VERMONT

State of Vermont
Office of the Secretary
219 North Main Street, Suite 101
Montpelier, VT 05633-5001
www.aot.state.vt.us

[phone] 802-476-2690
[fax] 802-479-2210
[ttd] 800-253-0191

Agency of Transportation

December 3, 2019

Mayor Miro Weinberger
City Hall
49 Church Street
Burlington, VT 05401

Dear Mayor Weinberger,

Thank you for your recent correspondence regarding our coordinated efforts to bring Amtrak train service to Burlington. We are excited by the enthusiasm you expressed in your letter and your commitment to working with VTrans to return train service to the Queen City, while respecting and protecting the values of the City and its residents.

On Tuesday, November 19th, Michele Boomhower and Dan Delabruere of my staff had the opportunity to meet with the Transportation, Utilities and Energy Committee (TUEC) of the City Council to discuss the project and provide information, including information regarding a new potential overnight storage site which the Agency identified adjacent to the McNeil generating plant. At that meeting, Michele and Dan outlined very preliminary information regarding the McNeil site, since that time the Agency has worked with the CCRPC and consulting firm VHB, to prepare an Addendum (attached) to the *Burlington Amtrak Train Servicing and Storage Facility Assessment* which augments the original Assessment to include an evaluation of the McNeil location utilizing the same criteria as were applied to the original 5 locations.

Additionally, Michele and Dan committed to the TUEC to provide the following enhanced communications related to the project to assure that anyone interested in the project has access to up to date, direct, information:

- VTrans will develop a project website to provide up to date information
- VTrans will issue quarterly project updates through an email distribution link which will be built into the project website
- VTrans and City Staff will continue to meet on a monthly basis to coordinate the Amtrak project and the Greenway project
- At the invitation of the City Transportation, Utilities & Energy Committee, or any other bodies of City Government, the Agency will provide biannual updates on the project.

VTrans Working to Get You There
Vermont Agency of Transportation

In response to the questions you posed in our recent correspondence, we offer the following responses:

1. The reasons for which the Amtrak cannot be accommodated in the Railyard. Vermont Rail System (VRS) and VTrans have stated that the existing Railyard is not an option for overnighting the Amtrak train, and the City needs a better understanding of why this is the case.

   On November 25th I received the attached letter from VRS regarding the Amtrak Servicing and Storage Study. Information regarding the challenges and obstacles of train storage in the railyard are outlined in that letter.

2. The feasibility of overnighting and servicing the train in Saint Albans or another location beyond Burlington. If the State believes this option infeasible, the City needs more information about why this is the case.

   During the last Rail Advisory Council meeting there was a vote taken to request that VTrans explore the option of having the Amtrak service extend further north of Burlington. As background, staff have been working with New England Central Railroad (NECR) and VRS over the past few years to plan for the detour of VRS train traffic over the NECR railroad during the track closure in Middlebury as part of the Middlebury Tunnel Project; this detour is expect to occur during the 2020 construction season.

   To prepare for this detour "studies" were completed to determine the required improvements to the line between College Street, Burlington and the wye in Essex Junction to allow for the additional freight trains which will travel over this segment of track. The list of improvements needed for the safe movement of freight will be implemented in advance of the detour so the increased volume and weight of freight trains, traveling at low speeds, can utilize the line during the limited time closure of the track segments in Middlebury. At this time, there have been no comprehensive studies completed to evaluate the level of improvements needed to operate passenger service between Burlington and Essex Junction. A comprehensive study would be required.

   Under the VTrans Grant Agreement with the FRA, the Agency is required to commence Amtrak service to Burlington service by 2021, all focus has centralized on the planning, permitting and construction of this service. In this advanced stage of delivering Amtrak service to Burlington, a change to the destination of the train beyond Burlington, even if it were feasible, would put at risk the commencement of service from Rutland to Burlington on the current timeline.

The 2015 State Rail Plan does express, as a second-tier priority after Amtrak passenger service to Burlington and Montreal, Amtrak service from Burlington to Essex Junction (see excerpt from the Rail Plan below).

> ***ES.1.4.4. Vermont Passenger Rail Priorities***
>
> **VTrans has established extending the *Ethan Allen Express* to Burlington and the *Vermonter* to Montreal as first priorities. Second priority is to establish the service between Albany and Burlington through North Bennington and Manchester, and further extending the *Ethan Allen Express* from Burlington to Essex Junction. Third priority is to upgrade all passenger routes to FRA Track Class 4 and to add another frequency to the *Vermonter* service. Exhibit ES-5 maps VTrans priorities.**

In order to understand the implications of extending service from Burlington to Essex Junction, and then potentially on to Saint Albans, VTrans would need to undertake a comprehensive analysis. Such an analysis would likely cost between $200,000-$400,000 and take 12-18 months to complete. At this time the Agency has not scheduled nor budgeted for such an analysis due to the fact that we are still in the process of focusing on the top priorities in the Rail Plan, returning passenger service to Burlington and Montreal.

Some of the questions which would need to be contemplated in such a future study include:

- Should the train go to Essex or St. Albans if it goes beyond Burlington?
- What capital expenses would be needed from the currently planned end of the service to any new termination point?
- What are the costs with an expansion in the route?
- Is there interest on the owners and operators of the tracks to allow an additional passenger train to operate on the track and if they do will this trigger the need for PTC? If it does, who is responsible for the installation, maintenance and operating costs of this?
- Could it meet the Amtrak Vermonter with schedule changes?
- What impact would these schedule changes have on current services?
- If an extension of the service is feasible what does the operating schedule look like?
- What is potential ridership with an expansion in the route?
- Would our partner states support this change? If so what does the cost and revenue splits look like? Would train crews" time out" with an extension in distance for their routes, thus requiring an additional crew to complete the trip?
- What conflicts if any does this pose for other uses on the various tracks involved?

Amtrak to Burlington is the State's goal. This will remain our focus as we work with our partners to make this happen. Any additional services beyond Burlington can be discussed and proceed through a planning process in the future, however this must be done separate from the critical path we are on currently to bring service to Burlington.

Discussions with NECR have been positive, but rightfully so they would like VTrans to have a defined plan to present to them (a business plan) for consideration and response. This plan needs to define specifics of the service (times, stops, etc.), so they can evaluate the impact on their infrastructure and operations. NECR will need enough detail to decide what infrastructure improvements would need to be implemented by VTrans, costs that would be associated with this, as well as operating and maintenance costs that would be VTrans' responsibility if NECR granted permission for a future additional Amtrak service. Additionally, the State would need to identify a source of funding.

3. Why a second track is needed between King and College Streets to accommodate the Amtrak train, an understanding of what alternative strategies have been considered, and if there are additional actions that could make such an alternative feasible. The City is specifically interested in understanding why a second track is necessary at this time if Union Station is not selected as the overnighting location and thus Amtrak would only be briefly stopping at Union Station two times a day.

While Amtrak enjoys a federal delegation allowing it to pass upon any rail operator's tracks, there must be an agreement in place with the railroad which hosts the Amtrak train, and that agreement is predicated on the "Host Railroad" being provided accommodation to maintain its current and future services. Vermont Rail System (VRS), which will serve as the "Host Railroad" for the Amtrak Service, requires the second track to maintain its freight rail operations and its passenger train service (see attached letter from VRS regarding these details).

One of the most significant operational obstacles faced by VRS as the host of the Amtrak service is the limitations which are created during the time which Amtrak is traveling on the track between the wye in Rutland and the end of the VRS controlled line at College Street in Burlington. For each segment of track a train is operating on, a "track warrant" must be obtained from the dispatch center to assure that there are no other trains on the line. It is expected that the "track warrant segment" agreed to by Amtrak and the Federal Railroad Administration would be the entire segment from Rutland to College Street, Burlington – which would then require that no other trains be operating on the line, including in and out or the railyard in Burlington. VTrans is working with Amtrak to seek an FRA exemption which would reduce the warrant segment to Rutland to Middlebury and Middlebury to Burlington so there would be less disruption on VRS operations.

The track warrant segment, even if reduced to Middlebury to Burlington, would interrupt all VRS rail operations during the time the Amtrak train is on the primary track. VRS has predicated the second track as necessary, regardless of where the Amtrak train is stored overnight, due to operational interruptions outlined above, which would be compounded if the evening Amtrak service were not on time.

4. The CCRPC report finds that "nitrogen dioxide emissions from the locomotive have the potential to approach or exceed the NAAQS under the 1-hour averaging period" because the balconies of the Wing Building residences will be less than 50 feet from the train. Does the State believe that this is a concern that will require mitigation, and if so, what are the estimated mitigation costs? Additionally, would mitigation be necessary only if the Amtrak overnighted at Union Station or are the air quality concerns still exist regardless of the overnighting location?

VTrans is committed to mitigating air quality standard exceedances, should there be any identified once any necessary field testing is completed at the location chosen for the overnight storage of the train. Such testing could be accomplished in advance of the train service commencing; however, the State will not be scheduling testing until a location for the overnight storage of the train has been identified. Based on the outcome of the testing, the State would undertake an analysis of mitigation measures which could be implemented and determine which measures will be most appropriate to implement if such measures are required. The State would undertake the analysis and design, if needed, in consultation with the City.

In terms of actual idling of the train when arriving at the station to disembark riders is 5-10 minutes, including completing full shut down of the engines. Departure start up and idling is the same amount of time, 5-10 minutes, except during cold winter temperatures when the engine fluids need to be brought up to temperature and brake check completed, this can cause the engines to need to idle 20-30 minutes.

5. Some constituents have expressed concern the construction of a second rail in front of Union Station will lead to additional train building and freight storage in the heart of the waterfront. Does the State believe a significant increase in such activities is likely? As the owner of the rail line in front of Union Station, can the State ensure that this will not happen?

Based on statements which have been made by VRS officials, the State does not believe that there will be a significant increase in the building or freight storage of trains on the additional track. The State leases the railroad right of way to VRS, under its lease, VRS is within its rights to undertake any railroad operations, or construction of improvements, it deems necessary for its business purposes; the State has no authority to control, direct, or prohibit such uses or improvements.

I look forward to our continued collaboration on the advancement of this project. Please feel free to contact me at any time if you have questions or concerns.

Sincerely,

Joe Flynn
Secretary of Transportation

Cc: Michele Boomhower, Director of Policy, Planning and Intermodal Development
Dan Delabruere, Bureau Director, Rail and Aviation

Memorandum

To: Michele Boomhower
VTrans Director of Policy, Planning & Intermodal Development Division

Date: December 2, 2019

Project #: 57981.00

From: David Saladino, P.E., AICP

Re: Burlington Amtrak Train Servicing and Storage Facility Assessment Technical Addendum

---

This technical memorandum serves as an addendum to the *Burlington Amtrak Train Servicing and Storage Facility Assessment* report (June 2019) and provides an updated Evaluation Matrix and supporting technical background associated with a potential sixth Amtrak train servicing and storage location located adjacent to the McNeil Generating Station in Burlington, Vermont.

McNeil Site Overview

Figure 1 to the right shows the location of the McNeil site in relation to the other five potential locations identified and evaluated in the June 2019 *Site Assessment* report. The McNeil site is located along the New England Central Railroad (NECR) Winooski Branch line adjacent to the McNeil Generating Station and Queen City Steel, north of Riverside Avenue and west of Intervale Road in the north end of Burlington.

