigation measures could include:
   1. Eliminate winter boat storage in this area. In addition to restricting access for bulk delivery, winter boat storage would hamper effective snow removal.
   2. Utilize the area for parking for WTP employees only and open areas formerly used by WTP staff for Marina customers. WTP administrative officials would have control of employee parking and could coordinate temporary restrictions for bulk deliveries.
   3. Require valet parking where the marina manager would have access to all vehicles in long-term parking. The vehicles would be removed and returned as required to facilitate bulk deliveries. Based on the current chemical delivery frequency of once every two weeks, coordinating and accomplishing vehicle relocations would appear to be onerous. In addition, if the delivery frequency increases due to enhanced coagulation or ozonation, it appears the frequent vehicle relocation concept would not be viable.
   4. Although not discussed with the City Fire Chief, it is likely that long-term parking directly adjacent to the south wall of the water treatment building would unduly restrict access for emergency vehicles and would not be endorsed as a viable concept.

2. Potential improvements due to future regulations:

The need to construct additional facilities to meet increasingly stringent standards is perhaps the most significant issue of concern when considering the potential marina project. Once the real estate surrounding the facility is lost to the marina project, it will set increased constraints for potential future projects, which have not yet been defined. Transferring partially treated water to a remote location for additional treatment due to such land constraints and back to the existing plant for additional unit operations is expensive on both a capital cost and annual cost basis.

The Water Treatment Facility for the City of Burlington withdraws and treats water from Lake Champlain to meet all current state and federal water quality standards. Currently, the facility produces water in conformance with these parameters. Water quality standards are set by the Environmental Protection Agency (EPA) and are constantly evolving. In fact, EPA is charged with setting maximum contaminant levels (MCL's) for new contaminants on a continuing basis. Twenty years ago few waterworks professionals could have predicted the extensive set of regulations now governing the production and treatment of drinking water.

The historical growth and severity of Federal regulations allows one to confidently predict that water quality standards will be even more stringent in future decades. As one would expect, equipment and tankage needed to comply with the more stringent quality standards will create the need for more expansive and more complex facilities. These new and enhanced unit operations will typically require more space to house and support these facilities. Although less so in most Vermont communities, growth due to population increases will further create a demand for larger water treatment facilities.

Offsetting the trend for larger more expansive facilities is the exponential rate of growth in technology in the water treatment industry as well as in related disciplines such as electrical, instrumentation, and mechanical systems. The WTP in Burlington is an example of a facility benefitting from such technological advances. Prior to the upgrade project in 1981, Burlington used conventional water treatment facilities, which required separate unit operations for rapid mix, slow mix (or flocculation), sedimentation, filtration, and disinfection. A significant innovation in water treatment in the late 1970's was the development of a combination flocculation and sedimentation basin. This innovation was the main objective of the 1981 filter plant renovation project in Burlington. This use of a single basin for flocculation and sedimentation was referred to as a solids contact clarifier. This multipurpose tank allowed for a 50% reduction in floor space when compared to the older "conventional" treatment technology. This multiuse basin which was further enhanced with baffles and plate settlers to allows increased application rates to allow twice the water through as compared to the original solids contact clarifier resulting in another 50% reduction in floor space for treating the same flow. In 1981 Burlington officials pursued this alternative and constructed this pretreatment unit operation with a product known as a "super-pulsator".

Innovation continued exponentially after the Burlington upgrade project was completed. Adsorber clarifiers allowed much better pretreatment clarification with only 40% of the area previously required for a "super-pulsator". Dissolved Air Floatation methods of pretreatment reduce space requirements even further. On high quality sources of supply such as Lake Champlain, membrane alternatives now allow for superior water treatment without the use of any pretreatment basins. Future innovations may yet reduce requirements for buildings and infrastructure to even greater degrees.

Operationally, better operators, better blended coagulants, new coagulant aids, advanced feed pumps, more reliable analyzers and the use of supervisory control and data acquisition (SCADA) systems allow consistent production of high quality drinking water at higher application rates (and much reduced floor space requirements).

The need for larger facilities to meet increasingly stringent water quality regulations versus the advances in technology which allow water works professionals to do more with less is the backdrop for this evaluation.

Current and Anticipated Future Regulations:

There are primarily three sets of regulations that set water quality standards for Burlington and all other surface water treatment facilities nationally. These regulations or "Rules" include:

- Stage 1 Disinfectants and Disinfection Byproducts Rule (S1D/DBPR).
- Stage 2 Disinfectants and Disinfection Byproducts Rule (S2D/DBPR).
- Long-term 2 Enhanced Surface Water Treatment Rules (LT2ESWTR).

The S1D/DBR sets maximum residual disinfectant levels (MRDL's) for chemical disinfectants, as well as maximum contaminant levels (MCL's) for disinfection byproducts (DBP's). These values are shown in Table 2.

TABLE 2
MAXIMUM LEVELS FOR DISINFECTANTS AND DISINFECTION BYPRODUCTS
STAGE 1 DISINFECTANTS AND DISINFECTION BYPRODUCTS RULE
BURLINGTON, VERMONT
JUNE 30, 2015

Disinfectant Residual	**MRDL (mg/L)**	**Compliance Based On**
Chlorine	4.0 (as Cl_2)	Annual Average
Chloramine	4.0 (as Cl_2)	Annual Average
Chlorine Dioxide	0.8 (as Clo_2)	Daily Samples
Disinfection Byproducts	**MCL (mg/L)**	**Compliance Based On**
Total Trihalomethanes (TTHM)	0.08	Annual Average
Haloacetic Acids (HAA_5)	0.06	Annual Average
Chlorite	1	Monthly Average
Bromate	0.01	Annual Average

Notes:
1. MRDL indicates Maximum Residual Disinfectant Level
2. MCL indicates Maximum Contaminant level.

Based on data collected at distribution system monitoring sites, a running annual average (RAA) is calculated to determine compliance. Under the S1D/DBPR all sites could be averaged for compliance.

One of the greatest challenges for public community water systems, including Burlington, has been compliance with the MCL's for THM's and HAA_5's as set in the S1D/DBPR. Vermont systems treating surface water with typical total organic carbon (TOC) concentrations found in upland ponds and lakes that also use chlorine as a primary disinfectant are prone to DBP concentrations above 60 parts per billion (ppb) and 80 ppb for HAA's and THM's especially in the late summer and early fall when the organic levels are highest. Also, systems using free chlorine as a secondary disinfectant with geographically expansive water distribution systems with long detention times, such as Burlington, are especially challenged.

Also regulated under the S1D/DBR is the amount of total organic carbon (TOC) that is required to be removed. The amount removed depends on the source water TOC and the alkalinity of the source water. The removal of TOC usually reduces the potential production of DBP's. Required removal percentages of TOC are shown in Table 3.

TABLE 3
REQUIRED REMOVAL OF TOTAL ORGANIC CARBON
BURLINGTON, VERMONT
JUNE 30, 2015

Source Water Total Organic Carbon (TOC) (mg/L)	Source Water Alkalinity (mg/L as $CaCo_3$)		
	0-60	>60-120	>120
>2.0-4.0	35.0%	25.0%	15.0%
>4.0-8.0	45.0%	35.0%	25.0%
>8.0	50.0%	40.0%	30.0%

TOC sampling and analysis in Burlington indicates that the existing facility is in compliance with the above TOC removal criteria.

The Stage 2 Disinfectants and Disinfection Byproducts Rule (S2D/DBR) continues to build on the goals and procedures set forth in the S1D/DBPR. The MCL's for TTHM and HAA_5 remain the same as levels set forth in the S1D/DBP Rule at 80 ppm for TTHM and 60 ppb for HAA_5. However, compliance has changed from using the system-wide running annual average (RAA) to a locational running annual average (LRAA) at specific locations in the distribution system based on distribution system analysis. The sampling locations were selected at sites known to have the highest TMH and/or HAA levels. DBP compliance at specific system locations is the most significant and challenging issue brought forth in the S2D/DBR

Although DBP's are the focus of the S2D/DBP Rule, the microbial constituents are the focus of the Long-term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). Since Cryptosporidium oocysts are very resistant to inactivation using free chlorine, this pathogen is a target of this Rule. Cryptosporidium is a protozoan pathogen of the Phylum Apicomplexa and causes a diarrheal illness called cryptosporidiosis. Other apicomplexan pathogens include the malaria parasite Plasmodium, and Toxoplasma, the causative agent of toxoplasmosis. Unlike Plasmodium, which transmits via a mosquito vector, Cryptosporidium does not utilize an insect vector and is capable of completing its life cycle within a single host, resulting in oocyst stages which are excreted in feces and are capable of transmission to a new host.

The LT2ESWTR set a maximum contaminant level goal (MCLG) of zero for Cryptosporidium, and requires that systems utilizing filters provide at least a 2-log (99.0%) removal. The Rule also provides new maximum levels for combined filter turbidity as well as requirements for continuous turbidity monitoring of individual filters. Future regulations will target watersheds that may have susceptibility for large numbers of Cryptosporidium and will likely require more than 99% removal for this chlorine resistant pathogen.

As part of the LT2ESWTR, public water systems must execute a disinfection profiling and benchmarking program. Systems that produce finished water with TTHM or HAA_5 levels below 0.064 mg/L or 0.048 mg/L (respectively), or systems which plan to modify their disinfection technique previously approved are required to create a disinfection profile and benchmark. The purpose of the disinfection profiling and benchmarking program is to ensure that any changes made to a disinfection regime to meet the S2D/DBP regulations will not adversely affect the ability to control microbial pathogens as required under the LT2ESWTR.

As the TTHM and HAA_5 levels in Burlington are at times both above the 0.064 ms/l and 0.048 mg/l levels, a disinfection profile will be required prior to making any modifications to the current disinfection scheme.

The profile described in the LT2ESWTR is a log of daily monitoring of the log inactivation for viruses. The benchmark is then computed from the daily values and is described as the average of the lowest monthly inactivation values. The plant operator maintains this log of chlorine residual and concentration-time (CT) values provided.

The Surface Water Treatment Rule (SWTR), which preceded the LT2ESWTR, was promulgated in 1984. Under this Rule, concentration-time (CT) tables were developed to assure adequate disinfectant contact time prior to the first customer. This early Rule and the related guidance manuals set minimum concentration-time requirements (CT_R) for various inactivation goals based on both *Giardia Lamblia* and virus for different disinfectants.

In the SWTR, surface water treatment facilities are required (in addition to other requirements) to remove or inactivate 99.9% of the *giardia* cysts (or a three log removal/inactivation). Properly operated surface water treatment facilities for the type of direct filtration plant used in Burlington are assumed to remove 99% of the *giardia* cysts. This leaves another 90% (one log) of the remaining *giardia* cysts to be inactivated by disinfection.

Reaching an effective balance between the LT2ESWTR and the S2D/DBPR is referred to as simultaneous compliance and has created a significant challenge for water treatment operators across the country.

In addition to DBP issues, other potential water quality issues loom on the horizon. These issues may include removal requirements for pharmaceuticals, manganese, and new microbial, inorganic, and synthetic organic contaminants. Currently there are numerous potential contaminants monitored under the unregulated contaminant monitoring rule. It is likely that some of these contaminants will someday be regulated with MCL's set at very low levels which may or may not require additional unit operations for Burlington. Cyanobacteria and Cyanotoxins (better known as blue-green algae) are listed on EPA's Candidate Contaminant List. Many other countries (including Canada) have developed regulations for these contaminants based on the World Health

Organization provisional guideline for drinking water of 1.0 ppb. Unfortunately, many typical unit operations are not effective for removing these toxins. In fact peroxidation with chemicals such as potassium permanganate should be avoided to prevent lyses of cells. However, enhanced coagulation is effective in removal of most of the intracellular toxins. In addition, GAC have been found to be very effective for removal of these toxins. Ozone has been found to be very effective in oxidizing extracellular toxins.

In discussions with Ray Solomon, the potential future regulations that appear to be factors for Burlington in the next decade include limits on chlorate and strontium. However, he feels that as long as the hypochlorite solution remains "fresh", neither parameter should be an issue for Burlington. Ray underscored that the primary factor for Burlington for the next decade will be compliance with current and anticipated modifications of the Stage 2 Disinfectants/Disinfection Byproduct Rule.

Burlington's Existing Water Treatment System:

The Water Treatment Facility in Burlington obtains raw water from Lake Champlain, which is the sole source of supply for Burlington and their consecutive systems. There are emergency interconnections with other systems, but these connections are not capable of meeting all system demands and the Burlington Water Treatment Facility is required to meet customer demands.

Water is withdrawn from an intake screen located on the lake bottom about 4,000 feet into the lake at depth of about 40 feet. Raw water is withdrawn from the intake through a 30-inch diameter ductile iron ball and socket pipe water main laid along the lake bottom. There are several raw water sampling lines and chemical feed lines located within the raw water pipe terminating within the intake pipe near the intake screen.

