STATE OF VERMONT

SUPERIOR COURT ENVIRONMENTAL DIVISION

Diverging Diamond Interchange SW Permit	Docket No. 50-6-16 Vtec
Diverging Diamond Interchange A250	Docket No. 169-12-16 Vtec

MERITS DECISION

In Docket No. 50-6-16 Vtec, RL Vallee, Inc. appeals Individual Stormwater Discharge Permit No. 6946-INDS, issued on May 11, 2016 by the Vermont Agency of Natural Resources to the Vermont Agency of Transportation for the Diverging Diamond Interchange proposed at Interstate 89, Exit 16 (the SW Permit).

In Docket No. 169-12-16 Vtec, RL Vallee, Inc. and Timberlake Associates, LLC appeal Act 250 permit #4C1271 and permit amendments #4C0676R-16, #4C0288-21, #4C0757-24, and #4C0471-7, issued jointly on November 28, 2016 by the District #4 Environmental Commission to the Vermont Agency of Transportation for the construction of the Diverging Diamond Interchange and related improvements (the Act 250 permit). Land Use Permit # 4C1271 Findings of Fact, Conclusions of Law, and Order (Dist. #4 Envtl. Comm. Nov. 28, 2016).

Parties

RL Vallee, Inc. (Vallee) is one of two appellants in the Act 250 appeal and is the sole appellant in the stormwater appeal. Vallee is represented by Jon T. Anderson, Esq. and Alexander J. LaRosa, Esq.

Timberlake Associates, LLP (Timberlake) is an appellant in the Act 250 appeal. We held in a pretrial entry order dated March 17, 2017 that Timberlake has party status as an appellant in the Act 250 appeal as a landowner pursuant to 10 V.S.A. § 6085(c)(1)(B). In a February 8, 2018 decision we dismissed Timberlake's questions, with the understanding that Timberlake would pursue the Act 250 permit appeal under Vallee's Statement of Questions. Diverging Diamond Interchange Act 250 and SW Permits, Nos. 169-12-16 Vtec, 50-6-16 Vtec, slip op. at 2 (Vt. Super. Ct. Envtl. Div. Feb. 8, 2018) (Walsh, J.). Timberlake also entered an appearance and claimed party

status in the stormwater appeal pursuant to 10 V.S.A. §§ 8504(a) and 8504(n)(2), (4), and (6). Timberlake is represented by David L. Grayck, Esq.

The Vermont Agency of Transportation (VTrans) is the permittee in both matters. VTrans is represented by Justin E. Kolber, Esq., Jenny E. Ronis, Esq., and John K. Dunleavy, Esq.

The Agency of Natural Resources (ANR), represented by Hannah W. Smith, Esq., and Kane Smart, Esq., participated in both matters.

The Conservation Law Foundation (CLF) is represented by Elena M. Mihaly, Esq. The Court granted CLF's motion for party status in both matters pursuant to 10 V.S.A. § 8504(n)(4), (6) and V.R.C.P. 24 on the record at a status conference on January 23, 2017.

The Natural Resources Board (NRB) participated in the Act 250 appeal pursuant to 10 V.S.A. § 8504(n)(3) and is represented by Peter J. Gill, Esq.

Costco Wholesale Corporation (Costco), represented by Mark G. Hall, Esq., participated in both matters. In an April 28, 2017 entry order, we granted Costco's motion to intervene in both appeals pursuant to 10 V.S.A. § 8504(n)(6) and V.R.C.P. 24(a)(2).

Merits Trial

The Court held a five-day trial on the two appeals on March 26–30, 2018.

At the outset of trial, a site visit was discussed but then deferred unless and until the parties deemed it necessary or helpful to contextualize the evidence. No party ultimately requested a site visit during or after trial, and no visit was conducted.

Based upon the credible evidence presented at trial the Court issues the following Findings of Fact, Conclusions of Law, and Judgment Order that accompanies this Merits Decision.

Findings of Fact[1]

I. Project Overview

1. I-89 at Exit 16 is in the Town of Colchester, Chittenden County. The interstate crosses in an east-west direction via an overpass bridge over US Route 2/7 (aka Roosevelt Highway), which

[1] The parties' disputes in these coordinated matters are illustrated through considerable competing expert opinions. Our credibility determinations are central to the outcome of our decision on each dispute. We therefore express our credibility determinations in greater detail than normal within our findings of fact. See In re Hinesburg Hannaford Act 250 Permit, 2017 VT 106, ¶ 52 (Nov. 9, 2017).

is oriented north-south. On- and off-ramps connect I-89 and Route 2/7. Route 2/7 leads from the City of Winooski to the south into the Town of Colchester to the north.