Figure 1: Potential Train Servicing & Storage Location Sites

Figure 2 on the following page shows a conceptual plan of the proposed rail siding and access road immediately to the south of the existing NECR track. The proposed siding and access road fall entirely within the NECR right-of-way – which is owned and maintained by NECR.

For Amtrak to access this site, track rights from NECR would have to be acquired as the passenger train would use a portion of NECR's Winooski Branch line from College Street to Intervale Road.

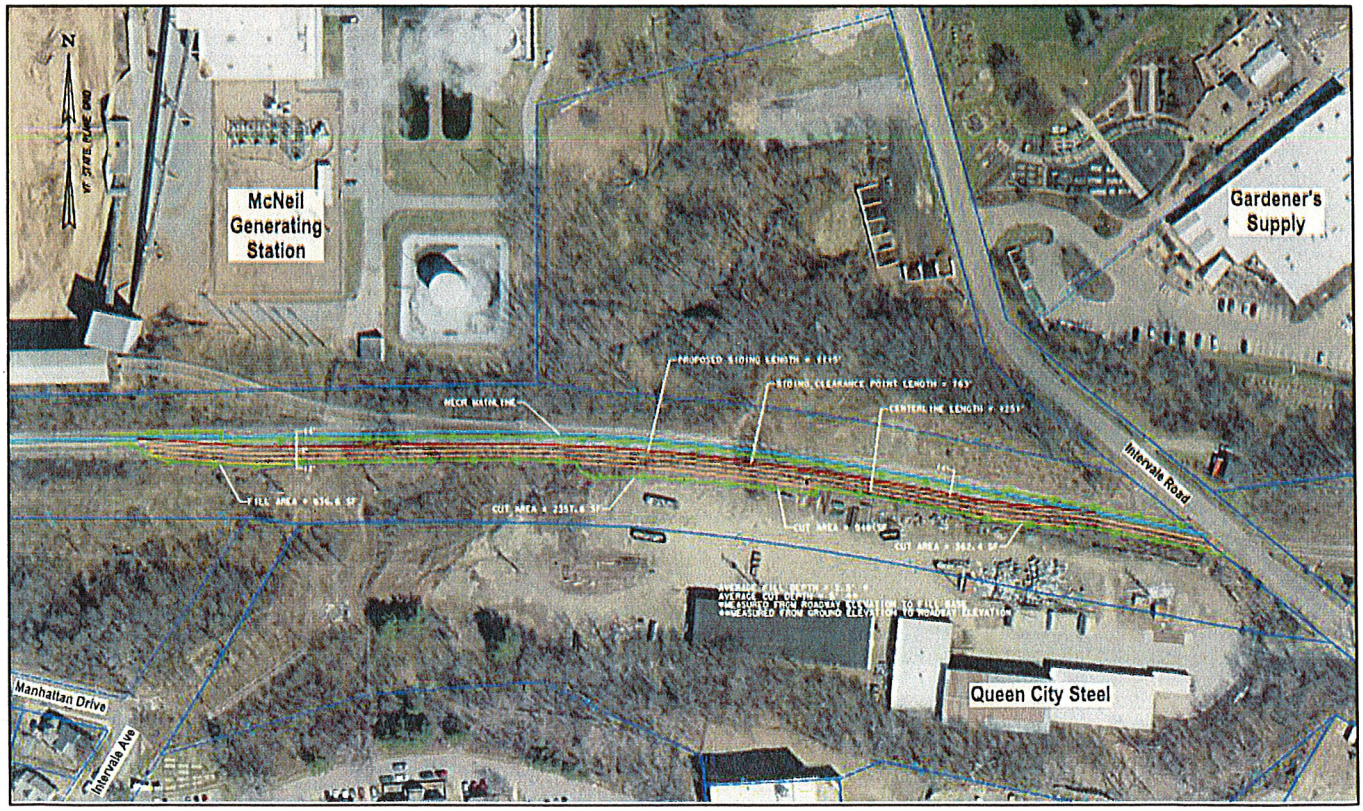
This site would be located on a new siding immediately east of the McNeil Generating Plant on the southerly side of the NECR mainline track. This location is approximately 2.1 miles north of Union Station as measured along the rail corridor. This site is located at the base of the Winooski River bluff, approximately 80-85 feet below the elevation of the closest homes and businesses located off Riverside Avenue. This vertical separation

40 IDX Drive
Building 100, Suite 200
South Burlington, VT 05403-7771
P 802.497.6100

provides a moderate level of noise and visual screening from adjacent homes and businesses. For comparison purposes, the track in the Urban Reserve is approximately 90 feet below the homes on Lakeview Terrace.

To service and store the Amtrak train at this location, approximately 1,200-feet of new track, new switches, and approximately 1,300-feet of new access roadway would have to be constructed. This construction would require earthwork to ensure that the roadway and track would be located at the same grade. A three-phase power drop would be needed to provide access from the existing power lines in the vicinity. The construction of this track, roadway, and related infrastructure is estimated to cost approximately $1,500,000.

Figure 2: McNeil Site Siding and Access Road - Concept Plan



Evaluation Criteria

The potential McNeil train servicing and and storage location was evaluated using the same methodology and metrics used for the other five sites. These criteria are summarized below:

- Design, Construction, and Property Acquisition Costs were calculated using unit costs from VTrans, Vermont Railway (VTR), and previously completed railroad construction projects. Construction of the McNeil Siding is estimated to cost approximately $1,500,000 for new track, two switches, electrical power service, and a new access road.
- Electrical Power Availability was based on the proximity of the nearest three-phase power supply and the necessary infrastructure required to connect the train to the electrical power grid. Three-phase power is required for the "hot start" device to keep the diesel fuel from gelling without having to idle the locomotive all night. Three-phase power is available near the McNeil siding but would require a power drop line to the siding.
- Additional Crew Hours were calculated and included as a criterion because of federal regulations which restrict the number of consecutive hours a crew can work to 12 hours. After this period of time, a minimum break of ten hours is required. The calculations were based on the amount of time it would take to bring the train from Union Station to the McNeil siding, then have the crew travel to downtown Burlington, where it is assumed the crew would be lodged overnight. There is also additional morning delay of travelling back to the train and bringing it to Union Station for passenger pick-up.
- Property Acquisition is required anywhere that the property is not already owned by the State or locations that would require a lease agreement with VTR or NECR. The McNeil siding property is owned by NECR which would require a lease agreement between VTR and NECR. VTR is expected to be the maintenance provider and point of contact for this train as they are located in Burlington, whereas NECR is based in St. Albans.
- Natural Resource Constraints were measured based on a desktop review of the sites and adjacent mapped natural resources such as wetlands, rare, threatened, and endangered species, river corridors, and floodplains. Two rare species were identified proximate to the site. Upon further inspection, one of the species is an aquatic organism whose presence is likely limited to the Winooski River corridor and the second is not a state- or federally-protected species.
- Lighting Impacts were estimated based on Amtrak lighting requirements for overnight storage, the proximity to residential areas, whether there is already lighting in the location, or if new lighting is being introduced to an area. The servicing and storage area lighting would be a low-level light overnight which increases in brightness when being serviced. There is current ambient light in the vicinity of this site from adjacent industrial buildings, but additional lighting would be required for servicing and security.

- Visual Impacts were evaluated based on how visible the train would be from various angles. Taking topography and adjacent land uses into consideration, this site is anticipated to have little to no impact on adjacent neighborhoods as it located significantly down slope from adjacent residential areas and has ample tree coverage.
- Noise Impacts from the idling locomotive was evaluated using Cadna-A[1] sound prediction software which utilizes the methods outlined in the International Standards Organization (ISO) Standard 9613-2:2006[2]. This prediction method considers the topography, ground cover, wind conditions, and intervening objects such as buildings. The following summarizes the principal assumptions of the noise model:
    - Moderate downwind conditions are assumed which conservatively predict efficient sound propagation from the source to receptors in all directions.
    - Sound attenuation is affected by shielding and diffraction provided by local buildings intervening the propagation path between the source and receptors.
    - Ground cover in the study area depends on site specific conditions. The McNeil site was assumed to be surrounded by earth, grass, and other vegetation which provide acoustically soft ground.

  Noise was analyzed assuming one idling locomotive at the potential storage and servicing site. The reference sound level of the idling locomotive used in the study was determined using measurements of an idling Amtrak P32AC Locomotive at the Amtrak Station in Rutland, Vermont on September 7, 2018. Measurements were conducted using an ANSI Type I sound level meter (Larson Davis Model 831) and employed best measurement practices. The P32AC is an older model of locomotive than will be used for the Burlington service. The newer locomotives are anticipated to be quieter than those currently in service, so the resulting analysis should be construed as an order-of-magnitude evaluation and not necessarily an exact estimate of noise at a given location.

  Noise receptors were identified at all residential parcels experiencing sound levels 40 dBA and greater from the idling locomotives using a combination of available parcel data, aerial photography, and Google Street View™. Noise receptors were identified at single-family residences and multi-family residences and were tabulated according to the number of dwelling units. The number of residences that would be exposed to sound levels between 40 to 50 dBA, 50 to 60 dBA, and greater than.60 dBA were quantified.

  Per information from Amtrak, "hot start" equipment would be integrated into the locomotives which would eliminate the need for the locomotives to idle overnight. With this equipment in place, the train would only

[1] Computer Aided Noise Abatement (Cadna-A). DataKustik GmbH. Version 2017.
[2] "Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation" ISO 9613-2:2006. 2006.

need to go through a 20 to 40-minute power up and power down sequence upon departure and arrival, limiting the duration of noise impacts. The noise analysis is elaborated upon in more detail in Appendix C.

The McNeil Site would be setback from residences at relatively similar distances as the Northern Urban Reserve and Urban Reserves sites, but there are a greater number of multi-family residences near the McNeil Site. Therefore, there would be a greater number of residences that would be exposed to locomotive idling noise 50 dBA or greater at the McNeil Site compared to the Northern Urban Reserve and Urban Reserve sites.

- Air Quality and Emissions were analyzed assuming one idling locomotive at each potential storage site for 40 minutes. Pollutant dispersion modeling was conducted using the AERSCREEN dispersion model[3] which is a screening model that uses worst-case meteorology to conservatively estimate pollutant concentrations. Additionally, models were developed with the appropriate geometry for homes along Manhattan Drive and Riverside Avenue near the McNeil Site as these receptors are elevated relative to the tracks.

  The results of the dispersion modeling for each location show that only nitrogen dioxide emissions from the locomotive have the potential to approach or exceed the National Ambient Air Quality Standards (NAAQS) under the 1-hour averaging period at the Union Station Site. Elevated receptors (such as balconies) may experience nitrogen dioxide emissions greater than the NAAQS within 50 feet of the locomotive. Nitrogen dioxide concentrations at all ground level receptors at all sites and elevated homes along Lakeview Terrace, Manhattan Drive, and Riverside Avenue would be well below the NAAQS.

  Pollutant concentrations from the idling locomotive for all criteria pollutants and averaging periods are well below the NAAQS criteria at the McNeil site. A copy of the Air Quality Assessment memorandum is provided in Appendix C.

- Proximity to Residential Areas is a straight-line measurement from each train servicing and storage location to the nearest residence. This distance was measured to be under 0.1 mile for the McNeil siding.