The intake pipe is inspected from time to time using divers. The latest inspection completed in 2005 shows the exterior of the intake pipe completely encased with zebra mussels. Photos obtained by the divers indicate that there has been erosion of the lake bottom material under the pipe leaving the length of pipe segments only supported by the bell of the pipe. These photos attest the strong currents inside the breakwater even at the lake bottom. This situation also leaves the pipe susceptible to being "hooked" by an anchor, which depending on the surface conditions and boat size, could cause displacement of the intake pipe. However, we view this potential issue to be less significant due to the properties of ductile iron pipe material, the joint configuration allowing for watertight conditions even when displaced up to 15 degrees, and the long length of intake pipe. The submerged weight of the intake line is about 4.9 tons per 100 feet. The raw water sample lines and pretreatment lines are well protected within the intake pipe and are not susceptible to damage due to improper anchoring.

Raw water is drawn into the intake screen and potassium permanganate is added to control zebra mussels. The treated raw water is pulled through the intake line and into

the raw water pump station located to the north of the Water Treatment Facility and west of the Burlington Electric Department building. A powdered activated carbon (PAC) feed system is located within the raw water pump station for use during infrequent occasions when lampricide is fed into some river inlets to the lake.

Raw water passes through the raw water pumps and into the Water Treatment Facility building and coagulants are fed at the premix basin. The facility uses low feed rates of aluminum sulfate (alum) as the primary coagulant and feeds a cationic polymer as a coagulant aid. The coagulated water passes through one of the two "super-pulsator" basins (the baffles, plate settlers, and vacuum pulsator have since been removed). The water receives no treatment within this basin with the exception of contact time for coagulation and some flocculation. The coagulated water then normally passes onto a traveling bridge filter commonly referred to as an automatic backwash (ABW) filter. At this time, the ABW filter is being rebuilt and has been bypassed and coagulated water is pumped directly to the mono-media sand filters. This method of treatment will continue until the ABW filter is placed back on line, which is scheduled for late July.

After the ABW filter, the filtered water is re-pumped and also receives additional alum and polymer and passes onto mono-media rapid sand filters for final filtration. After this second stage filtration, sodium hypochlorite is then added into the filtered water for primary disinfection.

The chlorinated water then passes through two baffled 170,000 gallon clearwells in series. After CT requirements are achieved, finished water is withdrawn using high head pumps and transferred into the distribution system.

System Demand:

Total system demand (monthly averages) for the past three years (2010 to 2014) varied between 3.4 million gallons per day (mgd) and 4.8 mgd. The average day demand for the period was about 4.11 mgd and the general trend shows decreasing system demand with time of about 140,000 gallons per year. Based on this trend, we do not anticipate significant increased demand due to growth.

The maximum day demand is 7.5 mgd and the treatment plant can produce 10 mgd on a consistent basis, which demonstrates adequate treatment capacity to meet current maximum day demand.

Vermont Engineering Feasibility Study for DBP Reduction:

In late 2009, as a result of the imminent promulgation of Stage 2 Disinfectants and Disinfection Byproducts Rule and due to intense public concerns over the conversion from free chorine to monochloramine at Champlain Water District, the State of Vermont contracted with AECOM to complete a feasibility study for ten Vermont systems facing compliance issues under the S1D/DBP Rule. Potential process enhancements were

evaluated in a *March 2010 Engineering Feasibility Study on the Costs of Treatment Options for Reducing Disinfection Byproducts in Public Drinking Water Systems* for the Vermont Department of Environmental Conservation (DEC). Burlington was one of ten systems evaluated for potential improvements to comply with Stage 2 Disinfectants Disinfection Byproducts regulations.

Computer models used by AECOM indicated that it was likely that, at some point in the future, Burlington would have to reduce disinfection byproducts (DBP's) to meet regulations and these models indicated that there was only a limited potential benefit using existing control systems operationally available at the facility such as powdered activated carbon, reduced CT, and lower finished water chlorine concentrations with new chlorine booster stations constructed in the distribution system. In this 2010 report, several alternatives were developed for Burlington to control DBP's including:

- Conversion of the Super-pulsator to a Dissolved Air Floatation (DAF) unit for increased total organic carbon (TOC) removal using enhanced coagulation.
- Conversion from using free chorine as a secondary disinfectant to using monochloramine as the secondary disinfectant.
- Potential use of ultraviolet light units for primary disinfection.

Based on our analysis, the conversion of one of the Super-pulsator units to DAF units and the use of UV disinfection would likely not require additional space beyond the current roof lines. In addition, chemical tanks and feed equipment necessary for conversion from free chlorine to monochloramine for secondary disinfection could be provided without any expansion beyond the current roof lines.

One unit operation that was not projected for use at Burlington in the 2010 report was Granular Activated Carbon (GAC) contactors. These units would require substantial space for the units themselves, as well as space for the potential transfer pumping systems. In addition there would be space needed on site for bulk handling operations when adding, removing, or replacing GAC. This bulk handling operation is required on about an annual basis.

Based on analysis of current and potential future regulations and analysis of the treatment facility and the raw water quality, we feel that it is most probable that Burlington will have to implement measures to reduce disinfection byproducts to meet either current Stage 2 Disinfectant/Disinfection Byproduct Rule requirements or future reduced and expanded requirements for DBP removal. In addition, based on the single relatively shallow intake, we feel it is possible that although Burlington does not currently experience any taste and odor events, such episodes may occur in the future due to increased algal events.

In review of the 2010 Feasibility Study for Burlington and our analysis of future treatment requirements, we agree that there is little benefit to be obtained via

operational practices that have not already been implemented. Pre-chlorination prior to stage 2 filtration has already been discontinued and has had a beneficial effect on reducing DPB's. The alternative of using the powdered activated carbon feeder at rates less than 25 ppm would likely not have a significant beneficial effect and at rates over 25 ppm would be problematic for direct filtration. Finally reducing the clearwell level to reduce retention time during the warmer months (when precursors are highest) would also likely not achieve significant benefits.

We agree that the most applicable additional unit operations needed to reduce DBP's that should be considered include the following:

1. Conversion from free chlorine to monochloramine for secondary disinfection.
2. Conversion of the Super-pulsator to a dissolved air floatation unit for use with enhanced coagulation to remove additional precursors. Converting to DAF would allow the State of Vermont to credit the facility with pretreatment and solids removal prior to filtration and allow a 2.5 log removal credit rather than the current 2.0 removal credit. This would reduce the inactivation requirement to 0.5 logs rather than the 1.0 log inactivation requirement currently in effect for the direct filtration mode of operation.
3. Eliminating free chlorine as a primary disinfectant. In the 2010 Feasibility Study, ultraviolet light was recommended for consideration and we feel that the recent research indicating significantly higher doses for viral inactivation limits the effectiveness of ultraviolet light for primary disinfection, unless a very high dosage is provided for at a significant annual cost for electricity. Using both ultraviolet and free chlorine to achieve adequate viral inactivation would appear to threaten or defeat the goal of reducing chlorine related byproducts. However, we do feel it is likely that converting from free chlorine to ozone would have advantages that would favor its use. For instance, using side stream ozonation for primary disinfection. The raw water could also be pre-ozonated near the intake stream for possible taste and odor control without forming chlorinated byproducts. The potassium permanganate feed system could be eliminated. The ozonated raw water would convert much of the Natural Organic Matter (NOM) to Biodegradable Organic Carbon (BDOC). This BDOC should be removed during treatment to prevent potential for regrowth in the distribution system. The traveling bridge filter could act as a biological filter to accomplish this goal using GAC media. According to tracer studies, the baffled clearwells provide adequate detention time at current free chlorine residuals to meet CT requirements. However, during cold temperatures, the CT provided is not significantly above the CT required. If future requirements increase the minimum log inactivation, additional clearwell volume would likely be required for primary disinfection using chlorine. However, additional clearwell volume would not be required using ozone for primary disinfection, which is about ten times more

effective than free chlorine for pathogen inactivation. Under the alternative of using ozone for primary disinfection, secondary disinfection would be achieved using monochloramine, which is manufactured on site using sodium hypochlorite and liquid ammonium sulfate.

Based on our analysis, we feel that it is most likely that Burlington may have to implement measures that will require capital improvements to control disinfection byproducts using one or more of the following concepts listed in order of lifecycle cost:

- Conversion from free chlorine to monochloramine for secondary disinfection.
- Conversion of the Super-pulsator to a dissolved air floatation (DAF) unit for use with enhanced coagulation to remove additional precursors.
- Conversion from free chlorine as a primary disinfectant to ozone.

Technically if DBP sampling and analysis signaled the need to reduce DBP concentrations to comply with the Rule, it would seem logical to follow the mitigation steps in the order as listed above. For instance, the initial step would be converting from free chlorine to monochloramine for secondary disinfection. If DBP concentrations did not drop sufficiently, officials would proceed with the second step of implementing enhanced coagulation using DAF. Finally if Federal regulations set lower levels of chlorinated byproducts or raw water characteristics change and precursors increase to problematic levels even after steps 1 and 2, Burlington officials would continue to step 3, converting from free chlorine for primary disinfection to ozone.

Although monochloramine has been used in many parts of the country in some cases for almost a century, there was substantial concern raised when nearby Champlain Water District converted from free chlorine to monochloramine about a decade ago. However, due to the successful experience at CWD, this phobia toward use of monochloramine as a secondary disinfectant may have diminished. Under the Vermont Water Supply Rule, there are only two alternatives for secondary disinfection including:

- Free chlorine, which is known to cause increased regulated byproducts
- Monochloramine, which has little effect for increased regulated byproducts

Loss of one of these two alternative disinfectants would severely restrict Burlington's ability to comply with existing and future regulations.

Burlington officials support open public discussion of alternate disinfection alternatives and would place significant weight on customer preference in any decision for consideration of alternate disinfection measures. Should monochloramine not be embraced by the customer base, it would likely be excluded as an alternative for secondary disinfection and continued use of free chlorine would be required even though it would increase regulated DBP's. If monochloramine is excluded for secondary disinfection, the alternatives available to Burlington become much more expensive and would include:

- Conversion of one of the the Super-pulsator basins to a dissolved air floatation (DAF) unit for use with enhanced coagulation to remove additional precursors.
- Use of Granular Activated Carbon (GAC) contactors to remove precursors from the stage two filtered water prior to primary and secondary disinfection using chlorine.

Ozone would remain as an available alternative for both pre-ozonation of raw water followed by conversion of the traveling bridge filter for use as a biologically active filter, and for primary disinfection. However, using ozone for primary disinfection seems to be of limited benefit if free chlorine is used for secondary disinfection in the distribution system.

Based on this discussion, Burlington should develop concept plans and contingency procedures for implementing improvements and modifications to proceed with any of the alternates indicted above. Until a master plan is developed to formalize future improvements, Burlington should not limit the available area around the facility so as to eliminate design and construction alternatives for implementing these alternatives. The probable alternatives to comply with current and future regulations include:

1. Conversion from free chlorine to monochloramine for secondary disinfection.
2. Conversion of the Super-pulsator to a dissolved air floatation (DAF) unit for use with enhanced coagulation to remove additional precursors.
3. Conversion from free chlorine as a primary disinfectant to ozone.
4. Use of Granular Activated Carbon (GAC) contactors to remove precursors from the stage two filtered water prior to primary disinfection using chlorine.

We have completed an analysis of the implementation of these alternatives and noted any effects related to the potential marina project.

Probable Alternatives to Comply with Future Regulations:

As described previously, although it is assured that future regulations will be more stringent, one cannot accurately predict the extent and the implementation schedule for these regulations. Therefore it would be prudent to provide for as much flexibility as possible in protecting options yet to be defined. We describe the concepts and characteristics for implementing the four most probable process improvements likely needed to comply with future regulations.

Conversion from free chlorine to monochloramine for secondary disinfection:

This improvement is relatively straightforward to implement. After primary disinfection using free chlorine, additional chemical feed points would be added prior to the finished water pumps to combine sodium hypochlorite and ammonium sulfate at the correct feed rates to produce monochloramine. Sample lines would be provided to insure the correct monochloramine residual enters the distribution system.

An additional chemical would be needed to generate the monochloramine and there are several options available to obtain a source of ammonia. In this case, liquid ammonium sulfate is the safest choice and is the most easily handled. This chemical would be delivered by tanker trucks and stored in a bulk tank similar to alum and sodium hypochlorite, which is currently delivered and stored in a similar manner.

The concept plan would be as shown in Figure 3.

Since there is sufficient space for the bulk tank, day tank, and feed pumps within the existing chemical feed area, the only adverse effects imposed by the marina project, would be the following issues:

- Constricted access during delivery and installation of an ammonium sulfate bulk tank and feed system.
- More frequent bulk tank deliveries and continued conflict with vehicles parked on the south side.

Conversion of one of the Super-Pulsator units for use as a dissolved air floatation (DAF) unit for enhanced coagulation to remove additional precursors.

This alternative would be implemented to allow enhanced coagulation using substantially more coagulants to combine with natural organic matter and precursors to be removed in the DAF unit and in the filters prior to chlorination.

This alternative would be much more mechanically complex as compared to using monochloramines as in addition to structural improvements within the former super-pulsator the following support systems are required:

- Air compressors are required for injecting air into the coagulated water.
- Recycle pumps for injecting supersaturated water into the coagulated water.
- Floc concentrators and control valves and piping to convey the floc removed to the waste holding tank; perhaps from an average of twice per month to twice per week.