2. Route 2/7 from South Park Drive (south of I-89) to the Mountain View Drive intersection (north of I-89) is designated as a high-crash location. Safety problems in this area are caused by traffic congestion. VTrans Ex. 76. The purpose of the Project, which was determined by a 2011 scoping study conducted by the Chittenden County Metropolitan Planning Organization (the Exit 16 Scoping Study), is to improve safety for all users and to increase mobility and decrease traffic congestion, specifically around the Exit 16 interchange and the Route 2/7 intersections with Mountain View Drive and Lower Mountain View Drive, Hercules Drive, and Rathe Road.

3. The Project covers a total area of 18.4 acres. It begins at the Winooski / Colchester town line and extends north on for 1.05 miles to the Sunderland Woods Road intersection. VTrans Ex. 99; 2 at Bates 021565.

4. The Project proposes additional turn lanes, new crosswalks, upgraded signal infrastructure, harmonized shoulder widths, a separated shared-use path through the interchange connected to sidewalks to the north and south, and the reconfiguration of the I-89 interchange into a Diverging Diamond Interchange (DDI). North of the Mountain View Drive intersection the Project is largely a repaving operation, with some corrections to banking and curves and some widening of the roadway.

5. The Project also involves installing a stormwater collection and treatment system. There is currently no designed and permitted stormwater system in the Project area.

Experts

6. Michael LaCroix, the lead designer and manager of the Project, testified as both a fact and expert witness. A Project Manager at VTrans, Mr. LaCroix has been involved with designing traffic projects for 12 years, and has designed 40–50 traffic projects, about 12 of which included a stormwater component. Mr. LaCroix testified at trial on behalf of VTrans regarding all aspects of the Project. VTrans Ex. 76.

7. VTrans introduced testimony on the stormwater system from Jeffrey Nelson, director of energy and environmental services for the Vermont office of Vanasse Hangen Bruslin, Inc. (VHB).

Mr. Nelson and his team conducted wetlands mapping, prepared a downstream analysis for the Project, and reviewed the stormwater elements of the Project. VTrans Ex. 78.

8. Vallee offered competing testimony on the stormwater system from Andres Torizzo, President and Principal Hydrologist of Watershed Consulting Associates, LLC. Vallee Ex. Q, R, S. In addition to critiquing the system proposed by Vallee, Mr. Torizzo offered testimony on an entirely different alternative stormwater system that he designed. Vallee Ex. U, V.

9. David Marshall, a Project Engineer with Civil Engineering Associates, testified on behalf of Vallee on compliance with Act 250 Criterion 5, and on the constructability of Mr. Torizzo's alternative stormwater system. Vallee Ex. KK, LL.

Route 2/7 Overview

10.