- Impacts to VTR & NECR Operations were based on potential impacts to VTR and NECR daily freight rail operations. These operations include, but are not limited to, loading, unloading, servicing, building and storing trains. This site is located approximately 2 miles from VTR rail lines, resulting in minimal impacts to VTR operations. Impacts to NECR operations are primarily related to potential impacts to NECR's wood chip trains that service the McNeil Generating Station. Since the Amtrak train would be stored and serviced overnight on a separate siding, impacts on the wood chip trains would be limited.

---

[3] AERSCREEN Dispersion Model, Version 16121r, US Environmental Protection Agency.

Evaluation Matrix

An evaluation matrix was created to summarize the scoring assigned to each metric for each location. The evaluation matrix and total scores for each site are summarized in **Table 1** on the following page. Each of the evaluation criterion was scored on a scale of 0 to 3 with zero representing the lowest possible score and three representing the highest possible score for each metric. The highest possible score for a given site is 33 points. No weighting was applied to the scoring metrics.

Table 1: Evaluation Matrix

Location	Estimated Costs		Electrical Power Availability		Additional Crew Hours		Property Acquisition		Natural Resource impacts		Lighting Impacts	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Northern Urban Reserve	2	$2,290,000 (new track and switch, electrical power, utilities, and new access road)	2	New electrical lines and connection required	2	44 minutes per day	1	Acquisition required from the City of Burlington	3	No anticipated impacts	1	Lighting will be added in an area where there are currently no lights
Urban Reserve	2	$2,240,000 (new track and switch, earthwork, electrical power, utilities)	2	New electrical lines and connection required	2	40 minutes per day	1	Acquisition required from the City of Burlington	3	No anticipated impacts	1	Lighting will be added in an area where there are currently no lights
Union Station	3	$300,000 (electrical power)	3	New connection to existing electrical line required	3	0 minutes per day	3	This is located within an existing railroad corridor owned by the State	3	No anticipated impacts	2	Brighter lighting will be required overnight
VTR Railyard	0	$50,000,000 (relocation of Railyard to alleviate operational conflicts)	3	New connection to existing electrical line required	2	30 minutes per day	2	Lease agreements will need to be made with VRS	3	No anticipated impacts	2	Brighter lighting will be required outside of current Railyard operational hours.
Flynn Avenue	2	$1,500,000 (relocation of VRS storage currently on this siding)	2	New electrical lines and connection required	1	60 minutes per day	2	Lease agreements will need to be made with VRS	3	No anticipated impacts	2	Brighter lighting will be required overnight
McNeil Siding	2	$1,500,000 (new track, two switches, electric power, and new access road)	3	New connection to existing electrical line required	1	75 minutes per day	1	Property owned by NECR; Lease agreement needed	3	No anticipated impacts	2	Brighter lighting will be required overnight

Location	Train Visibility		Noise Impacts		Horn Impacts		Air Quality & Emissions		Proximity to Residential Areas		Impacts to Freight Rail Operations		Total Score	Ranking
	Score	Comments	Score	Number of Residences Impacted[2]	Score	Number of Additional Horn Warnings[3]	Score	Comments	Score	Comments	Score	Comments		
Northern Urban Reserve	3	The train will be located down slope from most homes and will not be easily visible from the east	1	50 residences	1	4 Additional Horn Warnings	3	Does not exceed NAAQS[4]	3	The train is less than 528 feet from residences but is significantly down slope	2	Minor impacts to VRS operations. The train would be stored on a new siding off of a VRS siding north of the railyard	**24**	**3**
Urban Reserve	2	The train will be located down slope from most homes and will be slightly visible from the east	1	62 residences	1	4 Additional Horn Warnings	3	Does not exceed NAAQS	3	The train is less than 528 feet from residences but is significantly down slope	2	Minor impacts to VRS operations. The train would be stored on a new siding off of the VRS main line north of the railyard limits	**23**	**5**
Union Station	1	The train will be located between Union Station and ECHO	2	26 residences	3	0 Additional Horn Warnings	0	Potentially exceeds Nitrogen Dioxide standard	0	The train is less than 50 feet from residences	3	No impacts to VRS operations. The train would be stored on a new siding off of the VRS track	**26**	**1**
VTR Railyard	3	The train will be located within an existing railyard and will not significantly change the current views	3	12 residences	1	4 Additional Horn Warnings	3	Does not exceed NAAQS	2	The train is less than 528 feet from residences	0	Major impacts to VRS operations. The train would be in direct conflict with current VRS operations	**24**	**3**
Flynn Avenue	2	The train will be stored in an area which often has trains currently but it located close to many residences	0	160 residences	1	4 Additional Horn Warnings	3	Does not exceed NAAQS	2	The train is less than 528 feet from residences	1	Significant impacts to VRS operations. The train would be stored on a siding currently used by VRS or along a siding which would disrupt Railyard operations	**21**	**6**
McNeil Siding	3	The train will be located down slope from most homes and will not be easily visible from Riverside Avenue	1	85 residences	1	4 Additional Horn Warnings	3	Does not exceed NAAQS	3	The train is less than 528 feet from residences but is significantly down slope	2	No impacts to VRS operations. Minor impacts anticipated to NECR's wood chip train.	**25**	**2**

[2] *Number of Residences with dBAs more than 50*

[3] *Additional horn warnings necessary at road crossings from and to the Union Station*

[4] *National Ambient Quality Standards for specific pollutants*

Appendices

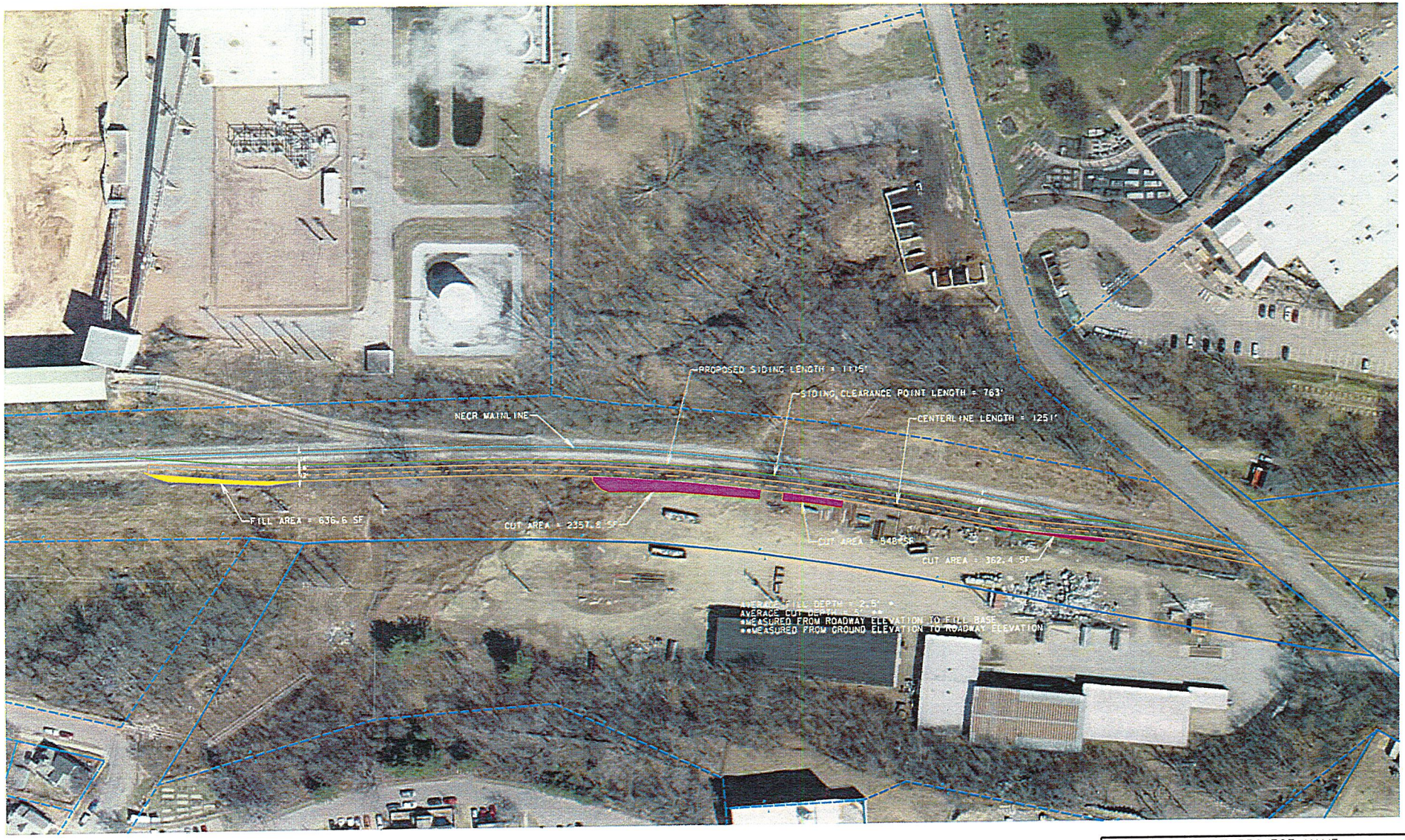
Appendix A - Concept Plan and Maps

Appendix B - Amtrak Design Criteria

Appendix C - Noise and Air Evaluation

Appendix D - Conceptual Cost Estimate

Appendix A - Concept Plan and Maps



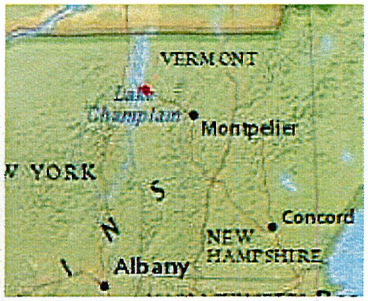
vhb

PROJECT NAME: VAOT PROJECT NAME	
PROJECT NUMBER: PROJECT NUMBER	
FILE NAME: ppms*/Section/------.dgn	PLOT DATE: 10/24/2019
PROJECT LEADER: ------	DRAWN BY: ------
DESIGNED BY: ------	CHECKED BY: ------
------ ------	SHEET 1 OF 1

McNeil Siding - Natural Resource Map

Vermont Agency of Natural Resources

vermont.gov



LEGEND

Wetland - VSWI

- Class 1 Wetland
- Class 2 Wetland
- Buffer

Hazardous Site

Hazardous Waste Generators

Rare Threatened Endangered

- Threatened or Endangered
- Rare

Parcels (standardized)

Roads

- Interstate
- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local
- Not part of function Classification S

NOTES

Map created using ANR's Natural Resources Atlas

165.0 0 82.00 165.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 271 Ft. 1cm = 33 Meters

© Vermont Agency of Natural Resources

THIS MAP IS NOT TO BE USED FOR NAVIGATION

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

Appendix B – Amtrak Design Criteria

Burlington, VT

Amtrak Design Criteria for Proposed Layover Facility

In preparation for extended service of the Ethan Allen line from Rutland to Burlington with two intermittent stops at Vergennes and Middlebury, Amtrak operations requests a designated layover siding, separated from passenger boarding platforms, for train turnovers with the following recommended components:

Lighting:

Brightness Level: 2fc to 5 fc when inactive / 20 fc when active
Type: LED with step dimming control by motion sensors highly recommended

Electrical Power:

Air Compressor: 480V, 3 phase service (30 amp breaker)
Train Disconnect Panel: 480V, 3 phase service (800 amp breaker)
Location: Near rear of engine

Water Service:

Service Station: One (1) Snyder service station for every two (2) coaches.
Assume six (6) coaches for Ethan Allen line for three (3) stations.
Location: 112' from the front of the engine / 170' intervals thereafter.
Sanitary: Provide sanitary sewer dump station for 'honey dipper' truck usage.
Water Supply Lines: Provide 2" water lines to each service station.
Power: 120 VAC, 40 amp service to each water service station.
General: Provide tap, meter, and backflow preventer per codes.