Since these modifications are internal to the existing facility, the only adverse effects posed by the marina project are as follows:

- Constricting the available staging areas available to the Contractor during construction.
- More frequent bulk deliveries of alum and polymer and continued conflict with vehicles parked on the south side of the facility.

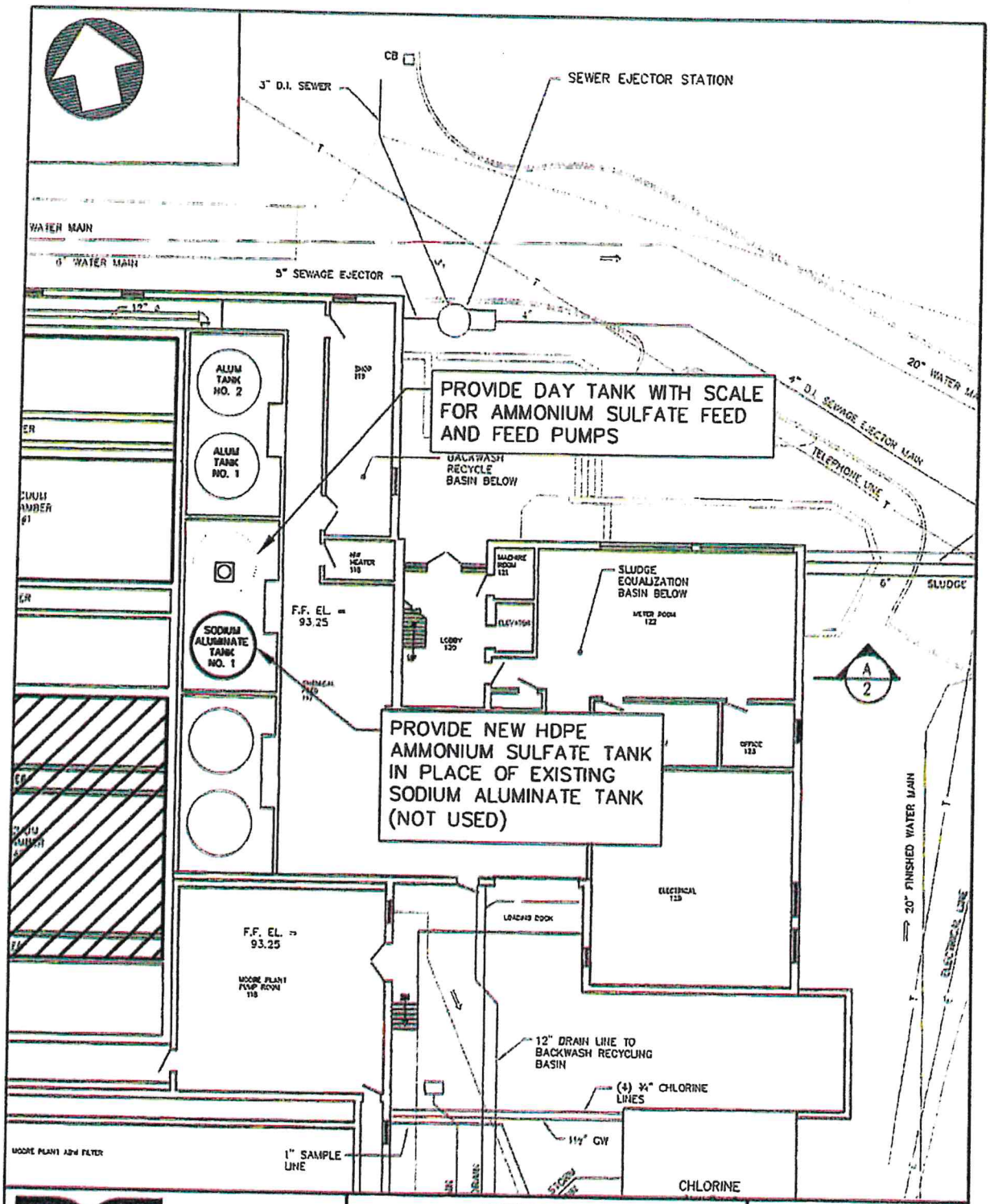


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FIGURE NO 3

CONCEPT PLAN SECONDARY DISINFECTION USING MONOCHLORAMINE

BURLINGTON, VERMONT

PROJECT NO. 000000
PROJECT MJR. RED
SCALE AS SHOWN
DATE JULY 2015
DRAWING NO. FIGURE 3.dwg

FILE: S:\Transfers\Burlington harbor chlorine\FIGURE 3.dwg Jul 01, 2015 - 1:31pm

Conversion from free chlorine to ozone as a primary disinfectant:

This alternative would entail several systems to complete a working ozonation system. Ozone would need to be generated from a source of oxygen. We have opted to consider liquid oxygen at this concept stage as the mechanical systems necessary to obtain dry oxygen from the air are complex, inefficient, and operationally intensive. The oxygen gas would be stored in two pressurized bulk tanks located somewhere outside the facility with access available for bulk gas delivery. Based on a monthly refill, two 2,000 gallon liquid oxygen tanks would be required. These tanks would need to be accessible for deliveries with large (55 foot) tanker trucks.

An ozone generator system would be required to manufacture ozone from the pure oxygen for use at the facility. This generator would have a significant electrical load that would likely require modifications and upgrades to the primary electrical service, standby generators, a transfer switch, and distribution wiring.

A side stream process pumping system would be required to convey process water though an eductor to mix ozone into the feed water. The ozonated water would then pass through a degas vessel and the heavily ozonated water would pass into the process stream. A positive method to trap excess ozone and for ozone destruction would be required prior to atmospheric discharge. If the ozone is used both on raw water and filtered water, care must be taken to protect the interior treatment building spaces from ozone gas by trapping, collecting, and destroying the gas prior to discharge. Based on a maximum combined ozone dose (both pre-oxidation and primary disinfection) of 2.0 mg/l at 7 mgd, the ozone system would need a capacity of about 117 pounds per day. However, based on historical demand, the typical feed rate for ozone would be about 67 pounds per day. However, due to ozone conversion inefficiency, about 700 pounds per day of liquid oxygen gas would be used for the process.

The marina project would have some adverse effects on this process improvement alternative as follows:

- The oxygen tanks would need to be positioned at a location conducive for bulk gas delivery and be fenced to prevent unauthorized access.
- Bulk delivery to the oxygen tanks would be required on a monthly basis.

There is very little land available for storage of liquid oxygen adjacent to the facility that can be accessed by large tank trucks. It seems that the only available site is along the south elevation which would eliminate potential marina vehicle parking and prevent access to the marina crane area. We have developed a concept plan for this alternative in Figure 4.

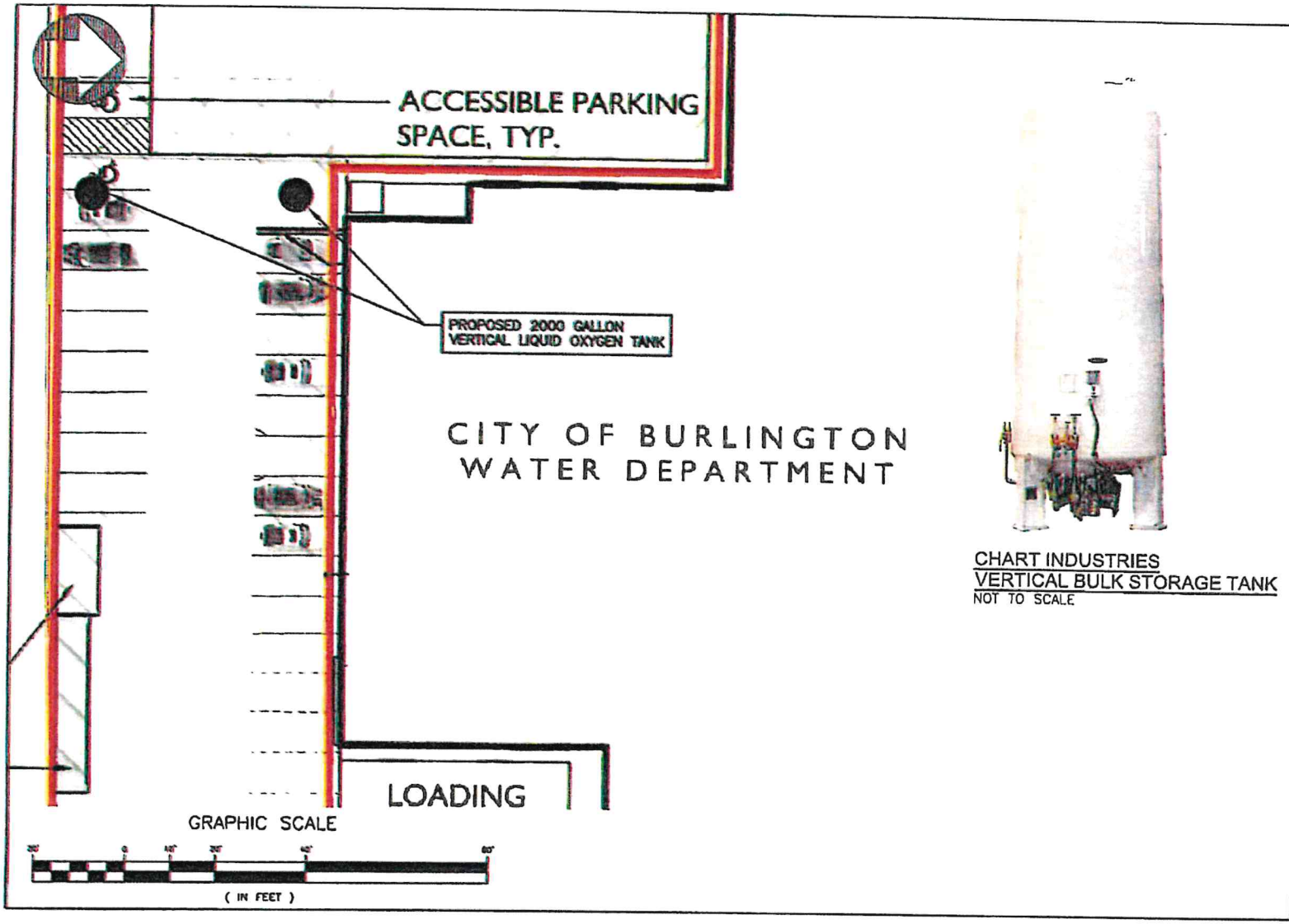

CHART INDUSTRIES
VERTICAL BULK STORAGE TANK
NOT TO SCALE

DUFRESNE GROUP
CONSULTING ENGINEERS

Project #	000000
Design	NAME
Drawn	EAE
Checked by	R.E. DUFRESNE
Date	JUNE 29, 2015
Scale	AS SHOWN
Approved by	RED

DUFRESNE GROUP

POTENTIAL NORTHERN MARINA PROJECT

FIGURE 4
LIQUID OXYGEN STORAGE TANK
SCHEMATIC PLAN

BURLINGTON, VERMONT

FIG 4

DWG NO. turning radius.dwg

SHEET 1 OF 1

Use of Granular Activated Carbon (GAC) contactors to remove precursors from the stage two filtered water prior to primary disinfection using chlorine:

The existing process architecture provides a significant opportunity for additional unit operations without geographical expansion at the facility. The duplex Super-pulsator units not being used provide opportunities to meet the challenges of the future more stringent regulations. As indicated previously, the efficiency of the DAF process allows superior floc removal using only one of the pulsator units. The other unit could be converted into four GAC contactor filter units for precursor reduction prior to primary disinfection. Although the floor space and allowable height provided makes this alternative feasible, there would be significant demolition required. In addition, there would be structural and process improvements required to implement such an alternative. However, importantly GAC contactor units could be implemented at the Burlington Water Treatment Facility without a roof line addition.

Under this concept, filtered water (post second stage filtration) would be collected and pumped to GAC contactors to reduce any remaining precursors prior to primary disinfection using free chlorine. The concept would entail triplex pumps and four open concrete contactor tanks with sufficient GAC to provide for 20 minutes of empty bed contact time. The design concept could be to treat average day demand (about 4 mgd) which would normally provide high quality water with little potential to form DBP's. During demands of greater than average day, the contact time with the GAC would be reduced but would still provide for precursor adsorption such that the finished water would be well below current Federal limits for DBP's.

The concept for this alternative is shown in Figure 5.

3. Chemical Deliveries:

Chemicals are required for water treatment and are delivered using various size trucks depending on the specific chemical. Chemical use is recorded daily and the need for chemical delivery is predictable and can be forecast weeks in advance. Delivery companies are less reliable in that the driver can typically name the day of delivery but not the hour. Drivers would not be able to "wait while we move the cars" due to their delivery schedules. With the exception of powered activated carbon, all deliveries are made at the loading dock area. The chemicals used at the facility and the delivery trucks are described in Table 4.

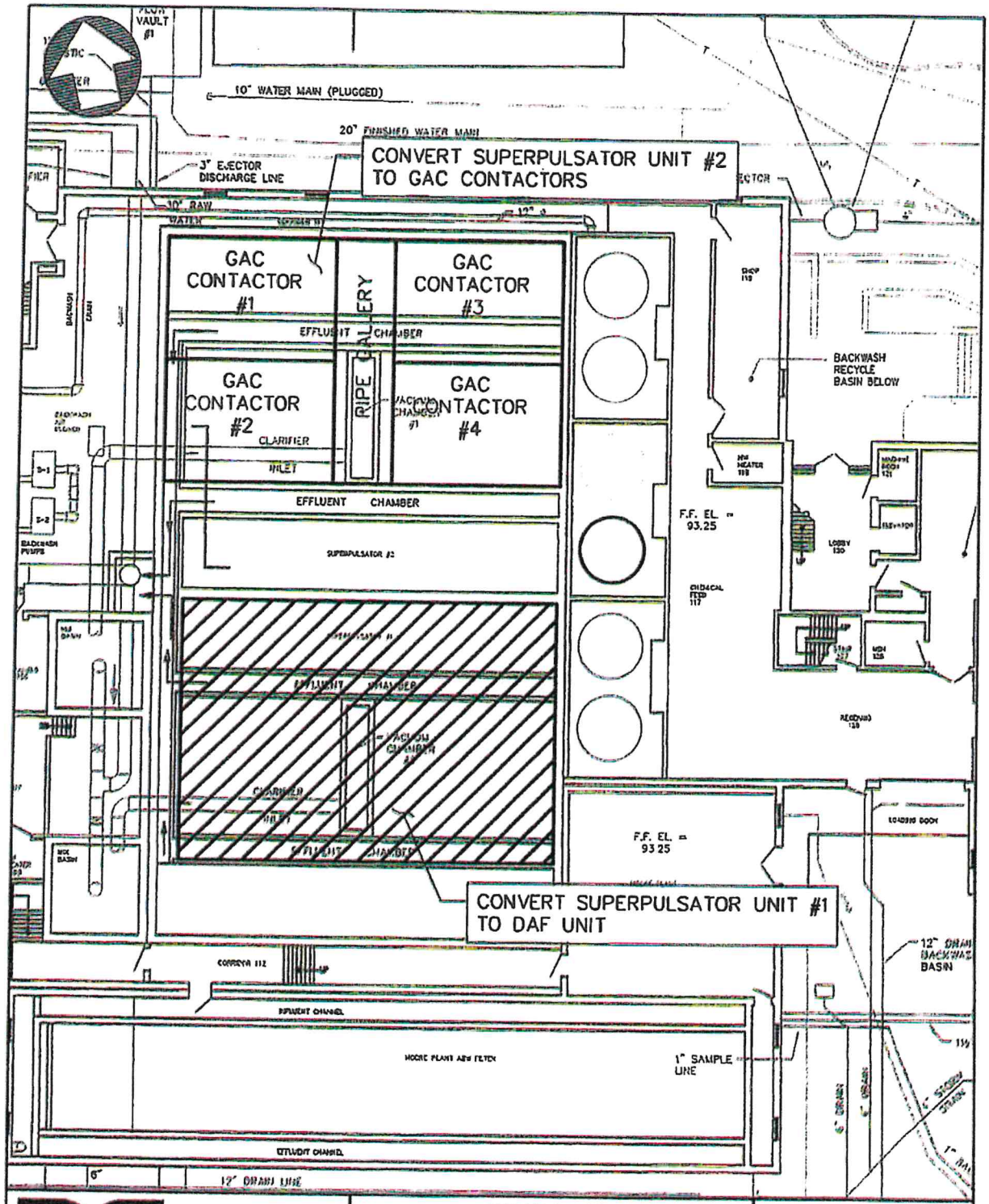

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FIGURE NO 5

SUPERPULSATOR CONVERSION SCHEMATIC PLAN

BURLINGTON, VERMONT

PROJECT NO.	000000
PROJECT MJR.	RED
SCALE	AS SHOWN
DATE	JULY 2015
DRAWING NO.	FIGURE 3.dwg

TABLE 4
EXISTING CHEMICAL FEED DELIVERIES
POTENTIAL MARINA PROJECT
BURLINGTON, VERMONT
JULY 1, 2015

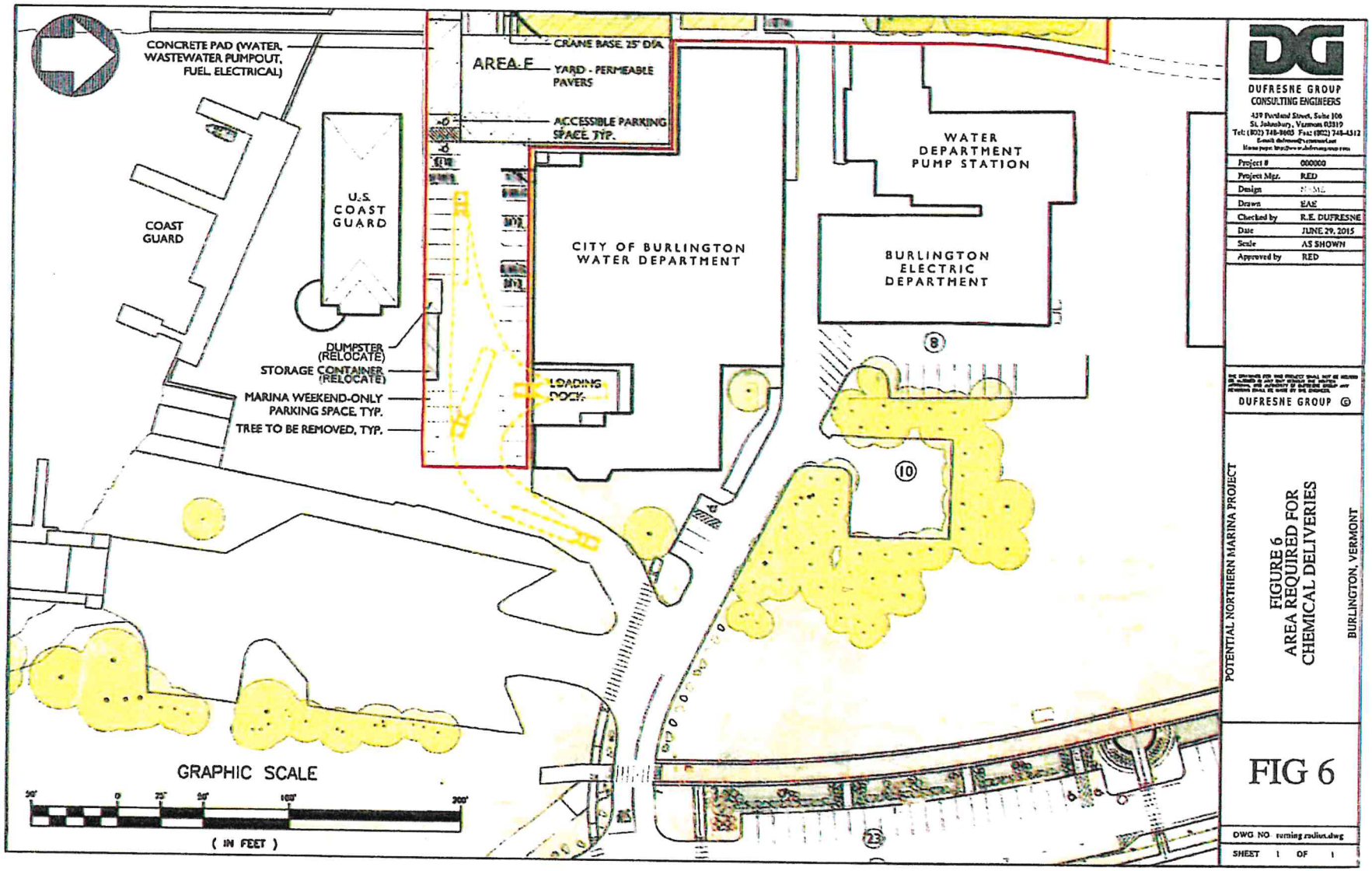
Chemical	Typical Delivery Volume
Liquid Aluminum Sulfate	4,000 gallons
Liquid Cationic Polymer	4,000 gallons
Liquid Sodium Hypochlorite	4,000 to 5,000 gallons
Granular Potassium Permanganate	Pallets of five gallon pails
Liquid Zinc Orthophosphate	4,000 gallons
Powdered Activated Carbon	Large Bags
Liquid Hydrofluorosilicic Acid (Fluoride)	2,000 gallons

The largest delivery truck sets the geometry for the required access to the loading dock and bulk fill points. We have shown the turning radius for the 55 foot long tanker truck on Figure 6. However, after discussions with some of the delivery companies, it would not be uncommon for chemical deliveries to be made with trucks 59 to 65 feet in total length. Based on AASTO turning radii for such vehicles, it does not appear possible to access the loading dock given the confined geometry at the facility. However, after extensive jockeying into position, these trucks have not failed to make a delivery and depart the facility; although in some cases it takes hours to jockey into position.

City staff records chemical delivery times and dates and as indicated most of the chemicals are delivered in large tankers capable of "full load" (4,000 to 5,000 gallons) deliveries. Based on these records, it appears the City receives deliveries on the average of about two per month.

Based on local experience, depending on the driver, it is not uncommon to take two hours to enter the facility and jockey the truck into position and exit the facility. As shown, extensive portions of the access area is used for jockeying these large delivery trucks into and out of position. Local operators report that some trucks have been damaged attempting to negotiate into position even with no vehicles parked in the southern access area.

Obviously there are adverse effects posed by the concept of double headed long-term parking in this southern access area. In addition to parked cars, it is likely that at times chemical deliveries will conflict with attempted delivery of large boats for crane launching. The frequency of these conflicts will increase significantly if the facility needs to implement enhanced coagulation and/or ozonation. Based on our analysis, the proposed location of the dumpster and storage container are not viable and unduly restrict access to the loading dock.



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Project #	000000
Project Mgr.	RED
Design	RED
Drawn	EAE
Checked by	R.E. DUFRESNE
Date	JUNE 29, 2015
Scale	AS SHOWN
Approved by	RED

POTENTIAL NORTHERN MARINA PROJECT

FIGURE 6
AREA REQUIRED FOR CHEMICAL DELIVERIES

BURLINGTON, VERMONT

FIG 6

DWG NO turning radius.dwg

SHEET 1 OF 1

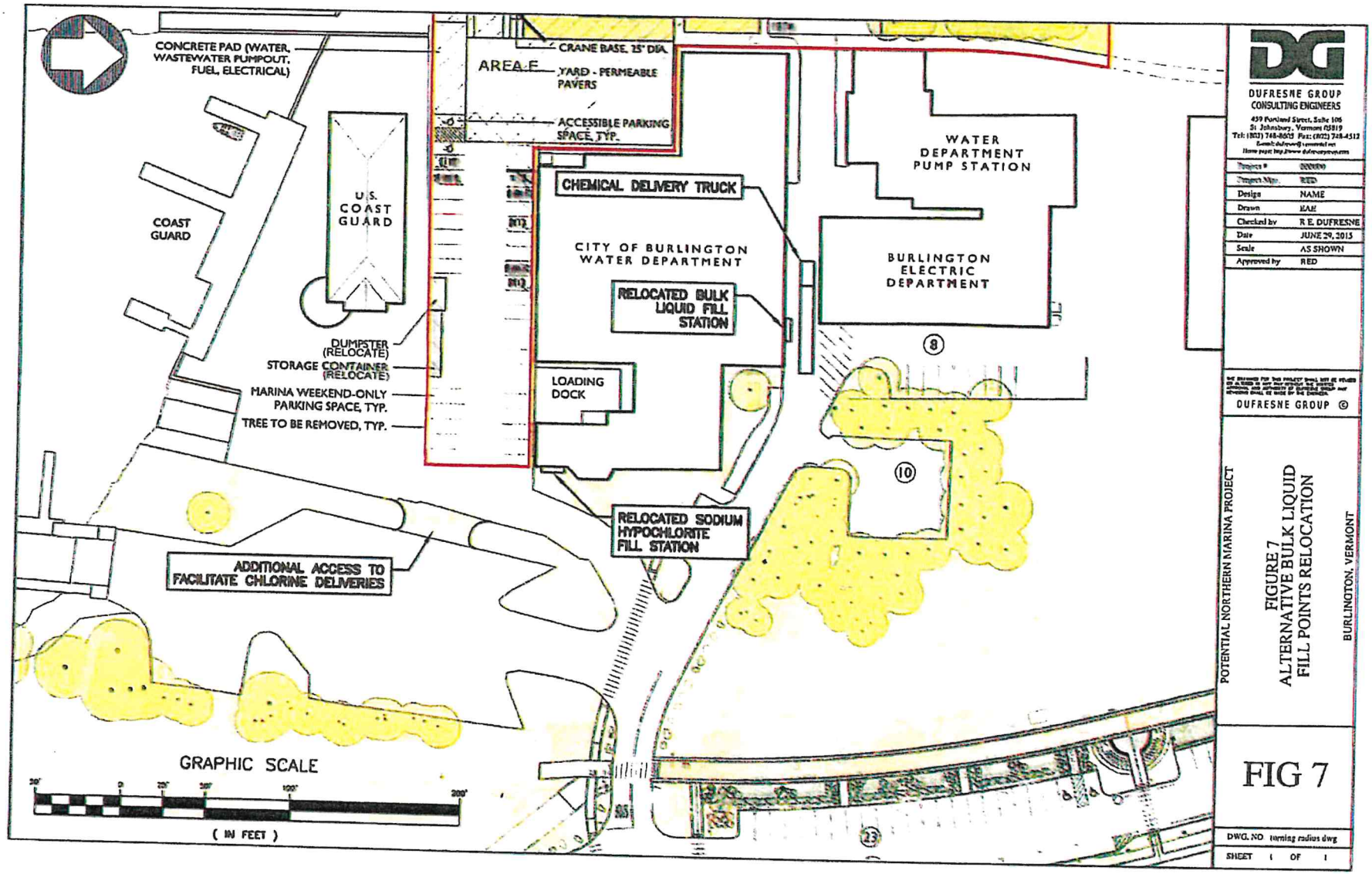
Potential mitigation measures would include:

- Exclude marina client parking in this southern area. The area could be expanded for additional parking for WTP personnel only.
- Insure that marina personal have keys to all vehicles and sufficient staff to jockey cars out of the area during marina delivery.
- Relocate the chemical fill stations and loading dock to another location.