Air:

Compressor: Saylor Beall Air Compressor (model 735-80, Series 5-96-R04) with 80 gallon tank and 5hp motor.
Locate in 10'x10' shed.
Provide 480v, 3 phase service with disconnect switch.

Platform:

Height: Low level 8" ATR – *assume access by on-board stairways*
Length: 600' - *Based on existing Ethan Allen Amfleet coaches.*
Covering: 75' long roof shed for Locomotive. See Amtrak SDP for specific design criteria.

Access, ROW, Storage:

Storage: Provide enclosed, lockable storage for cleaners and equipment.
Exact sizes and quantities TBD, estimated two or three 10'x10'sheds.
Yard: Parking for one (1) Honey Dipper truck, three (3) to five (5) service vans.
Access Driveway: 12' wide access road along track.

Crew Base / Staff Facilities:

Not needed at this location. Crew procedure is taxi to off-site accommodations.

Appendix C – Noise and Air Evaluation

Memorandum

To: VTrans

Date: November 30, 2019

Project #: 57981.00

From: VHB

Re: Burlington Amtrak Storage Facility
Noise Analysis

The Chittenden County Regional Planning Commission (CCRPC), the City of Burlington (COB), the Vermont Agency of Transportation (VTrans), and Vermont Rail Systems (VRS), are collaborating on a study to identify an overnight storage and servicing location for the future Amtrak passenger train in the greater Burlington area. A component of evaluating the feasibility of the six potential storage sites are potential noise effects from idling locomotives at nearby sensitive locations including residences. This memorandum presents background information on noise, summarizes the assessment methodology, and presents results of the noise analysis.

Noise Background

Sound is the rapid fluctuations of air pressure above and below ambient pressure levels. Noise is defined as unwanted or excessive sound. Sound becomes unwanted when it interferes with normal activities such as sleep, work, communication or recreation. How people perceive sound depends on several measurable physical characteristics including:

- **Sound Level** - Sound level is based on the amplitude change in pressure and is related to the loudness or intensity. Human hearing covers a wide range of changes in sound pressure amplitude. Therefore, sound levels are most often measured on a logarithmic scale of decibels (dB) relative to 20 micro-pascals. The decibel scale compresses the audible range of acoustic pressure levels, which can vary from the threshold of hearing (0 dB) to the threshold of pain (120 dB). Because sound levels are measured in dB, the addition of two sound levels is not linear. For example, adding two equal sound levels results in a 3 dB increase in the overall level. Research indicates the general relationships between sound level and human perception are as follows:
  - A 3-dB increase is a doubling of acoustic energy and is approximately the smallest difference in sound level that can be perceived in most environments.
  - A 10-dB increase is a tenfold increase in acoustic energy and is generally perceived as a doubling in loudness to the average person.
- **Frequency** - Sounds are comprised of acoustic energy distributed over a range of frequencies. Acoustic frequencies, commonly referred to as tone or pitch, are typically measured in Hertz. Human hearing generally ranges from 20 to 20,000 Hz; however, the human ear does not perceive sound levels from each frequency as equally loud. To compensate for this phenomenon in perception, a frequency filter known as A-weighting [dBA] is commonly used to evaluate environmental noise levels.
  - Sound levels reported in octave or one-third-octave frequency bands are often used to describe the frequency content of different sounds. Some sources of sound can generate "pure tones" which is when there is a concentration of sound within a narrow frequency range such as a whistle. Humans can hear pure tones very well and such conditions can be a cause of increased annoyance.

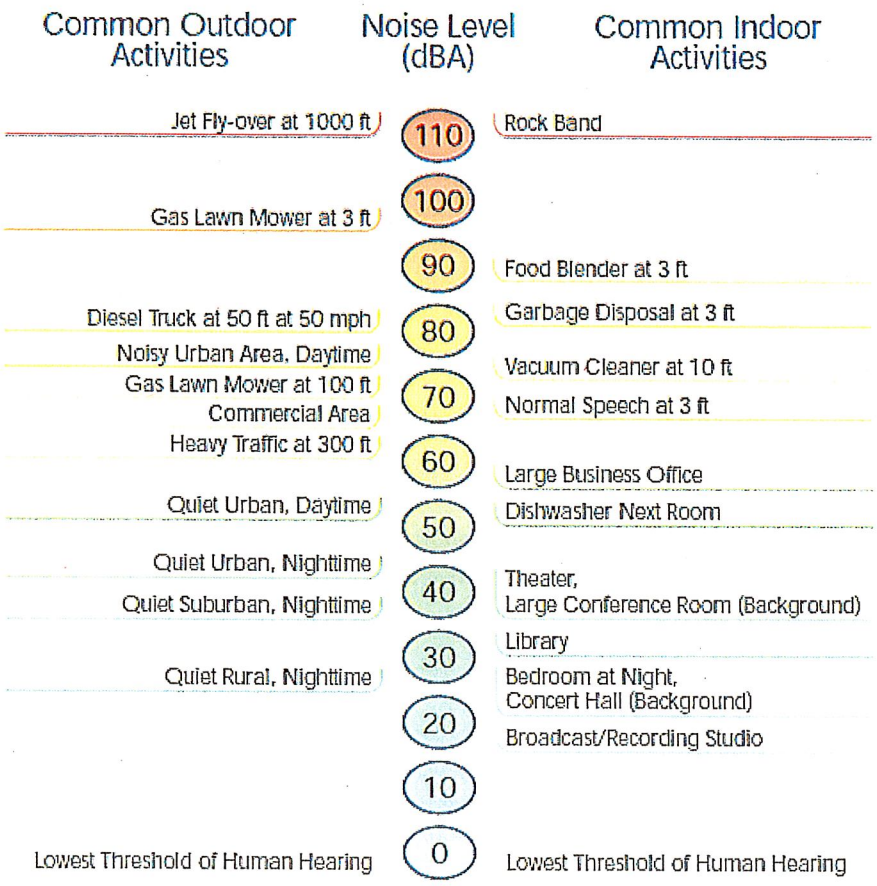
40 IDX Drive
Building 100, Suite 200
South Burlington, VT 05403-7771
P 802.497.6100

A variety of sound level descriptors can be used for environmental noise analyses. These descriptors relate to the way sound varies in level over time. The following is a list of common sound level descriptors:

- The *Maximum A-weighted Level* (Lmax) represents the highest sound level generated by a source. For mobile sources, the maximum level typically occurs when the source is closest to the measurement or analysis location.
- The *Energy-average Level* (Leq) is a single value that is equivalent in sound energy to the fluctuating levels over a period of time. The Leq accounts for how loud events are during the period, how long they last, and how many times they occur. Typically, Leq sound levels are used to describe the time-varying sound level over a 1-hour period and may be denoted as Leq_{1h}. Leq is commonly used to describe environmental noise and relates well to human annoyance.

Figure 1 shows typical A-weighted sound levels for common outdoor and indoor activities.

Figure 1 Typical Ambient Outdoor and Indoor Sound Levels



Source: Caltrans, 2016.

Regulatory Context

Noise generated by the proposed locomotive storage has been evaluated according to the Federal Railroad Administration (FRA) equipment regulations and Burlington Noise Ordinance.

FRA Equipment Regulations

Noise is generated by diesel-electric locomotives while it is providing head end power (HEP) to the passenger coaches while idling. The HEP provides power to the rail cars without providing power to the traction motors. The FRA has equipment noise standards for all locomotives operating under stationary conditions with an idle throttle setting. As defined in 40 CFR 201.11, no locomotive manufactured after December 31, 1979 may exceed a maximum sound level of 70 dBA when operated at idle at a distance of 100 feet from the locomotive center. Since the Amtrak trains operate on a railroad subject to FRA jurisdiction, locomotives must comply with this noise standard.

Burlington Noise Ordinance

The City of Burlington has established a Noise Ordinance to preserve the public health, safety and welfare of its citizens. The purpose of the ordinance is to prohibit excessive and disturbing noise. The Burlington Noise Ordinance does not establish quantitative noise limits, but instead primarily focuses on restricting certain noise sources to specific times of day. The ordinance specifies express prohibitions on noise originating from parties, machinery, construction, loud speakers, radios, televisions and other sound amplification devices (including those in motor vehicles). A general prohibition is placed on any noise that disturbs, injures, or endangers the peace or health of any person or the community.

The Burlington Noise Ordinance does not prohibit noise generated from locomotives. Additionally, since noise from the locomotives is controlled by federal regulation, the local ordinance is not applied.

Analysis Methodology

Noise from the locomotives has been evaluated at each study location including nearby residential receptors.

Receptor Identification

Noise receptors were identified at all residential parcels experiencing sound levels 40 dBA and greater from the idling locomotives using a combination of available parcel data, aerial photography, and Google Street View™. Noise receptors were identified at single-family residences and multi-family residences and are tabulated according to the number of dwelling units. The number of residences that would be exposed to sound levels between 40 to 50 dBA, 50 to 60 dBA, and greater than 60 dBA.

Noise Sources

Noise was analyzed assuming one idling locomotive at each potential storage site. The reference sound level of the idling locomotive used in the study is provided in Table 1. The reference sound level was determined using measurements of an idling Amtrak P32AC Locomotive at the Amtrak Station in Rutland, Vermont on September 7, 2018. Measurements were conducted using ANSI Type I sound level meter (Larson Davis Model 831) and employed best measurement practices.

Table 1 Locomotive Idling Emissions at 100 feet (dBA)

		Frequency (Hz)							
Source	**Overall**	**63**	**125**	**250**	**500**	**1,000**	**2,000**	**4,000**	**8,000**
Idling Locomotive	77	72	63	66	68	68	67	65	64

Source: VHB measurements of an Amtrak P32AC Idling Locomotive on September 7, 2018.

Noise Model

Sound generated by the idling locomotive has been predicted using Cadna-A[1] sound prediction software which utilizes the methods outlined in the International Standards Organization (ISO) Standard 9613-2:2006[2]. This prediction method considers the topography, ground cover, wind conditions, and intervening objects such as buildings. The following summarizes the principal assumptions:

- Moderate downwind conditions are assumed which conservatively predict efficient sound propagation from the source to receptors in all directions.
- Sound attenuation is affected by shielding and diffraction provided by local buildings intervening the propagation path between the source and receptors.
- Ground cover in the study area depends on site-specific conditions. The McNeil site was assumed to be surrounded by earth, grass, and other vegetation which provide acoustically soft ground.

Analysis Results

Site 6, McNeil Siding Site, is located near the Joseph C. McNeil Generating Station. There are residences near this site along Riverside Avenue, Manhattan Drive, and Intervale Avenue which are elevated relative to the tracks. The terrain provides acoustic shielding from the idling locomotives. There would be no residences exposed to noise greater than 60 dBA. There would be approximately 85 residences exposed to sound levels between 50 and 60 dBA and 229 residences exposed to sound levels between 40 and 50 dBA.