Reserving this southerly area for WTP personnel parking may free up other areas where WTP staff is currently parking for use by marina clientele. Conceivably the operational manager at the WTP would have control over delivery times and can control the schedule for vehicle removal to facilitate chemical delivery truck access. This appears to be a viable mitigation measure with the exception of conflicts with boat launching activities. The aspect of a two to four hour delay would not be acceptable to either the boat owners or the chemical delivery drivers. In addition, it appears unlikely to expect this area be cleared of all vehicles once every other week and perhaps twice per week in the future.

Allowing long-term parking for marina clientele so long as marina staff has keys to all vehicles and sufficient staff to jockey cars around on the surface appears viable. However, it is likely that some marina clientele vehicles will not have keys and such vehicles would require towing. Unless the communication is very good, it is likely that the chemical delivery truck will pull into the Coast Guard drive and the access will have vehicles and/or boat trailers waiting to be moved. At that point the truck will have difficulty in parking so as not to conflict with vehicle removal and access to the Coast Guard complex. We don't consider this alternative to be viable.

The last mitigation measure would be to relocate the chemical fill stations to other areas. In addition to the loading dock where pallets of some chemicals are received, there are two chemical fill stations that facilitate delivery of bulk liquid chemicals. One of the stations, located on the southern side of the loading dock, has multiple connection points to receive coagulants and conditioning chemicals. The second point is located southeast of the loading dock on the wall of the sodium hypochlorite feed building. Based on our field observations and discussions with operational staff, these stations could be relocated within certain distance and geometric constraints. The sodium hypochlorite feed point could easily be relocated to the eastern side of the chlorine feed building. Using this concept, delivery trucks would not have to enter the southern access area and make deliveries on the western side of the Coast Guard access drive as shown in Figure 7. However, the trucks would either need to back in or back out unless turn around access is negotiated with the State of Vermont and/or the Coast Guard. The bulk chemical fill station could be relocated to allow access from Penny Lane along the northern elevation. Again, trucks would need to back in or back out and perhaps use the state boat launch for a turn around. In order for this alternative to be viable, all parties should recognize that Penny Lane could be restricted to one very narrow lane for hours at times as chemical deliveries are made. The potential relocation of the chemical feed lines are shown in Figure 8. We estimate the cost to relocate the two chemical fill stations at $40,000.



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Project #	000000
Project Mgr.	RED
Design	NAME
Drawn	EAH
Checked by	R E. DUFRESNE
Date	JUNE 29, 2015
Scale	AS SHOWN
Approved by	RED

POTENTIAL NORTHERN MARINA PROJECT

FIGURE 7
ALTERNATIVE BULK LIQUID FILL POINTS RELOCATION

BURLINGTON, VERMONT

FIG 7

DWG. NO turning radius dwg

SHEET 1 OF 1

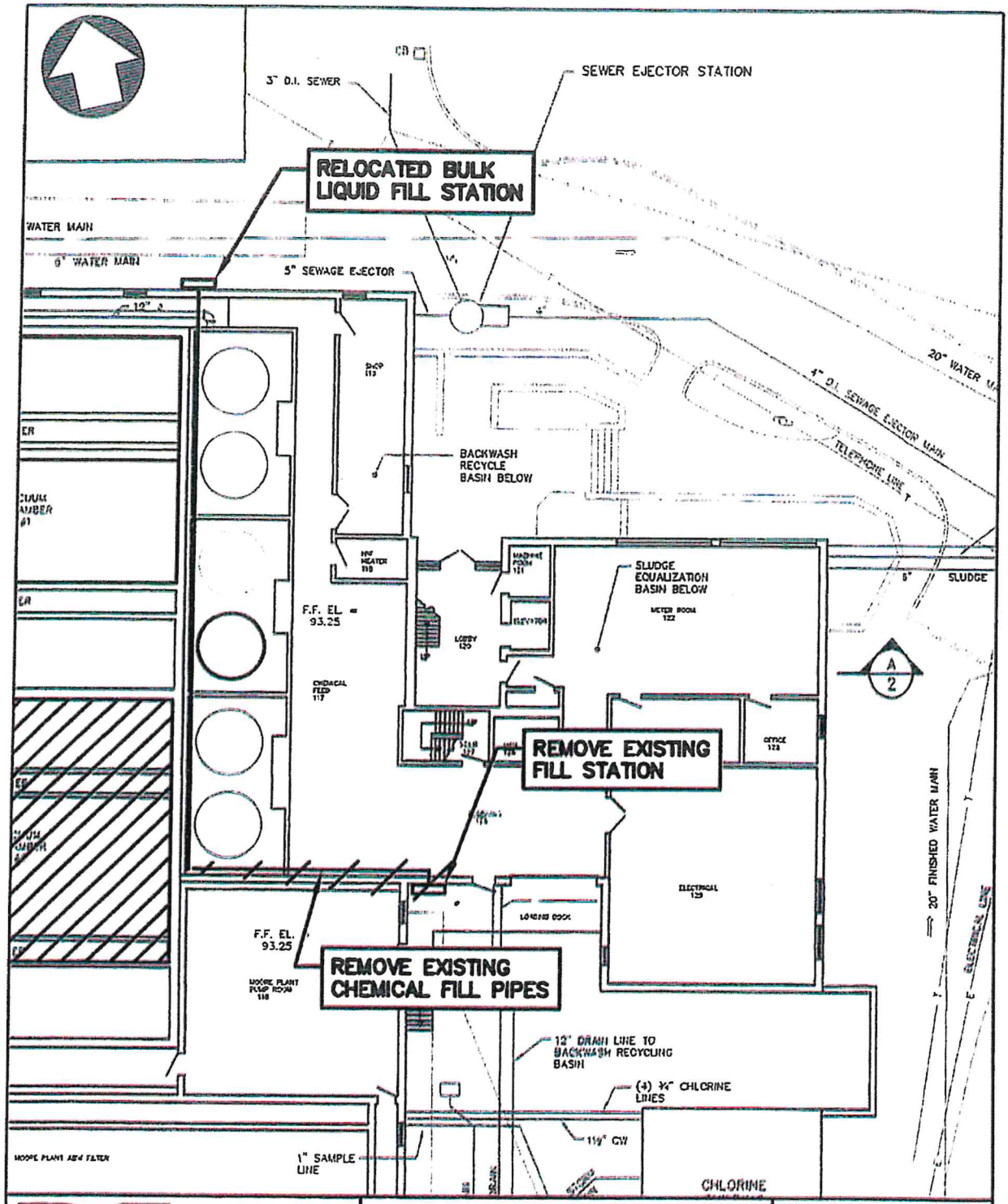

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FIGURE NO 8

CONCEPT PLAN
FILL STATION RELOCATION

BURLINGTON, VERMONT

PROJECT NO. 000000
PROJECT MJR. RED
SCALE AS SHOWN
DATE JULY 2015
DRAWING NO. FIGURE 3.dwg

In addition to chemical deliveries, equipment and supplies arrive at the facility at the loading dock in large delivery trucks. Pallets of paper supplies and dry chemicals such as potassium permanganate arrive at the facility and are hoisted to the upper levels using the hydraulic ramp hoist. These trucks can be even larger than the chemical delivery trucks. Relocation of the chemical feel stations does not negate the need to maintain access to the loading dock.

4. Intake pipe protection:

This concern focuses on the raw water intake system to ascertain the potential for disruption caused by issues at the marina due to increased boat traffic and possible damage due to anchoring.

Based on the existing information, there are three raw water intake pipes that allow water to be withdrawn well out into the lake and convey the water into the Water Treatment Facility. There are two 24-inch diameter intake pipes that are not utilized and could not be easily called into service as they have been out of service for decades. It is likely that these two intake pipes would require mechanical cleaning and perhaps new intake screens prior to returning to service. Using these pipes in the future is unlikely. The other intake pipe is the only active intake to the facility.

This pipe is a 30-inch diameter ball and socket joint ductile iron pipe with high density polyethylene pipes for sampling, zebra mussel control, and peroxidation inside the 30-inch diameter pipe. The intake pipe is connected to an intake screen located far out into the lake and is not a factor in consideration of the effects of a marina project.

The 30-inch diameter intake pipe is inspected from time to time using divers. The latest inspection indicates the exterior of the intake pipe is heavily coated with zebra mussels but in good condition. The intake screen and supports appears in good condition with zebra mussel attachment prevented by the type of screen material used. The interior of the pipe is protected from veliger attachment with an internal potassium permanganate feed system. The divers report that currents between the shore and breakwater have undermined the pipe and the pipe is supported in some areas only at the bell joints with the barrel of the pipe left unsupported.

The 30-inch ductile iron pipe is one of the most durable piping systems available today. The pipe is assembled without bolts and the ball and socket design allows deflection up to 15 degrees without damage or leakage. The pipe is many times assembled on shore and dragged into place for installation without damage.

In this case, there are three potential concerns including:

- Possible damage by impact such as an anchor in freefall.
- Possible damage from an anchor "hooking" the pipe and the force of holding the boat transferred to the pipe. This could be significant if the boater was trying to free the boat anchor without knowledge of the situation.

- A large boat sinking atop the intake pipe at a location where the pipe barrel is not well supported.

Obviously the potential impact from a freefalling anchor would depend on the size of the anchor and its velocity when hitting the pipe. However, in discussions with officials from the Ductile Iron Pipe Research Association (DIPRA), it is extremely unlikely that the velocity would be high enough to damage the pipe. These officials are continuing with this investigation and have not yet reached a conclusion at the time of this draft.

The potential aspect of "hooking the pipe" with the anchor and pulling the pipe seems to be possible for large boats/anchors with the undermining of the bottom material from below the pipe. Based on pictures and video, it appears the gap below the pipe is 6 inches to a foot in some areas. If the boat were large enough and the current or motor force was strong enough, the pipe could be deflected. A 60 foot boat in a 60 knot wind would generate about 4 tons of force. "Power setting the anchor with a 500 hp boat would develop about 5 tons of force. However, the type of joint and the long length of pipe would quickly develop significant opposing force to counter the pull of the anchor and craft. For instance, if the anchor caught on a section of pipe and exerted sufficient force to deflect and slightly dislodge two lengths (19.5 feet per length) of pipe, the joint attachment would maintain continuity and engage more pipe. If 200 feet of pipe were engaged, the submerged weight of the pipe would be about 10 tons or more than sufficient to resist the load caused by the anchor attachment or the anchor power set. Our opinion is there would not be potential for adverse effects by "hooking the pipe" during anchoring.

The third potential issue is for a large boat that sinks directly atop the pipe. In this case, there is more potential for damage as sections of pipe are only supported at the joints. However, in our opinion, the bottom is sufficiently unstable that the weight of the boat would cause the pipe to sink into the bottom rather than create shear stress on a particular point and we do not view this to be a significant issue.

Another potential aspect of possible effects on the intake pipe by a marina project includes the anchoring system for the docks. Prior to design of the dock and anchoring system, the intake pipe should be precisely located to insure soil anchors and other attachment methods do not damage the intake pipe.

5. Utilities near the west side of the water plant near the picnic area:

In discussions with City Staff, there was concern regarding potential damage to underground utilities in the area under and adjacent to the picnic area. Under the marina project concept, the picnic structure would be removed and the area would be used for access to the maintenance and loading/unloading crane. The exiting grass and asphalt area would be replaced with porous pavers to reduce impervious area. There are several very large pipes that convey water to and from the two clearwells. There are two parallel 30-inch ductile iron treated water lines for effective inactivation of

pathogens. A 20-inch ductile iron raw water line, a 12-inch diameter drain line, a 6-inch diameter water service line, and a small diameter water service to the picnic area. Finally there is a flow control vault just west of the southwest corner of the Moore Plant. This vault was opened and observed. Although groundwater was above the level of the pipe, we noted that the vault contains an insertion flow sensor/transmitter with related electrical and instrumentation wiring. There is also an old electric heater in the vault. The vault is referenced as a flow control vault, which normally includes a flow sensor coupled with a control valve for controlling an operator set flow for coagulated water entering the ABW filter. Since the vault does not include a motorized valve it appears the flow signal is keyed with a remote control valve. As such, it is likely that that the flow meter could be relocated to another interior location and the vault be eliminated. We estimate the cost to relocate the flow meter and demolish this vault $25,000.

Based on several record drawings, there is a small on-site wastewater disposal system used to treat and dispose of wastewater from the picnic area. The on-site system is not related to the Water Treatment Facility.

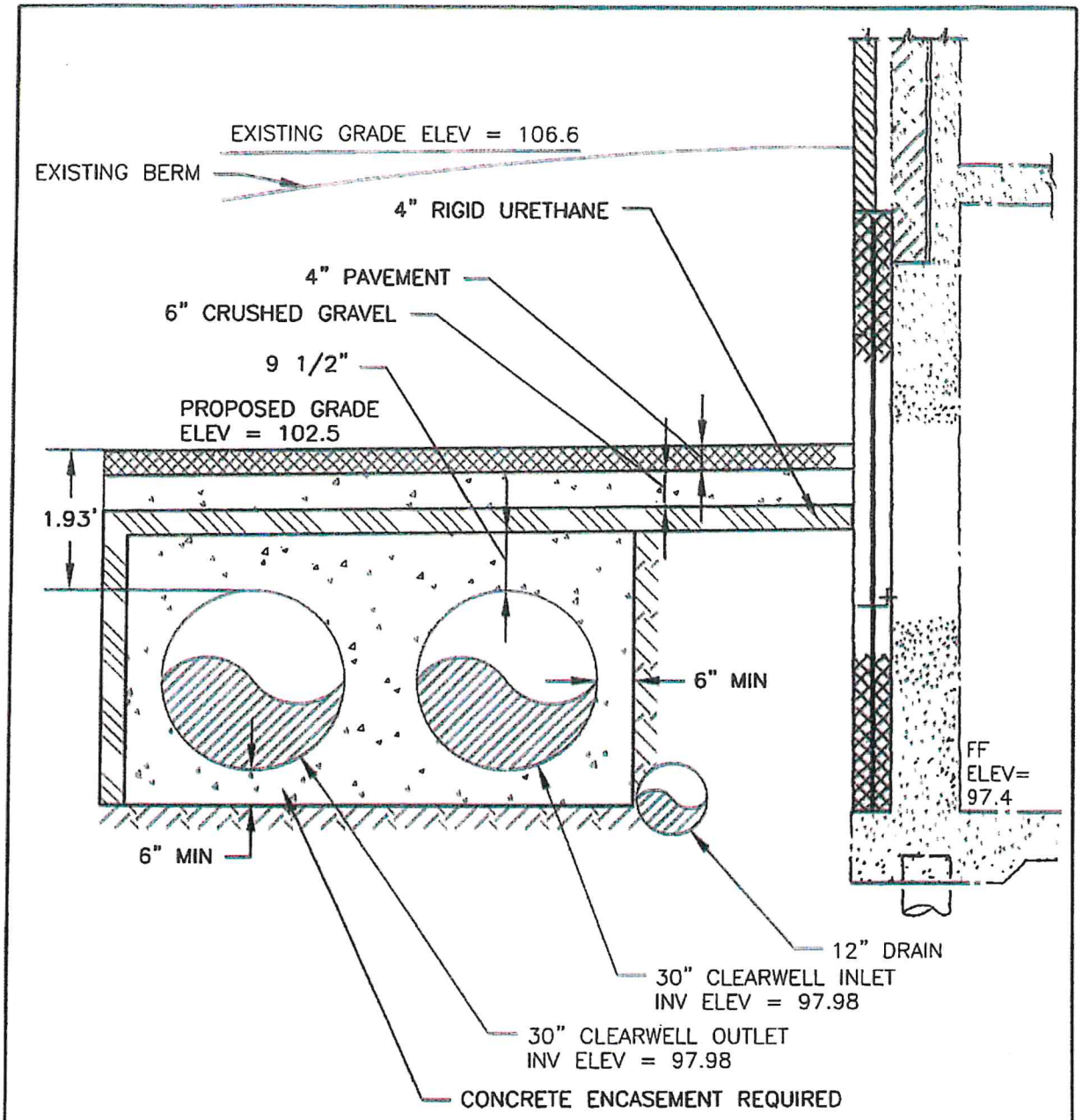
The concern would be increased traffic loadings caused by transport trucks and service cranes as they traverse this area. Based on the record drawings some of these pipes have less than six feet of cover. For instance, the pipes with the shallowest amount of cover would be the two 30-inch diameter PVC treated water lines that have only 2'-8" of cover based on the record drawings. Although the constant velocity of water in the pipes is more than sufficient to prevent freezing these pipes are susceptible to damage from heavy wheel loads.

AWWA C-900 PVC pipe derives its ability to resist traffic loading from the selection and placement of the embedment material. The PVC pipes deflect and transmit forces to the surrounding material to resist vertical loading. As the criteria for transport truck loading, the portable crane size and load, and the compaction methods and material surrounding the treated water lines are not well documented, it would be wise to take action to prevent damage to these pipes that are crucial for plant operations.

Potential mitigation measures include:

- Replace the PVC pipes with ductile iron pipes.
- Excavate the PVC pipes and encase the pipes in concrete to protect the pipes and transfer vertical loads below the pipes without deflecting the pipe deflecting the pipe as shown in Figure 9.

Replacing the existing lines with ductile iron would cause significant down time at the plant during interconnections. It may also be necessary to provide a temporary above ground pipe system in service to allow sufficient space to replace the PVC lines. The cost to replace these 30-inch lines is estimated to cost $80,000.



GRAPHIC SCALE

(IN FEET)

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FIGURE NO 9

WATER TREATMENT FACILITY
ALT. GRADE MODIFICATION
SOUTH ELEVATION
MARINA PROJECT

BURLINGTON, VERMONT

PROJECT NO. 000000
PROJECT MGR. RED
SCALE AS SHOWN
DATE JUNE 29, 2015
DRAWING NO. Drawing1.dwg

FILE: S:\projects\burlington harbor marina\figures\Drawing1.dwg Jul 01, 2015 - 4:48pm

The cost to excavate and provide concrete encasement for the pipes has significant advantages in that the existing pipes can be encased while in service and there would not be any downtime at the plant. Much of this work would need to be hand excavated and there are numerous crossing with other utilities that would require additional encasement to below these utilities. Based on evidence of standing water in the flow control valve vault, it is likely that dewatering will be required in some areas. The cost for the encasement is estimated at $35,000.

6. **Northside water and electric utilities:**

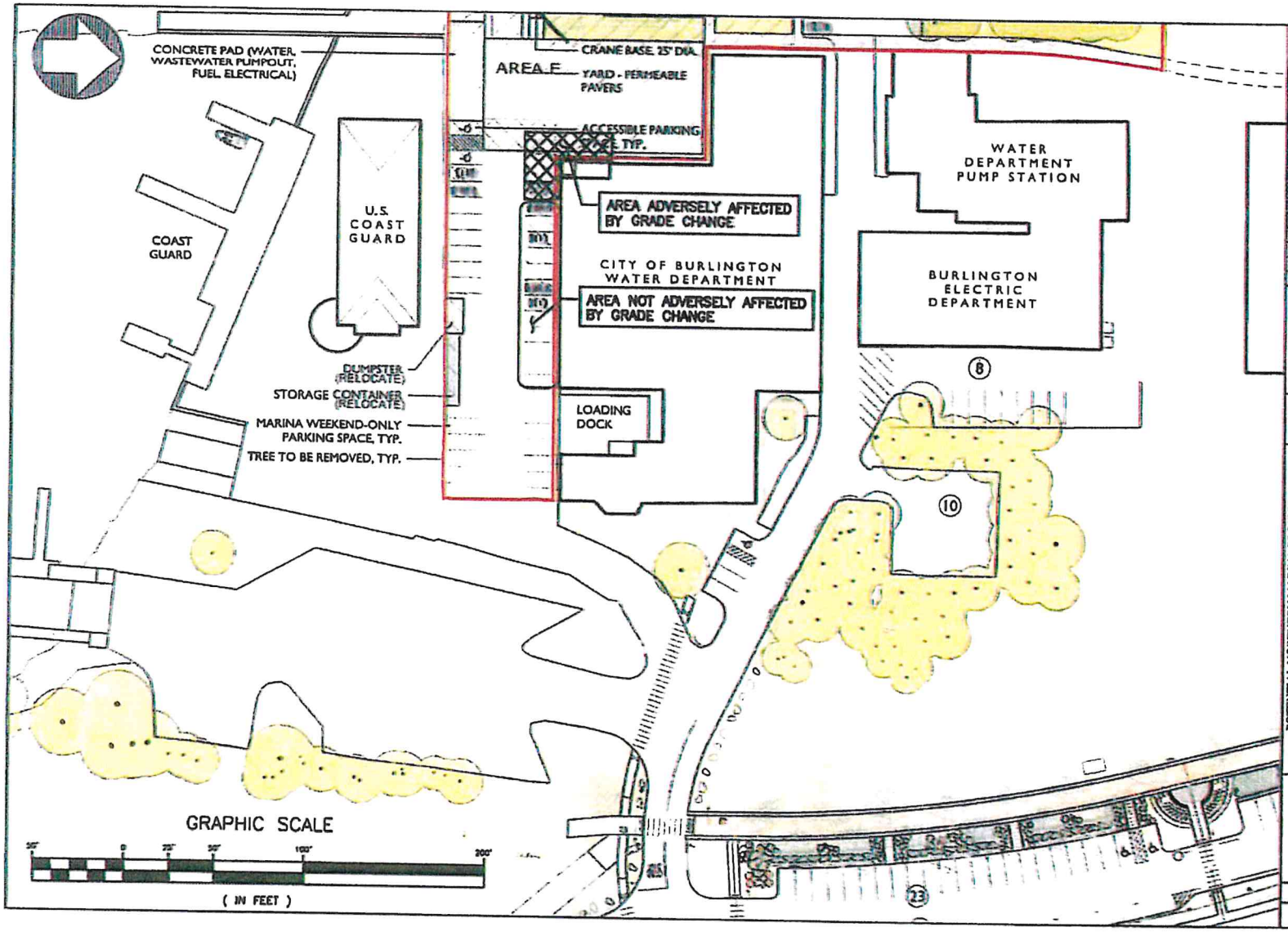
Based on the "Illustrative Plan" for the marina and as confirmed by officials representing Burlington Harbor Marina, LLC in the kickoff meeting, there are no proposed modifications planned for this alley.

However, it is important to recognize that this alleyway has extensive underground utilities and electrical conduit and is also extremely busy with vehicles accessing the waterfront. This alley provides little opportunity for service vehicles for the WTP for such tasks as media replacement and chemical deliveries unless the alleyway is closed to traffic.

7. **Determine if the plans to remove an existing earthen berm on the south side of the water plant to accommodate additional parking for the proposed marina will compromise the integrity of the structure. This will most likely require a structural analysis of the wall to ensure its stability with appropriate factors of safety due to reduced support.**

Officials from Burlington Harbor Marina, LLC, expressed an objective for additional vehicle parking in the area south of the Water Treatment Facility with sufficient central space to facilitate access to and from the maintenance crane as previously shown in Figure 1. Currently, this narrow paved area only allows access for maintenance tasks, limited parking for plant operational staff, and access for large trucks for chemical deliveries to the loading dock. It should be noted that the public is not prevented from parking in this area and does so without any formal organization or overview.

Because of the fixed width between the Coast Guard complex and the Water Treatment Facility, the only option that would allow double head parking would be to maximize the paved width up to about the Coast Guard security fence and to remove an existing berm and plantings along the southern Water Treatment Facility elevation. This berm extends from the loading dock access to the southwest corner of the facility. Currently this grass berm provides cover for numerous large underground utilities located along this elevation. In addition, the berm provides earthen cover to inhibit frost migration so as not to adversely affect footings.



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Project #	000000
Project Mgr.	RED
Design	NAME
Drawn	EAE
Checked by	R.E. DUFRESNE
Date	JUNE 29, 2015
Scale	AS SHOWN
Approved by	RED

POTENTIAL NORTHERN MARINA PROJECT

FIGURE 10
AREAS AFFECTED BY GRADE
MODIF. & REMOVAL OF BERM

BURLINGTON, VERMONT

FIG 10

DWG NO. turning radius.dwg

SHEET 1 OF 1

Potential adverse effects due to removal of this berm were evaluated by Engineering Ventures, PC with the results of their investigations contained in a June 26, 2015 letter contained in Appendix A. Based on their analysis of footings, walls, and mat slabs in this area indicate that with the exception of the west end of the wall, there is no adverse effect with lowering the finished grade by four feet in the area shown in Figure 10.