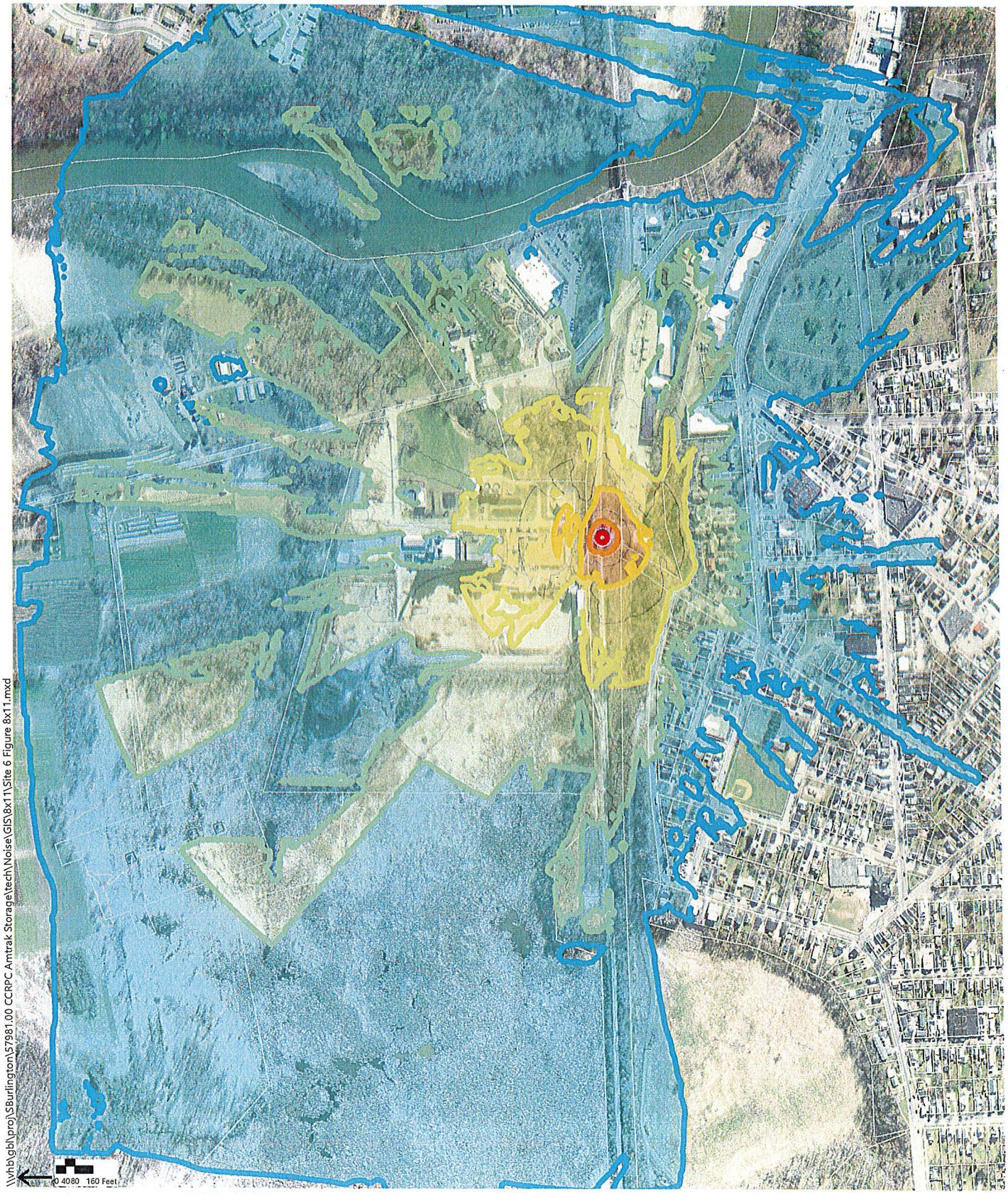
Table 2 presents the number of residences experiencing maximum (Lmax) sound levels between 40 and 50 dBA, between 50 and 60 dBA, between 60 and 70 dBA, between 70 and 80 dBA and greater than 80 dBA from the idling locomotive.

Table 2 Residential Receptors Exposed to Locomotive Sound

		Number of Residences				
Site	**Site Description**	**40-50 dBA**	**50-60 dBA**	**60-70 dBA**	**70-80 dBA**	**>80 dBA**
6	McNeil Siding	229	85	0	0	0

[1] Computer Aided Noise Abatement (Cadna-A). *DataKustik GmbH*. Version 2017. http://www.datakustik.com/en/products/cadnaa.

[2] "Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation" ISO 9613-2:2006. 2006.



\\vhb\gbl\proj\SBurlington\57981.00 CCRPC Amtrak Storage\tech\Noise\GIS\8x11\Site 6 Figure 8x11.mxd

Burlington Amtrak Servicing & Storage Facility Study | Burlington, Vermont

Sound Level Contours
McNeil Generating Station Siding

Sound Levels

- 40-50 dBA
- 50-60 dBA
- 60-70 dBA
- 70-80 dBA
- >80 dBA
- 40 dBA
- 50 dBA
- 60 dBA
- 70 dBA
- 80 dBA
- 90 dBA

Memorandum

To: VTrans

Date: November 30, 2019

Project #: 57981.00

From: VHB

Re: Burlington Amtrak Storage Facility
Air Quality Analysis

The Chittenden County Regional Planning Commission (CCRPC), the City of Burlington (COB), the Vermont Agency of Transportation (VTrans), and Vermont Rail Systems (VRS), are collaborating on a study to identify an overnight storage and servicing location for the future Amtrak passenger train in the greater Burlington area. A component of evaluating the feasibility of the six potential storage sites is potential air quality effects from idling locomotives at nearby sensitive locations including residences. This memorandum presents background information on air quality, summarizes the assessment methodology, and presents the results of the air quality analysis.

Regulatory Context

The air quality statutes and regulations that are applicable to the Storage Facility include the 1990 Clean Air Act Amendments (CAAA) and the National Ambient Air Quality Standards (NAAQS). The CAAA is the basis for most Federal air pollution control programs. The purpose of the CAAA is to preserve air quality and protect the public's health and welfare. Under the authority of the CAAA, the Environmental Protection Agency (EPA) regulates air quality nationally. EPA delegates authority to the Department of Environmental Conservation (DEC) for monitoring and enforcing air quality regulations in the State of Vermont. Conformity with the State Implementation Plan is not assessed in this analysis because the Storage Facility is located in Chittenden County, which is designated by the EPA as in Attainment (i.e., in compliance with applicable standards) for all criteria pollutants. Therefore, this area is exempt from conformity requirements.

Under authority of the CAAA, the EPA established the NAAQS that define allowable limits for atmospheric concentrations of various criteria air pollutants including particulates. Primary standards are established at levels designed to protect the public health. Secondary standards are established at levels designed to protect the public welfare by accounting for the effects of air pollution on vegetation, soil, materials, visibility, and other aspects of the general welfare. The EPA has set the NAAQS for criteria pollutants to protect the public health and welfare. Table 1 presents the NAAQS for these pollutants.

40 IDX Drive
Building 100, Suite 200
South Burlington, VT 05403-7771
P 802.497.6100

Table 1 National Ambient Air Quality Standards

Pollutant	Averaging Period	Primary Standard	Secondary Standard	Form
Carbon Monoxide (ppm)	8-hour	9	-	Not to be exceeded more than once per year
	1-hour	35	-	
Nitrogen Dioxide (ppb)	1-hour	100	-	98th percentile of daily maximum concentrations, averaged over 3 years
	Annual[a]	53	53	Annual Mean
Ozone (ppm)	8-hour[b]	0.070	0.070	Annual 4th highest daily maximum concentration, averaged over 3 years
Particulate Matter 2.5 (μg/m³)	Annual	12	15	Annual mean, averaged over 3 years
	24-hour	35	35	98th percentile, averaged over 3 years
Particulate Matter 10 (μg/m³)	24-hour	150	150	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (ppb)	1-hour[c]	75	-	99th percentile of daily maximum concentrations, averaged over 3 years
	3-hour	-	0.5	Not to be exceeded more than once per year
Lead (μg/m³)	3-month average[d]	0.15	0.15	Not to be exceeded

Source: US Environmental Protection Agency

[a] The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

[b] Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

[c] The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which implementation plans providing for attainment of the current (2010) standard have not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 C.F.R. §50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the require NAAQS.

[d] In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 μg/m³ as a calendar quarter average) also remain in effect.

(ppm) – parts per million; (ppb) – parts per billion; (μg/m³) – micrograms per meter cubed

Analysis Methodology

Air Quality from the locomotives has been evaluated at each study location for nearby residential receptors and locations of ambient air.

Background Concentrations

Background concentrations were obtained from the DEC, who maintain a network of ambient air monitors across the state in response to the CAAA. Background concentrations are added to project emission sources to determine the total pollutant concentration at a receptor location for comparison to the NAAQS. The most current background

concentrations were obtained from the DEC's recommended background concentrations for air quality monitoring.[1] Concentrations were chosen from the monitoring location closest to the Storage Facility (the Burlington monitoring site). Only pollutants that were considered in the air quality modeling are presented in Table 2. The criteria pollutants not considered in the air quality modeling (Ozone, Sulfur Dioxide, and Lead) are not studied because they are not substantially emitted by locomotives. All background concentrations are well below the NAAQS and demonstrate Chittenden County's Attainment designation by the EPA.

Table 2 Background Concentrations

Pollutant	Units	Averaging Period	Background Concentration	NAAQS Standard
Carbon Monoxide	ppm	8-hour	0.6	9
	ppm	1-hour	1.2	35
Nitrogen Dioxide	ppb	1-hour	33	100
	ppb	Annual	6.5	53
Particulate Matter 2.5	$\mu g/m^3$	Annual	6.0	12
	$\mu g/m^3$	24-hour	10	35
Particulate Matter 10	$\mu g/m^3$	24-hour	32	150

Source: Vermont Department of Environmental Conservation.

Emission Sources

Locomotive emissions were analyzed assuming one idling locomotive at each potential storage site for 40 minutes. The reference emission factors of the idling locomotive used in the study were retrieved from "Emission Factors for Locomotives", an EPA guidance document.[2] The emission factors are for an Amtrak P32AC Locomotive under the Tier 0 emission standard and with an engine power representative of idling conditions.

Dispersion Model

Pollutant dispersion modeling was conducted using the AERSCREEN dispersion model.[3] AERSCREEN is a screening model that uses worst-case meteorology to conservatively estimate pollutant concentrations. Dispersion modeling was conducted for receptors located 6 feet above the ground that were placed between the locomotive stack and 500 feet for NO_2 and 150 feet for other pollutants. These ranges were sufficient to capture the distance that experiences the maximum pollutant concentration from locomotive emissions. Additionally, models were developed with the appropriate geometry for homes along Manhattan Drive and Riverside Avenue near the McNeil Site as these receptors

[1] "Ambient Monitoring Background Data For Use In Air Quality Impact Evaluation". Vermont Department of Environmental Conservation. http://dec.vermont.gov/air-quality/permits/construction/background-data. Accessed October 4, 2018.
[2] "Emission Factors for Locomotives". US Environmental Protection Agency. EPA-420-F-09-025. April 2009.
[3] AERSCREEN Dispersion Model, Version 16121r, US Environmental Protection Agency.

are elevated relative to the tracks. Pollutant concentrations with averaging periods other than 1-hour were modeled using the recommended persistence factors from the "AERSCREEN User's Guide".[4]

Analysis Results

The results of the dispersion modeling for the Storage Facility show pollutant concentrations from the idling locomotive for all criteria pollutants and averaging periods are below the NAAQS criteria at all receptor locations at the McNeil site. The potential to exceed the NAAQS for each site is summarized in Table 3.