However, at the west end of the wall, the proposed grade would only be about 1'-3" above the bottom of the mat slab, which does not provide anywhere close to the minimum 4'-0' of adequate frost cover. The structural engineer recommends that either these areas be provided with at least 4'-0' of cover or that a shallow frost protected foundation system be designed.

In discussing the potential options for eliminating the mound and using a shallow frost protected footing with the structural engineer, he described two alternatives:

- Using horizontal rigid insulation suitable for traffic from the building wall to about six feet to the west (horizontally) to inhibit frost migration along the building.
- Excavate confined portions of the area below the footing and injecting concrete to a depth suitable to inhibit frost migration to below the fill concrete.
-

In considering these alternatives, we feel that the horizontal insulation alternative has more risk in that the existing concrete footing would allow freezing temperatures to be transmitted vertically downward and would in effect limit the effectiveness of the insulation.

As such, we feel that only two alternatives should be considered including leaving the berm in place or injection concrete to below the existing footing. Based on previous projects, we estimate the cost of excavating and injecting concrete at $100,000.

8. Review the existing security measures at the Water Treatment Facility and make any recommendations for improvements if deemed necessary.

Currently there are certain security procedures in place at the Burlington Water Treatment Facility which when compared to other similar facilities across the country are much less comprehensive. There is no outer security perimeter at the site and the public at large can access the exterior of the building without challenge. In fact, the outer security perimeter is at the walls of the building. The building architecture and construction minimizes access points as there are few windows, doors, and roof scuttles. Although doors are alarmed with contact closure alarms, windows, vents, and roof scuttles are not alarmed.

The facility is manned 24 hours per day with at least two operators and eight hours per day five days per week by administrative staff within the treatment facility. Operational areas are isolated from administrative areas. Visitors must be accompanied by authorized staff when within the process area. The general public has access to the

administrative areas during normal business hours. The administrative offices and entrances are locked at the building perimeter after business hours.

There are several closed circuit TV cameras providing digital data to a monitor in the control room. There is also a separate monitor fed by several cameras providing signals from remote sites within the distribution system. These monitors are rarely viewed. Some cameras at the plant take in internal areas and some cameras take in external areas. There are significant areas of the facility not monitored. The digital files are recorded and overwritten on a three week frequency. Basically the system would be beneficial in attempting to identify a perpetrator, but does not provide a proactive defense against a security breach. The following facility characteristics were noted in regard to security issues:

- There is no security fencing at the facility.
- There are no security measures in place at the pump station.
- There are no internal motion detectors or infrared sensors and alarms to detect and warn of unauthorized movement within the facility.
- There is no security gate at the facility and any vehicle could drive to within a few feet of the east, north, or south walls of the facility. With a four wheel drive vehicle, one could park within a few feet of the west wall of the facility.
- Traffic to and from the sailing club and public dock passes through the alleyway unrestricted anytime of the day or night.
- Public parking is not prevented along the south wall of the Moore Plant between the Coast Guard complex and the Moore Plant.
- Chemical fill line connections are not secured.
- Security doors between public space and process areas were observed to be open at times.

Based on these investigations, the facility clearly needs to implement additional security measures to protect the safety and dependability of the water supply for the City. However, the constricted site will not lend itself to normal and customary securing measures and it appears the securing perimeter will remain at the building exterior walls. Although the current situation is inadequate, the potential marina project should not adversely affect the existing condition. The potential marina project would significantly increase boat traffic near the facility as well as substantially increase both pedestrian and vehicular traffic in and around the Water Treatment Facility. This issue is not significant as there are at times numerous people using the picnic area that are allowed adjacent to the facility unchallenged. However, there is one significant issue related to the marina project that does adversely affect the security of the facility as follows:

- Long-term parking with vehicles not known by WTP staff adjacent to the south wall of the facility

Under the current parking concept, it would be acceptable for a van or small truck to access the south wall and provide an enclosure that would preclude observation of activities directly adjacent to the building perimeter. Immediately on the other side of this wall is direct access to partially treated water hours away from customers. Although it is possible for the public at large to park along the Coast Guard fence, it is not possible to park directly adjacent to the building wall. In our opinion, this would constitute an unacceptable risk to the water safety of the Water Treatment Facility.

Conclusions:

1. Some owners of vehicles left in long-term parking may not be available to move cars when needed to suite chemical deliveries.
2. Boat storage over the winter would not be acceptable due to conflicts with snow removal activities and chemical deliveries.
3. It would be more efficient if parking was restricted to WTP employees in the area south of the building as operational staff at the WTP could organize parking based on chemical deliveries.
4. It would not be efficient for marina staff to transfer vehicles in and out of the south lot to facilitate chemical deliveries even if they had keys to all vehicles.
5. Due to the frequency of chemical deliveries, it would be onerous for marina employees to transfer cars around to facilitate deliveries.
6. It is likely that marina staff would not have all keys necessary to move cars from the lot.
7. Chemical deliveries will increase in the future and increased delivery frequency would limit the viability of transferring cars in and out of the southern lot.
8. It is likely that long-term parking directly adjacent to the south wall of the water treatment facility would not be acceptable to public safety officials due to the possible need to access this area with emergency vehicles.
9. Water quality standards will be more stringent in the future.
10. Burlington will require additional and/or enhanced unit operations to meet these more stringent standards.
11. There is risk in reducing the land available for water treatment when the future needs have not been defined.
12. Transferring water to and from a remote location for treatment is more expensive than treating at one central location.
13. Technological innovations in methods to treat drinking water will reduce the area required for treatment.
14. Of all the future regulations set by EPA, control of disinfectants and disinfectant byproducts will be Burlington's most challenging standard for compliance.
15. Conversion of one of the super-pulsator units to a dissolved air floatation (DAF) unit would not require expansion beyond the current roof lines.
16. Burlington may have to address algal events or algae toxins at some point in the future.
17. Burlington has completed all available operational efficiencies and the water produced is as high a quality as can be produced at this facility using these unit operations.

18. From a technical basis, converting from free chlorine to monochloramine for secondary disinfection would be the most economical and most beneficial method to comply with future regulations.
19. Conversion of one of the super-pulsator units to a DAF unit would allow additional removal credits and reduce the inactivation requirement, both of which will reduce DBP levels.
20. Ultraviolet light could replace primary disinfection but would significantly increase electrical costs at dosages high enough to inactivate virus. In addition, it seems of limited benefit if free chorine remains as a secondary disinfectant.
21. Ozone would be beneficial as both a pre-oxidant and for use as a primary disinfectant. However, it would be necessary to use the ABW filter as a Biologically Active Filter to limit regrowth in the distribution system.
22. Burlington will need to implement capital improvement projects to control disinfection byproducts in the future.
23. If monochloramine disinfection is not a viable alternative for Burlington, the available options are more expensive and less effective for controlling regulated byproducts.
24. GAC would likely be required if monochloramines are not available as an alternative for secondary disinfection to meet future disinfection byproduct standards.
25. New processes such as MIEX should be considered and piloted as a more cost effective alternative to GAC. Both GAC and MIEX will not require additional expansion beyond the current roof lines due to use of the former super-pulsator units.
26. The benefits of ozone would be reduced if free chlorine remains as a secondary disinfectant.
27. The existing capital improvement plan addresses building and equipment upgrades but does not, and cannot, project requirements due to emerging Federal regulations. Until a master plan for future improvements is completed which defines future improvements based on these regulations, Burlington should not limit the available area around the water treatment plant.
28. Since future regulations cannot accurately be predicted, it would be prudent to maintain as much flexibility as possible in protecting options yet to be defined.
29. Conversion from free chlorine to monochloramine using ammonium sulfate will not require any additional modifications beyond the current roof lines.
30. Conversion of one of the super-pulsator units to a DAF unit will not require any modification beyond the current rooflines. Operating in an enhanced coagulation mode will reduce total organic carbon levels and precursors, but will require additional chemicals.
31. Converting from free chlorine to ozone as a primary disinfectant will require two large liquid oxygen tanks located on the western side of the southern access area east of the picnic area.
32. Conversion of one of the super-pulsator units to a GAC contactor will be feasible and provide sufficient contact time to reduce TOC levels prior to disinfection for compliance with future standards even when using free chlorine as a primary disinfectant.

33. The existing access for chemical delivery is inadequate and operates only due to the skill of delivery drivers.
34. Chemical deliveries occur on the average of about twice per month.
35. Relocation of the chemical fill stations is possible but large trucks will still have to access the loading docks.
36. Relocation of the bulk liquid fill station for sodium hypochlorite will require access to the State boat launch for turn around.
37. Relocation of the bulk liquid deliver station for process chemicals will adversely affect traffic flow in the alleyway.
38. Chemical deliveries will occur much more often in the future if process improvements are required to meet future regulations.
39. The intake pipe does not need any additional protection due to the marina project. However, after the securement method is defined, it should be reviewed to insure there are no adverse effects attributed to dock anchoring methods.
40. Some utilities on the south and west side of the Water Treatment Facility should be concrete encased to insure adequate protection from increased loading.
41. The flow control vault on the west side can be abandoned and the meter relocated.
42. Most of the berm on the southern side of the facility can be removed without adverse effects on the Water Treatment Plant building footing. However, the southwest corner must be protected from frost migration below the existing slab if the berm is removed in this area.
43. Security at the Water Treatment Facility is inadequate. The increased vehicle and pedestrian traffic due to the marina project will not degrade the current situation. However, the aspect of long-term vehicle storage for vehicles not owned or controlled by WTP operational staff directly against the building on the south side is not acceptable from a security standpoint.

We appreciate the assistance you provided during the completion of this report. Should you have any questions, please don't hesitate to contact us.

Sincerely,
DUFRESNE GROUP

Robert E. Dufresne, PE
President

Exhibit "E"

To Development Agreement

Budget

See attached

Burlington Harbor Marina Development Agreement Exhibit 5

June 10, 2016

Estimate for Project Public Improvements

East Lot	68 spaces	22200 sf		**BHM TIF**
Phase II Environmental and CAP				
Design and Construction Documents				
Base Cost paved Area				
Grub/Clear Strip topsoil				
Sidewalks				
Curbs				
Contaminated soil removal - (reuse on site)				
Seed/Mulch other				
Plantings				
Lighting				
Striping				
Contingency				
Subtotal			**$ 352,074**	
			57%	$ 200,682
Park				
W/H Estimate for line items Per Attached dated 3/31/2016				
Landscape Design to Date				
. W/H Invoices # 4545 & 4505				
Construction Documents and Administration				
. W/H Proposal dated 4/4/16				
Demolition of pier lot for park				
Grub/Clear Strip topsoil				
Cut/Fill to relocate soils to Park				
Soil capping in park area				
Seed/Mulch				
Curbs & Pavement				
Precast Concrete Curbing				
Concrete Unit Pavers				
Vehicular Pigmented Concrete paving				
Wood decking promenade				
6" flush granite banding				
Stonedust paving				
CIP Concrete Paving				
Bituminous Asphalt Paving - Vehicular (multi use path				
Striping from East Lot to Drop Off				
Plantings				
Shade Tree				
Columnar Deciduous				
Perrenials				
Shrubs				
Columnar Deciduous				
Site Furnishings				
Benches				
Relocate Roth Family Bench				
Granite Bollards				
LED Pole Lights				
. Structural support for promenade (excl from above) (est.)				
Contingency				
Subtotal			**$ 294,601**	
			50%	$ 147,301

Plaza	12 spaces	8700 sf		
Design and Construction Documents (WH Proposal)				
Subbase				
Vehicular permeable pavers				
Asphalt Paving				
Sidewalks Concrete				
Sidewalks Pavers				
Granite Curbs flush				
Curbs precast				
Plantings				
Tree Grate				
Bollards				
Benchs				
Bike Racks				
Trash receptcles relocate				
Lighting				
Striping				
Contingency				
Subtotal			**$ 151,971**	
			100%	$ 151,971
Total			**$ 798,646**	$ 499,954

Burlington Department of Public Works Commission Meeting
Draft Minutes, 17 July 2019
645 Pine Street

Commissioners Present: Tiki Archambeau (Chair); Jim Barr; Chris Gilman (Secretary); Brendan Hogan (Vice Chair); Peggy O'Neill-Vivanco. Commissioners Robert Alberry and Solveig Overby participated via telephone.

Commissioners Absent: None

Item 1 – Call to Order – Welcome – Chair Comments

Director Spencer called the meeting to order at 6:34 p.m. due to the Election of Officers.

Item 2 – Agenda

Commissioner Overby requested to Remove Item C from the Consent Agenda and make it 5.1 on the Deliberative Agenda.

Commissioner Barr made motion to accept Agenda with the amendment.
Commissioner O'Neill-Vivanco seconded.