Table 3 Potential for Air Quality Impact by Site

Site	Site Description	Potential to Exceed NAAQS?	Potential Exceedance Location
6	McNeil Siding	All Pollutants: No	N/A

[4] "AERSCREEN User's Guide". US Environmental Protection Agency. EPA-454/B-16-004. December 2016.

Appendix D – Conceptual Cost Estimate

Computations

Project:	Amtrak Storage	Project #:	57981.00
Location:	Burlington, VT	Sheet:	
Calculated by:	JDA	Date:	12/27/2017
Checked by:	ELQ	Date:	3/27/18
Revised	EC	Revised:	5/10/19
Revised	JDS	Revised:	11/25/19
Title:	Conceptual Cost Estimates		

Conceptual Cost Estimates Summary

Site #	Description	Estimated Costs
1	Northern Reserve	$2,290,000
2	Urban Reserve	$2,240,000
3	Train Station	$300,000
4	Railyard	$50,000,000
5	City Market	$1,500,000
6	McNeil Generating Station	$1,500,000

Computations

Project:	Amtrak Storage	Project #:	57981.00
Location:	Burlington, VT	Sheet:	
Calculated by:	JDA	Date:	12/27/2017
Checked by:	ELQ	Date:	3/27/18
Revised:	EC	Date:	5/10/19
Title:	Burlington Amtrak Storage Cost Estimates		

1. Northern Urban Reserve

		length (EST), ft	unit cost ($/mi)	unit cost ($/ft)	Cost ($)
Roadway	New road segment	1200	$3,000,000	$568	$681,818
Utilities	Electrical Connection	1		$300,000	$300,000
Railroad	New Siding	700		$250	$175,000
	New Track north College St	200		$250	$50,000
	New Signal and Gates	1		$1,000,000	$1,000,000
	New Switch	1		$75,000	$75,000
				Subtotal:	$2,281,818
				Rounded total:	$2,290,000

2. Urban Reserve

		length (EST), ft	unit cost ($/mi)	unit cost ($/ft)	Cost ($)
Roadway	New road segment	500	$3,000,000	$568.18	$284,091
Utilities	Electrical Connection	1		$300,000	$300,000
Railroad	New Siding and Retaining Wall	700		$750	$525,000
	New Track north College St	200		$250	$50,000
	New Signal and Gates	1		$1,000,000	$1,000,000
	New Switch	1		$75,000	$75,000
				Subtotal:	$2,234,091
				Rounded total:	$2,240,000

3. Train Station

		length (EST), ft	unit cost ($/mi)	unit cost ($/ft)	Conc. Cost ($)
Roadway	New road segment	n/a			
	Rehab road segment	n/a			
Utilities	Electrical Connection	1		$300,000	$300,000
Railroad	New Track	n/a			
	New Switch	n/a			
				Subtotal:	$300,000
				Rounded total:	$300,000

Project:	Amtrak Storage	Project #:	57981.00
Location:	Burlington, VT	Sheet:	
Calculated by:	JDA	Date:	10/13/17
Checked by:	ELQ	Date:	3/27/18
Title:	Unit Costs for Reference		

Conceptual Cost Estimates: Unit Costs

Estimated Railroad Siding Cost

	Est. Cost	Cost Unit
Two Lane Roadway	$250	Foot

Unit Cost: $250 per foot

Estimated Railroad Switch Cost

	Est. Cost	Cost Unit
Railroad turn out	$75,000	Each

Unit Cost: $75,000 each

Estimated New Two Lane Roadway Cost

	Est. Cost	Cost Unit
Two Lane Roadway	$3,000,000	Mile

* Source: American Road & Transportation Builders Association FAQs

Unit Cost: $3,000,000 per mile

Estimated Conversion of existing Road Segment

	Est. Cost	Cost Unit
Two Lane Roadway	$1,000,000	Mile

* Source: American Road & Transportation Builders Association FAQs

Unit Cost: $1,000,000 per mile

Estimated Cost to Remove Road Segment

	Est. Cost	Cost Unit
Remove Road	$400,000	Mile

$75.76 per foot

Unit Cost: $400,000 per mile

Project:	Amtrak Storage	Project #:	57981.00
Location:	Burlington, VT	Sheet:	
Calculated by:	JDA	Date:	10/13/17
Checked by:	ELQ	Date:	3/27/18
Title:	Unit Costs for Reference		

Conceptual Cost Estimates: Unit Costs

Bike Path Relocation

	unit $ / ft	
New 10' Shared Use Path, per ft*	$250	
Remove existing bike path, per ft**	$32	
Subtotal:	$282	
Rounded total:	$290	per foot

Estimated Water Line Costs

	Est. Cost	Cost Unit
Water Line	$190	Each

* Source: Previous VHB Project Estimates

Unit Cost: $190 each

Estimated Sewer Line Costs

	Est. Cost	Cost Unit
Sewer Line	$150	Feet

* Source: Research and Engineering Judgement

Unit Cost: $150 per foot

Estimated Electrical Connection

	Est. Cost	Cost Unit
Electrical Connection	$300,000	Each

* Source: Research and Engineering Judgement

Unit Cost: $300,000 each

Estimated Rail Crossing Signal Cost

	Est. Cost	Cost Unit
Rail Crossing Signal	$1,000,000	Each

Unit Cost: $1,000,000 each

Computations

Project:	Amtrak Train Storage	Project #:	57981.00
Location:	Burlington, VT	Sheet:	1 of 1
Calculated by:	S.E. Burbank	Date:	11/25/2019
Checked by:		Date:	
Title:	McNeil Generating Station Site		

		Unit	Qty	Unit Cost	Cost
Roadway	New Road Segment	LF	1300	$ 568	$738,636
Utilities	Electrical Connection	EA	1	$ 300,000	$300,000
Railroad	Railroad Siding	LF	1200	$ 250	$300,000
	Railroad turn out	EA	2	$ 75,000	$150,000
				Subtotal	$1,488,636
				Rounded total:	$1,500,000

VERMONT RAIL SYSTEM
One Railway Lane, Burlington, VT 05401
Tel. 802-658-2550 Fax. 802-658-2553

November 25, 2019

Secretary Flynn, Chairman
Vermont Rail Advisory Council
Vermont Agency of Transportation
219 North Main Street
Barre, VT 05641

Re: Amtrak Servicing and Storage Study

Dear Secretary Flynn and Members of Rail Advisory Council:

We are excited to be a part of the effort to bring long awaited daily passenger train service to Burlington and write to offer comments on the CCRPC analysis of potential locations to store and service Amtrak's Ethan Allen after its nightly arrival at Union Station in Burlington. As you already know, VRS has been publicly working for several years now with VTrans and others to help identify how and where to accommodate Amtrak, and we believe it is important to recall that this has been a long-standing work in progress that dates in some manner as far as back as the Champlain Flyer. Detailed engineering plans for double-tracking in Burlington were shared with City officials more than three years ago in 2016, and Main Street Landing has already acknowledged that the CCRPC assessment process included public meetings in 2017 with the Burlington Public Works Commission at which the owner of Main Street Landing raised her concerns about overnight site locations and the potential for a negative impact on her Main Street Landing development project. Main Street Landing expressed similar reservations at Rail Council in November, 2017 so it is hardly appropriate to suggest that these questions have only recently been brought forward for public discussion.

As a first matter, we agree with CCRPC that the railyard and the siding south of Flynn Avenue are the least appropriate of the alternatives considered, but otherwise have no real operational preference as to whether Amtrak overnights at Union Station or other locations north of Maple Street. In light of claims by representatives of Main Street Landing LLC suggesting that the railyard is a more appropriate location than Union Station or points north, we believe it would be helpful to understand

two key issues from our point of view: our inability to build new track in an already congested railyard; and the operational difficulties of accommodating Amtrak within the existing footprint when we have to interchange with the NECR every night. As detailed below, overnighting Amtrak south of Flynn Avenue would cause similar interference with existing freight operations, doubling the time Amtrak requires VRS freight and passenger trains to stand down and clear the main line, and doubling the number of train movements blocking city streets every morning and every evening.

We also want to set the record straight and advise Rail Council that VRS considers construction of a second passenger siding at Union Station essential to the return of Amtrak passenger service to Burlington – and would intend to proceed with necessary track work regardless of any eventual decision about where Amtrak will overnight. None of the work planned by VRS between Maple and College Street will extend beyond the right-of-way that existed long before Main Street Landing's development began, and all of the work can be coordinated with the City of Burlington's longstanding plan to relocate and rehabilitate the bike path. Main Street Landing LLC or others who suggest that Amtrak service can return to Burlington without construction of a second siding at Union Station or that track construction somehow depends upon the site selected for Amtrak storage and service appear uninformed about the realities of railroad operations. As we stated more than eighteen months ago in a letter to attorneys representing Main Street Landing only weeks after the State of Vermont completed the multi-million dollar purchase of the train station, "[r]econstruction of the siding to allow passenger service can't possibly be a surprising development to your clients and will be a necessary element of rail service regardless of where the train overnights." A copy of this March 19, 2018 letter to attorneys for Main Street Landing, VTrans and the City is attached for your convenience, not having been included in the materials presented to Rail Council at your prior meeting.

1. <u>Rail Yard Congestion:</u> In evaluating possible site locations for overnighting Amtrak, the CCRP study reviewed the operational and cost implications of overnighting Amtrak's Ethan Allen in the railyard. As those familiar with the CCRP Study (See Fig. 8) already understand, the existing Burlington railyard is squeezed between Lake Champlain and properties along Pine Street and there is no room to build new track for Amtrak's Ethan Allen (two locomotives and five or six passenger cars) within the existing footprint and current track configuration. In that confined area, freight trains arriving south from Rutland and from the north over the NECR have to be received,

reorganized, maneuvered, loaded and unloaded every day. Track space needs to accommodate locomotive and freight car maintenance, inspection and repair work as well as switching and loading activities for daily freight trains and for special trains such as those associated with December's Polar Express or large scale rail movements by the Vermont Army National Guard. See attached photo of VTANG loading in April, 2019. The railyard also includes buildings, storage facilities and the infrastructure needed to transload freight that cannot be moved to build new tracks.

Ms. Moulton and others are also wrong to suggest that the railyard is active only during the day, and that nothing is going on at night that would be impacted by Amtrak storage. VRS operates 24 hours/day, and every night the NECR brings a train with inbound railcars from the NECR past the Union Station passenger platform and into the Burlington yard to set off cars for us, and to pick up outbound cars. Two of the railyard tracks that might appear to be open or empty to those unfamiliar with railroad operations are needed during this interchange process to accept inbound railcars for our customers while the other track is kept open to "run around" their train and get onto the north end of the outbound cars the NECR is collecting.

Whether night or day, we need to have tracks to move around on as part of regular daily operations; not all tracks can have railcars on them. As it is, we separate our passenger trains into two or three parts when operating in Burlington so we can fit the passenger coaches on tracks that already have freight cars – all in order to keep our operating tracks open. Shuffling Amtrak passenger coaches in this manner is not feasible because Amtrak requires that the train be kept as a single unit and will not allow it to be split up onto separate tracks each night and reassembled every morning.

2. <u>Flynn Avenue:</u> Storing or siting the Amtrak train outside of the railyard and south of Flynn Avenue would not require track space in the railyard for storage, but presents other operational problems and would double the number of times each morning and each evening when VRS needs to clear out of the way for Amtrak to cross through the yard. Storage south of Flynn Avenue would also double the number of times that traffic will be blocked at Flynn Ave., Maple Street and King Street – impacts that are minimized if the Amtrak train remains north of Maple Street because VRS freight and passenger trains would be able to get back to work quickly as soon as Amtrak gets through the yard limits each morning and each evening.

If Amtrak does not stay north of Maple Street and was required to come back in the yard to tie up for the night at a siding south of Flynn Avenue, our own train crews would need to stay clear of the mainline and stand by while Amtrak unloads passengers and then eventually makes a backup move over King Street, Maple Street and through the yard past Flynn Ave., all the time waiting for Amtrak to clear up on an "open" track. The result is that our employees and train crew could easily be waiting over an hour extra every night for all this to occur even in the best of circumstances. In the morning the reverse process would need to occur with our crews and local freight service again waiting until Amtrak could clear through the yard limits from Flynn Ave. up to Union Station and then south again after boarding passengers.

As it is, accommodating Amtrak through the yard every morning will not be simple or straightforward since we have a very limited window to maneuver the freight cars received overnight at interchange and building the outbound freight quickly enough to meet schedules. Most of these daily activities must happen between 7:00 AM and Noon in order to make connections, so requiring Amtrak to make multiple moves in or through yard limits during this time will be exponentially difficult for our operations and customer service. Remaining north of Maple Street after arrival is the only way to reasonably minimize yard interference.

* * * * * * * * * ***

A real estate developer intentionally choosing to build so close to active railroad tracks, fully aware and advocating for the return of passenger rail service to Burlington, and receiving more than $3.0 million in payments from the State of Vermont to secure the train station for public use, should not be surprised to encounter railroad activity in the vicinity of a train station and within the boundaries of a pre-existing right-of-way. We continue to believe that the return of passenger service to Burlington is cause for celebration, and would be glad to provide additional information on our operations if helpful to your understanding.

Regards,

Selden Houghton
Vice President

FACT SHEET- RAILROAD OPERATIONS

1. **No Amtrak Refueling Anticipated:** Amtrak's Ethan Allen does not currently refuel in Rutland during overnight servicing, has not refueled in Rutland, and there have never been plans to include refueling as part of overnight service for the Ethan Allen when scheduled passenger service begins to Burlington.

2. **Shore Power eliminates or greatly reduces any need for idling.** Amtrak has advised VRS and VTrans that locomotive idling for extended or overnight periods will no be part of normal or ordinary Amtrak operations in Burlington regardless of site location.

3. **Amtrak Train Length.** Amtrak requires that its train (680') be overnighted as a single unit and not separated to be shuffled around the railyard, unlike freight and passenger trains currently operated by VRS. When Amtrak service was initiated to Rutland, a new siding was built at the Rutland train station specifically to accommodate overnight storage and service requirements.

4. **Nightly Freight Interchange.** VRS and NECR interchange freight daily in Burlington south of Maple Street and freight trains arriving from and departing to the north use the single track adjacent to Union Station. Every night, track must be kept open and available in the railyard for VRS to accept inbound freight trains and prepare outbound trains for nightly departure. VRS operations also regularly include freight movements north of Maple and beyond College Street as well.

5. **Northern Urban Reserve (Site 1)** The City of Burlington realigned the path through the Northern Urban Reserve in 2016 to follow the lake shore as part of its Bike Path Rehabilitation Project (Phase 1b). https://enjoyburlington.com/burlington-greenway-project. After the City moved the path, VRS identified the Northern Urban Reserve as a potential and practical site within the right-of-way and adjacent to an existing 1200' siding.

6. **Crossing impacts and crew time.** Overnight storage of Amtrak at the station platform where passengers embark in the mornings and disembark in the evening minimizes the number of times that passenger train movements block crossings and delay traffic at King Street and Maple Street, and eliminates additional run time for train crews subject to hour of service limitations.

7. **Burlington City Referendum to Realign Bicycle/Pedestrian Path.** The City is actively working to finalize the bike path's new design and relocation to the west side of the rail right of way. Relocating the bike path away from the Union Station passenger loading platform was the subject of a public vote by Burlington residents in 2016 after a 2012 City Bike Path Task Force Study recommended realigning the path to improve safety.

> ***"Should the Mayor of Burlington and the City Council be advised to relocate the Burlington Bicycle Path to the west side of the railroad tracks between College and King streets even if that means utilizing the public trust doctrine or eminent domain to accomplish this task?"***
>
> **APPROVED- November 2016**

8. **Public Ownership of Train Station:** The State of Vermont owns the train station in Burlington and has paid Main Street Landing approximately $3.0 million to secure public use of the train station for Amtrak at platform level - the final payment of $500,000 toward the purchase having been made to Main Street Landing in February, 2018.

9. **Siding Reconstruction at Union Station.** Vermont Railway intends to reactivate a second track for passenger service at Union Station to accommodate both Amtrak and existing railroad operations, and considers it fortunate that we can fully construct a second track within the existing right-of-way. VRS gave specific notice of this intention to Main Street Landing, VTrans and the City of Burlington more than eighteen months ago by the attached letter dated March 19, 2018.

Without a second siding, Amtrak will block the mainline and potentially interfere with freight operations. The absence of a second siding could also require that VRS curtail popular passenger operations such as Polar Express, the Ronald McDonald House Jingle Bell Express, and even the

Burlington Fireworks trains in order to avoid conflicts over track authority since non-Amtrak trains could not lawfully be occupying the same track at the Burlington passenger loading platform.

The need to preserve railroad flexibility to operate over the pre-existing right-of-way in the event it became necessary or desirable to resume operations was a key element of the original 1985 Agreement with the City and the State of Vermont, and use as a bike path has always been acknowledged as temporary.

> **"... Lessee further expressly acknowledges that it is aware that it again may be necessary or desirable for the [State] or the Railroad to terminate this Lease Agreement *and to relay railroad tracks and resume railroad operations over all or a portion of the lands and premises* herein leased to the Lessee." *(emphasis added).***
>
> 1985 Bike Path Lease Agreement, Article IX, Paragraph 1

See Also 1985 Bike Path Lease Agreement, p.2. (An allowed use *"during the period of time that such portion of the LESSOR's lands and premises is not immediately required for railroad operations."*);

See Also Amendment No. 2 (1996) ("...the CITY has arranged to lease, *for interim use* as a bicycle and pedestrian path....);

See Also Amendment No. 3 (2015) ("In accordance with 49 C.F.R. §1152.29 (Prospective use of rights-of-way for *interim trail use* and rail banking), the City acknowledges that use of the VTR's North Burlington Branch right-of-way *is subject to possible reconstruction and reactivation* of the right of way for rail service").

10. Bike Path Relocation – Not Destruction: Well before construction of the Wing Building, the 1994 Agreement with Main Street Landing explicitly referenced the 1985 Bike Path Lease Agreement, and specifically acknowledged that the Railroad retains the right "to relocate existing railroad tracks and facilities" to within eight feet of the building, if not closer. 1994 Main Street Landing Agreement, Para.11.

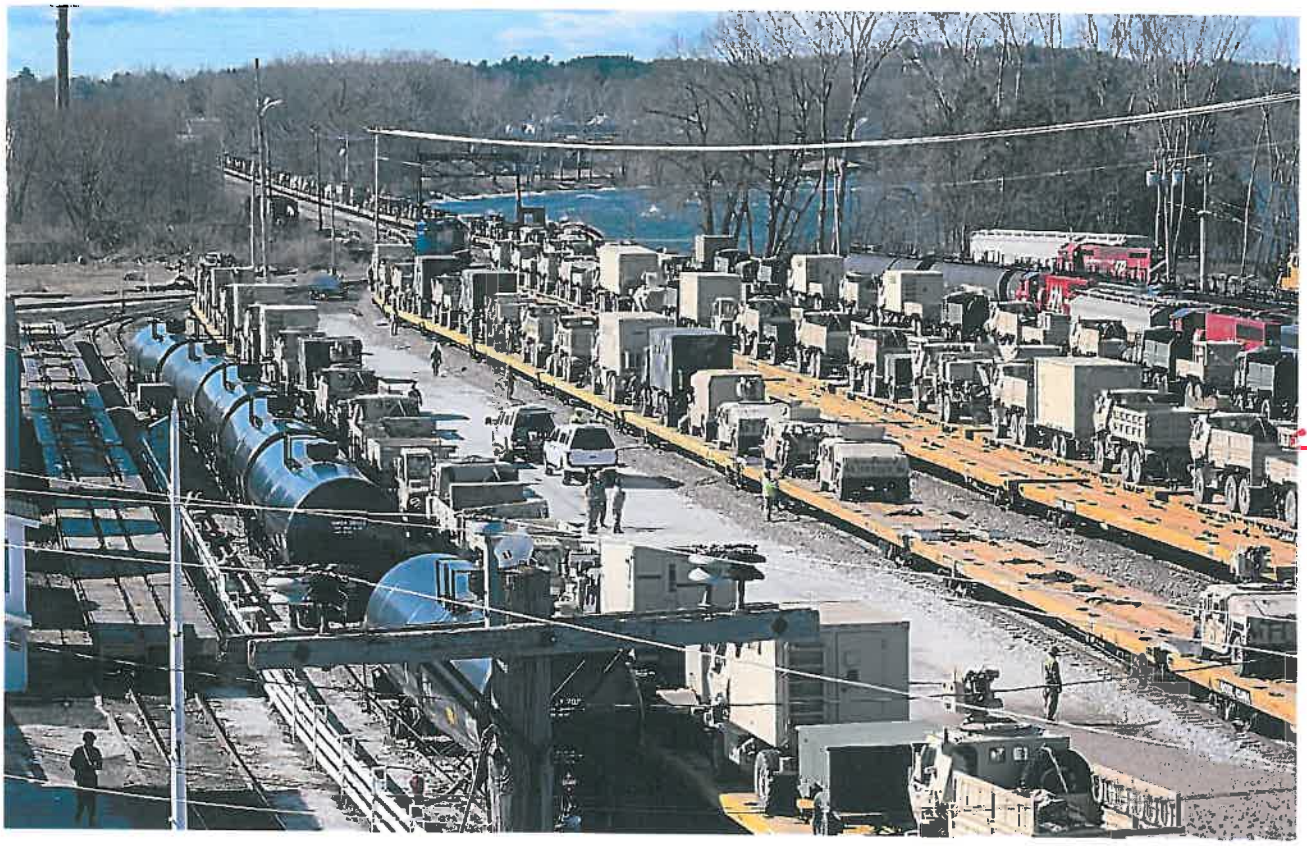
VRS track work planned for Union Station will take place entirely within the existing railroad right of way and fully coordinated with the City's ongoing upgrade and planned relocation of the bike

path. The completed project will maintain eight feet of pedestrian access for businesses while improving platform safety for railroad passengers and the public.