Action taken: motion approved; 7-0
Chair Archambeau: "Aye"
Vice Chair Hogan: "Aye"
Commissioner Alberry: "Aye" via phone
Commissioner Gilman: "Aye"
Commissioner Barr "Aye"
Commissioner O'Neill-Vivanco "Aye"
Commissioner Overby "Aye" via phone

Item 3 – Election of Chair, Vice Chair and Secretary

Commissioner Alberry made a motion to have Commissioner Archambeau as Chair; Commissioner Hogan as Vice Chair; and Commissioner Gillman as Secretary
Motion was seconded by Commissioner O'Neill-Vivanco

Action Taken: motion approved 7 to 0
Chair Archambeau " "Aye"
Vice Chair Hogan "Aye"
Commissioner Overby "Aye" via phone
Commissioner Barr " Aye"
Commissioner O'Neill-Vivanco "Aye"
Commissioner Alberry "Aye" via phone
Commissioner Gilman "Aye"

Item 4 – Public Forum

Charlie Giannoni, Ward 3, spoke on Rose Street sidewalk work.
Caryn Long, Ward 1, spoke about illegal parking and stormwater runoff.
Dave Harnett spoke about downtown parking impacts due to redevelopment projects, parklets and City policy.

Item 5 – Consent Agenda

A) Mechanics Way to Thorsen Way Ordinance Revisions
B) Great Streets – St. Paul Street Accessibility (ADA) Parking Changes
C) Designate the New Marina Lot as a City Managed Lot

Item C was pulled from consent and labeled as 5.1

Commissioner Barr makes motion to adopt the Consent Agenda and is seconded by Commissioner Hogan.

Action taken: motion approved; 7 to 0.

Chair Archambeau: "Aye"
Vice Chair Hogan"Aye"
Commissioner Overby: "Aye"
Commissioner Barr: "Aye"
Commissioner O'Neill-Vivanco: "Aye"
Commissioner Alberry: "Aye"
Commissioner Gilman: "Aye"

Item 5.1 Designate the Northern Waterfront Lot as a City Managed Lot

A) Presentation was given by Kirsten Merriman-Shapiro. She provided background on the parking that will be located around the northern waterfront and adjacent to the new marina.
B) Commission Questions (see video) Commissioner Overby sought clarification on the names of the lots and the proposed regulations for these lots.
C) Public Comment: (see video) C Long asked whether the Burlington Harbor Marina would be required to pay for parking.
D) Commission Discussion (see video)
E) Motion made by Commissioner Barr to accept staff's recommendations
Seconded by Commissioner O'Neill-Vivanco

Action Taken: motion approved; 6 to 1.
Chair Archambeau: "Aye"
Vice Chair Hogan: "Aye"
Commissioner Overby: "Nay" via phone
Commissioner Barr: "Aye"
Commissioner O'Neill-Vivanco: "Aye"
Commissioner Alberry: "Aye" via phone

Commissioner Gilman: “Aye”

Item 6 – Draft FY’20 Downtown Parking & Transportation Workplan

A) Staff presentation by Interim Assistant Director Jeff Padgett & Burlington Business Association Director Kelly Devine
B) Commissioner Discussion (see video) Some discussion about if free Sunday parking is still going to be taking place. Questions on why they have promotions for people coming into Burlington by cars but no promotions for people who ride the bus.
C) Should expand some responsibilities to the Church Street Marketplace
D)
E) Public Comment: (see video) N/A
F) Action Requested: None

Item 7– Precautionary Boil Water Notice Update

A) Staff communication by DPW Division Director -- Water Resources Megan Moir, DPW Director Chapin Spencer and Public Information Manager Rob Goulding
B) Commissioner Discussion (see video)
C) Public Comment (see video) N/A

Action Requested: None

Item 8 – Draft DPW FY’20 Goals & Objectives

A) Staff presentation by DPW Director Chapin Spencer
B) Commissioner Discussion (see video) Commissioners discussed the Asset Management objective, alternative fuels.
C) Public Comment: N/A
D) Action Requested: None

Item 9 – Approval of Amended Draft Minutes of 6-19-19 & 6-25-19

Approval of Draft Minutes of 6-19-19

Commissioner O’Neill Vivanco makes motion to accept the minutes of the June 19, 2019 with a few grammar changes and is seconded by Commissioner Barr

Action taken: motion approved; 6 to 1.

Chair Archambeau: “Aye”
Vice Chair Hogan: “Aye”
Commissioner Overby: “Nay” via phone
Commissioner Barr: “Aye”
Commissioner O’Neill-Vivanco: “Aye”
Commissioner Alberry: “Aye” via phone
Commissioner Gilman: “Aye”

Approval of Draft Minutes of 6-25-19

Commissioner Barr makes motion to accept the minutes of the June 25, 2019 Commission Meeting and is seconded by Commissioner O'Neill-Vivanco.

Action taken: motion approved; 5 to 0.

Chair Archambeau: "Aye"
Vice Chair Hogan: "Aye"
Commissioner Overby: "Aye"
Commissioner Barr: "Aye"
Commissioner O'Neill-Vivanco: "Aye"
Commissioner Alberry: Abstain
Commissioner Gilman: Abstain

Item 10 – Director's Report

Director Spencer referred to the Director's Report in the packet and provided a quick update on the St. Paul Street Great Streets project.

Item 11 – Commissioner Communications

Commissioner Alberry thanked everyone stating Commissioner Archambeau was an exceptional Chair and DPW had great staff.

Commissioner Overby wished Commissioner Alberry well –appreciates efforts to make communication better for Rose Street and other sidewalk projects.

Commissioner Hogan enjoying waterline work and seeks update on stop sign request at Adams Street and South Union Street.

Commissioner Barr seeks an update on why Curtis Avenue work has paused?

O'Neill-Vivanco – would like to have staff explore how to make Park Street and Route 127 intersection safer.

Commissioner Archambeau thanks Rob Alberry for his decades of service on the DPW Commission.

Item 12 – Adjournment & Next Meeting Date

Motion to adjourn made by Commissioner Barr and seconded by Commissioner _O'Neill Vivanco seconded

Action taken: motion approved; 7-0.

Chair Archambeau: "Aye
Vice Chair Hogan: "Aye
Commissioner Overby: "Aye" by phone

Commissioner Barr: "Aye"
Commissioner O'Neill-Vivanco: "Aye"
Commissioner Alberry: "Aye" by phone
Commissioner Gilman: "Aye"

"Ayes" are unanimous

Meeting adjourned at 9:30 p.m.

CITY OF BURLINGTON
DEPARTMENT OF PUBLIC WORKS

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To: DPW Commissioners
Fr: Chapin Spencer, Director
Re: **DPW Director's Report**
Date: September 12, 2019

ST PAUL STREET GREAT STREETS PROJECT:
We are working diligently with our contractors to bring this project to a successful completion. The upper block is substantially complete and we expect the lower block to be substantially complete in late-September. As you may have seen, there has been public concern about the tightness of the new intersection geometry at St. Paul & Maple and St. Paul & King. A couple key goals of the Great Streets Standards are to improve pedestrian safety and keep truck traffic on truck routes and out of adjacent residential areas. These goals led to standards that focus on moderating vehicle speeds, shortening crosswalks, etc. We understand the new intersection geometries and associated curb radii (the curvature of the curbs in the intersection) require driver attention and careful behavior. Given the public concern, our engineering team is evaluating the two intersections with the project's design team and determining whether any adjustments need to be made. We may have updates for the Commission at the September meeting and the Transportation, Energy & Utilities Committee on Sept 17th. Contact City Engineer Norm Baldwin, P.E., nbaldwin@burlingtonvt.gov for more info.

2019 CONSTRUCTION SEASON UPDATE:
This construction season is the third year under the Sustainable Infrastructure Plan – powered by strong community support in November 2016 authorizing two bonds to reinvest in the City's assets. In August, we projected our end of season production for key assets:

CAPITAL PRODUCTION by calendar year

CAPITAL REINVESTMENT	Past Annual Investment	2017 Final	2018 Final	2019 Projection
Paving	~ 3 miles	5.13 miles	7.37 miles	**4.34 miles**
Sidewalk Reconstruction	~ 1 mile	3 miles 1.25 DPW 1.75 Contractor	2.86 miles 1.26 DPW 1.6 Contractor	**2.72 miles** **0.85 DPW** **1.87 Contractor**
Water Main Relining	As needed	1.78 miles	1.93 miles	**1.85 miles**
Water Main Replacement	As needed	0.44 miles	1.5 miles	**0.1 miles**
Curb	As needed	0.62 mile	0.53 miles	**0.15 miles**
Sewer/Stormwater Pipe Rehab	As needed	$165K	$272K	**$455K**

BTV Stat – Department of Public Works – August 2019 3

Based on the public feedback for supplemental short-run sidewalk repairs, and the Mayor's and Council's leadership, and additional $568K was devoted to sidewalk for Fiscal Year 2020. This funding will supplement our production in construction seasons 2019 and 2020. It is important to note that production numbers above do not include standalone capital projects such as St Paul St that include new sidewalk and paving. We will have a more complete report at the end of the construction season.

CONSTRUCTION FATIGUE & PROJECT MANAGEMENT REVIEW:
While the enhanced level of capital asset reinvestment within the City's rights-of-way will deliver broad Citywide benefits for decades to come, this work can unfortunately create significant impacts during the construction phase. This year especially, the third year of the Sustainable Infrastructure Plan, we have received a number of inquiries and complaints regarding capital projects that don't appear to me moving quickly. Depending on the project, reasons will vary but include unanticipated conditions (contaminated soils, abandoned or unmapped utilities – including third party equipment, failed laterals), long lead time on custom items, competing contractor priorities, etc. We understand the public expects us to minimize the construction impact of each project as is reasonably possibly, and to this end DPW staff will be undertaking a robust post-construction season review of our management approaches, contract terms, and pre-construction planning efforts to learn from this season's experiences and update our strategies for the coming years. We expect to do this work once the construction season quiets down (November-December) and in talking to Chair Archambeau, staff will share our findings with the Commission – hopefully at the December meeting.

CHAMPLAIN PARKWAY PUBLIC OUTREACH MEETING
In partnership with VTrans and FHWA, the City will be hosting a public outreach meeting on Thursday, September 26 at Contois Auditorium. Information will be out at 5:30pm and the formal program will start at 6pm. DPW will present information about the Champlain Parkway project and is seeking input from the greater King Street and Maple Street neighborhood. Join your neighbors, City staff and our consulting team in a conversation about this project. We have also confirmed that Channel 17 will record the event and host it on their YouTube channel. For additional information, please visit the project website: www.champlainparkway.com. Interpreter services will be available at the meeting for the following languages: Bhutanese-Nepali, Swahili, Somali (MaiMai), Burmese, and French. To request additional Interpreter services for this meeting, please call: 802-863-9094 or email: DPW-PineCustomerService@burlingtonvt.gov. We will also be presenting information to the Ward 5 NPA in October about the Project.

NORTH AVE UNSIGNALIZED CROSSWALKS:
Despite a long lead time on some critical components, Team DPW successfully installed and opened the five unsignalized North Avenue crosswalks prior to the start of school this fall. It was a significant push at the end and the Engineering team is to be commended for getting this project constructed and open.

CITY HALL PARK PROJECT:
As we reported in July, Team DPW will be project managing the technical aspects of the City Hall Park reinvestment project. In late August and early September, we also coordinated a water service connection and a sewer main repair on College Street that required a full closure of College Street. We appreciate the patience of the traveling public and adjacent businesses. More information on this project can be found at Parks, Recreation and Waterfront's website: enjoyburlington.com.

TRAFFIC REQUESTS:
As of 09/11/19, we have 47 traffic requests in queue – an increase of 12 over last month. The increase has been driven by 1) no Commission meeting in August to act on requests, 2) an open position in the engineering team, and 3) staff is in the midst of construction season activity.

FY'19 COMMISSION ANNUAL REPORT FOR COUNCIL:
Each year, the City Council requests the Commission submit an annual report on progress from the past year and highlight some upcoming priorities for the current year. Staff has been working with Chair Archambeau to compile the FY'19 annual report. We will be looking for the Commission to sign off on the report at the September 18th meeting so that it can be presented to the City Council possibly as early as September 23rd. We will bring copies of the draft report to the meeting and hope to post the report on the DPW Commission website prior to the meeting.

COUNCIL APPROVED FOUR NEW SIDEWALK TRACTORS:
On July 15, the City Council approved funding for four new sidewalk tractors that will be ready by this winter. We had requested eight new sidewalk tractors to be funded by a portion of the proceeds from the sale of Burlington Telecom, but the City Council had concern with the funding source. As a result, four tractors were approved using General Fund fund balance. To clear the City's 130 miles of sidewalk during winter months, the City maintains a fleet of 12 sidewalk tractors. In FY'19, the average age of the fleet was 11 years old with all but four tractors at or beyond their expected lifespan. As a result, the City spent $165,267 on tractor parts and labor to keep the aging units running through last winter season. During one storm last year, half of our fleet was out of service due to mechanical issues which slowed our ability to clear the sidewalks.

645 PINE STREET RENOVATIONS
To better serve the public, Council approved funding for a modest redesign of 645 Pine St and to integrate the Permitting and Inspections Department into this space. Progress is being made and many DPW staff will be temporarily assigned to other reporting locations. Customer service will also temporarily move to the front conference room. All services and functions, normally found at Pine St, will be available through construction. If Commissioners want a tour after the meeting, we would be happy to oblige.

Feel free to reach out with any questions prior to Wednesday's Commission meeting. Thank you.