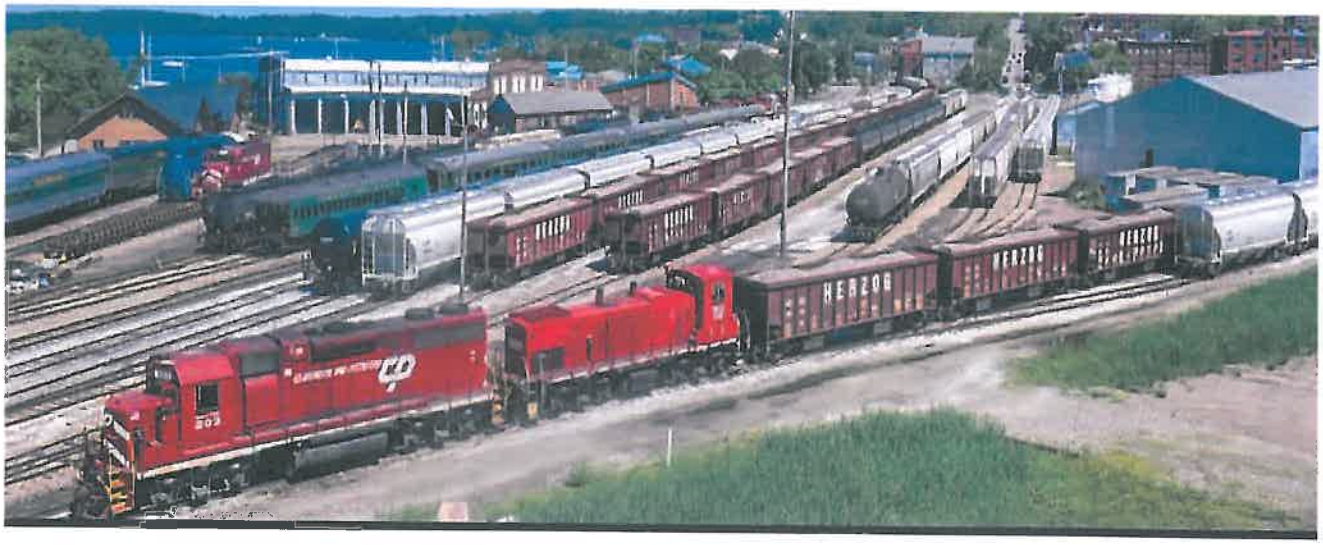
11. <u>Wing Building Proximity to Active Rail.</u> Main Street Landing LLC chose to site new construction without a setback and as close as possible to active railroad tracks with full knowledge that the railroad could reactivate tracks within the right of way. The 1994 Agreement signed by Ms. Moulton does not restrict the right of the Railroad to rebuild a second track and does not provide that the bike path is to remain on the passenger platform on anything other than an interim basis. Purchasers of condominiums from Main Street Landing should have been aware that the owner had agreed that the Railroad has the right "to relocate existing railroad tracks and facilities" and that relocated track could be expected to come as close as, if not closer than, eight feet of the building according to that 1994 Agreement.

12. <u>Main Street Landing Support for Relocation</u> Efforts to relocate the bike path did not begin with the 2016 City vote, and even those who do not favor selecting Union Station for overnighting should recognize these are two separate issues and support relocating the bike path away from the train station loading platform for safety reasons.

> **"We need to move ahead ASAP on the relocation of the bike path....we don't want pedestrians and bikers to collide....so the City needs to proceed poste (sic) haste – what is the hold up with the State getting the money to the City to do this work? –let's coordinate the spur at the same time."** Excerpt from Melinda Moulton Email (8/3/99) to Brian Searles at VTrans and Burlington Mayor Peter Clavelle.



Burlington Railyard Looking South - April 2019



Burlington Railyard looking North

VERMONT RAIL SYSTEM
One Railway Lane, Burlington, VT 05401
Tel. 802-658-2550 Fax. 802-658-2553

Mathew Byrne, Esq.
Gravel & Shea
P.O. Box 369
Burlington, VT 05402-0369

March 19, 2018

Re: Main Street Landing, LLC

Dear Matt:

I am in receipt of your letter of March 8, 2018 noting concerns by Main Street Landing LLC with bringing Amtrak passenger service to Union Station, and more than a bit dismayed by the contentious tone of your correspondence. As you well know, it has been a long standing goal of many in Vermont (and your client in particular) to bring back regularly scheduled passenger rail service between Burlington and New York City. Reconstruction of the siding to allow passenger service can't possibly be a surprising development to your clients and will be a necessary element of rail service regardless of where the train overnights. I would be happy to explain further if you would like to meet and discuss, but suffice it to say that it is inaccurate for you to characterize the reconstruction effort as building a "new rail siding" or a breach of any agreement or promise by Vermont Railway, Inc. The 1994 Agreement you referenced does not support your allegations. Moreover, the law is perfectly clear that any interim use is subject to possible reconstruction and reactivation of the right-of-way for rail service.

As to your suggestion that other locations be considered for Amtrak locomotives during the overnight hours, your client should have already advised you that a formal analysis of the several options available has not yet been completed. It is therefore premature and inaccurate for you to write that an overnight location has already been selected. I would be pleased to forward you a copy when that analysis is received so that it can inform future discussions with your client.

Please call directly if you have any concerns you would like to discuss.

Regards,

Peter F. Young
Deputy General Counsel

Cc: Office of the City Attorney
Vermont Agency of Transportation

VERMONT RAIL SYSTEM
One Railway Lane, Burlington, VT 05401
Tel. 802-658-2550 Fax. 802-658-2553

Mathew Byrne, Esq.
Gravel & Shea
P.O. Box 369
Burlington, VT 05402-0369

June 8, 2018

Re: Main Street Landing, LLC

Dear Matt:

I am writing to reiterate our offer to meet with Ms. Moulton to discuss the concerns she has expressed about railroad passenger operations at Union Station and Amtrak's efforts to return regular passenger service to Burlington, and to update her on the various operational changes we have implemented over the past few weeks. These include a shift in locomotive and generator placement farther away from the passenger platform and residents, a reduced reliance on locomotive generating power in meeting train requirements for electric power, as well as changes to the automated at-grade signals at King Street. You should also know that another change we have implemented is that the locomotive itself is not running until approximately fifteen minutes before the scheduled departure, reducing idle time further.

Whether it's our weekend dinner train or Vermont Children Foundation's Polar Express, Ronald McDonald House Jingle Bell Express, Kids Day rides or Mothers' Day Brunch Excursions, locomotive power is obviously an essential part of our ongoing train service at Union Station. As your client will recall, the Champlain Flyer brought daily service to that passenger platform for a number of years as well.

We would be glad of the opportunity to learn more about your clients concerns, and hope to have the chance to meet to discuss these matters directly.

Regards.

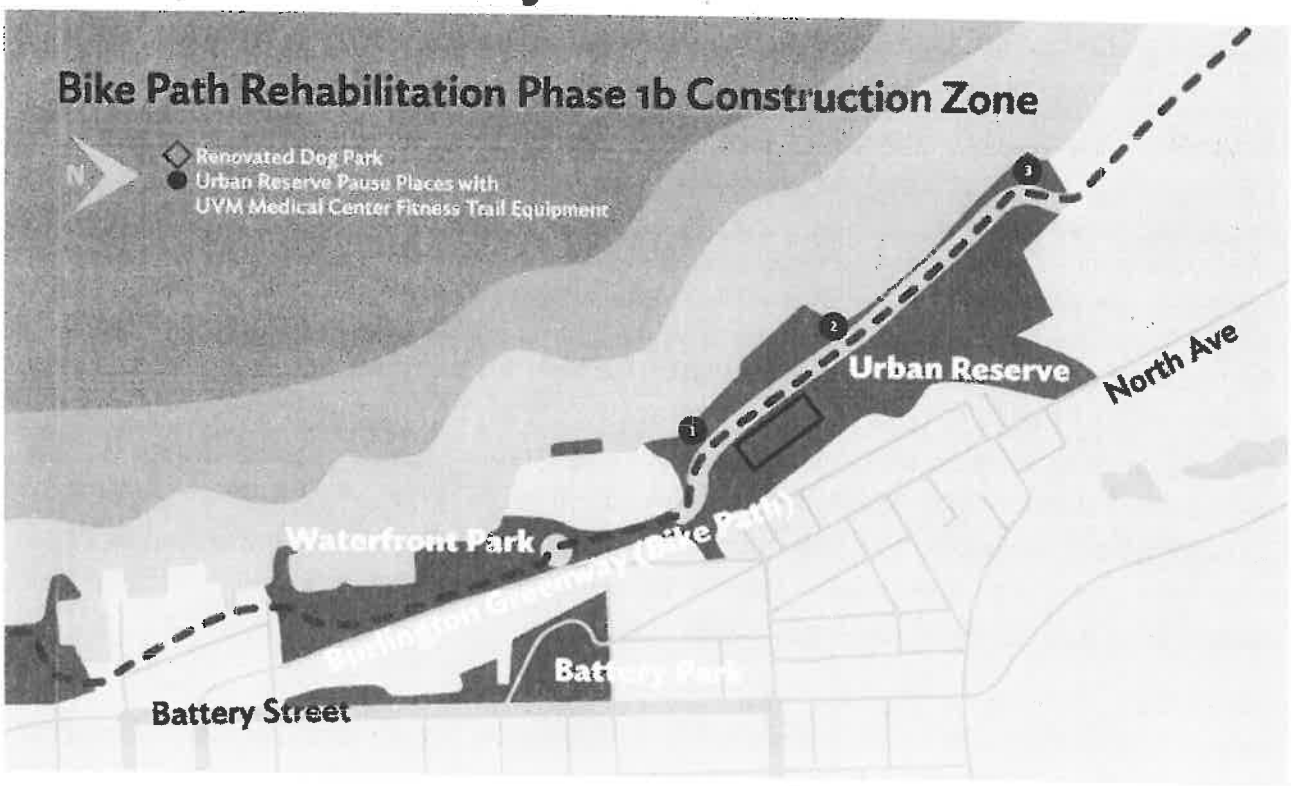
Peter F. Young
Deputy General Counsel

Cc: David Wulfson

BURLINGTON PARKS RECREATION WATERFRONT VERMONT
(https://enjoyburlington.com/)

Blog

Burlington Greenway: Bike Path Rehabilitation Project



Bike Path Re-Opens as Burlington Greenway

Recent aerial drone photo.

Update 12/16

Burlington Parks, Recreation and Waterfront is pleased to announce major construction of Phase 1b of the Burlington Greenway is complete and the beloved lakeshore path is once again open to the public! Thank you for your patience and understanding during the construction closure, which began in late June of this year. One mile of the path, through what's known as the Urban Reserve (just north of the Skatepark), has been completely rebuilt to new, higher standards, and in the southern portion of the project, realigned to hug the Lake Champlain shoreline.

Additionally, three new 'pause places' have been developed, including one new mini park at Texaco Beach. The Waterfront Dog Park received a facelift, and extensive areas of industrial pavement have been removed, soils capped, and extensive landscaping is completed that includes native trees, shrubs and perennials, and a special seed mix of mostly native, resilient grasses and flowering perennials.

"It is with great pleasure and excitement that we open the path back up to the Burlington community." Says BPRW Director Jesse Bridges. "We have transformed abandoned industrial land and rehabilitated it into a gem for the City's park system. Beyond just a path repaving project this project created a true linear park, the Burlington Greenway, that will continue to be the City's defining feature supporting passive and active recreation, tourism and multi-modal transportation."