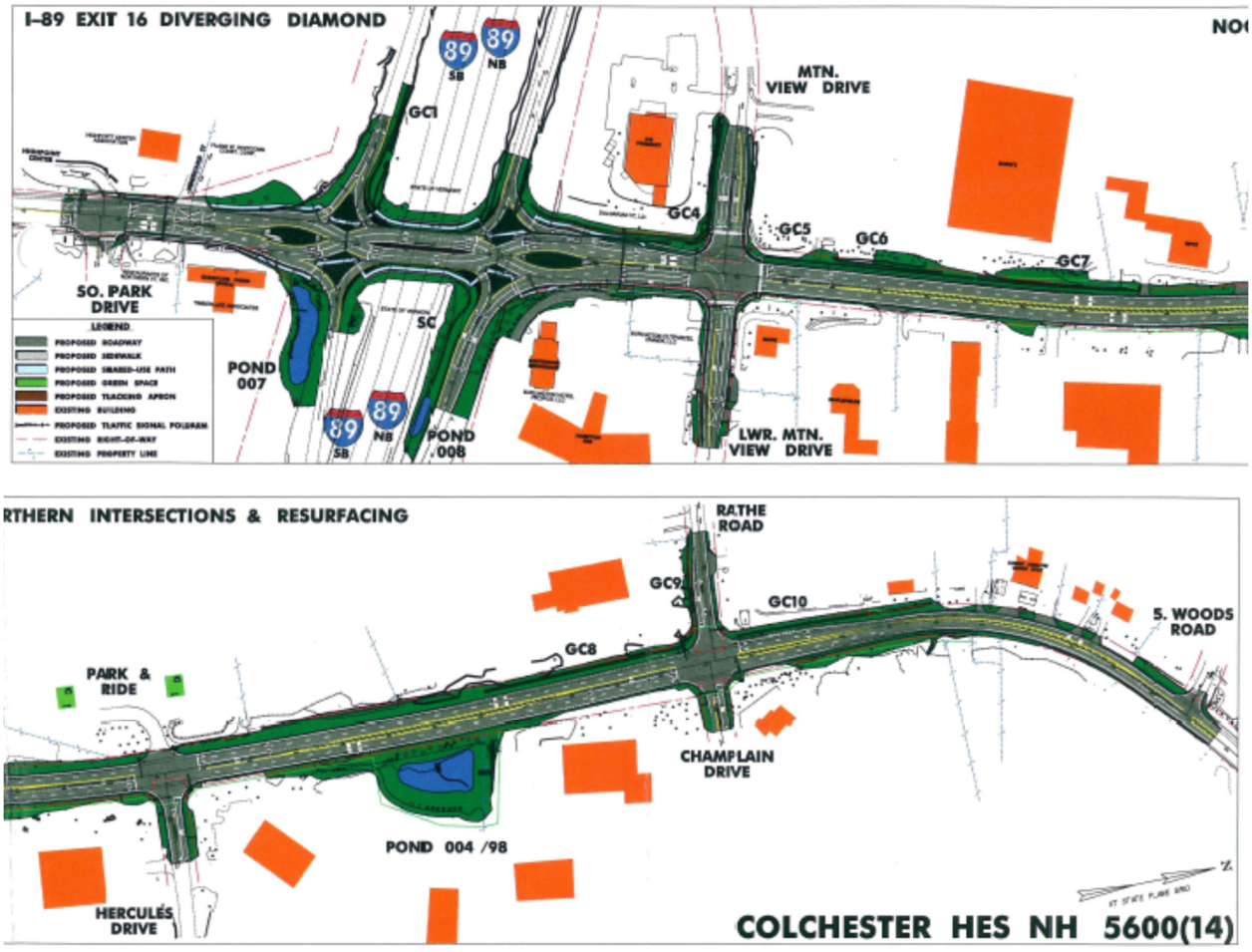

Exhibit 99 (for illustrative purposes).

11. The Route 2/7 element involves widening the road in some areas and improving two sub-standard horizontal curves by regrading the roadway banking within those curves. These curves are along Route 2/7 between Mountain View Drive and Hercules Drive and between Rathe Road and Sunderland Woods Road.

12. New pavement markings will delineate new turn lanes for the following locations:

a. A dedicated right turn lane from Route 2/7 northbound to Lower Mountain View Drive.

b. An additional left turn lane from Lower Mountain View Drive to Route 2/7 southbound.

c. An additional right turn lane from Mountain View Drive to Route 2/7 southbound.

d. Dedicated left turn lanes on Route 2/7 for the Hercules Drive intersection.

e. An additional through lane for Route 2/7 northbound at Rathe Road.

13. Retaining walls will be built on the east side of Route 2/7 along the Hampton Inn property and on the north side of Lower Mountain View Drive along the North Country Federal Credit Union property to minimize the impact of slope construction from their respective roadways.

14. Upgraded LED street lighting, traffic signal equipment, signing and pavement markings will be installed at each intersection along Route 2/7 in the Project, including at the intersection of Main Street and Tigan Street in the City of Winooski. Street lighting will be added along Route 2/7 from South Park Drive through the interchange to the Mountain View Drive intersection.

15. Concrete sidewalks and asphalt shared-use paths will be built through a portion of the Route 2/7 corridor. Concrete barriers will separate the roadway from the shared-use paths under the overpasses.

16. The Project will promote connectivity and safe transportation by providing access to future bus stops.[2] This includes a left turn lane leading to a park and ride that will be located on the west of Route 2/7 across from Hercules Drive, and a concrete bus stop pad on the southwest corner of the Mountain View Drive intersection.

[2] These bus stops are not part of the Project proposed here.

Exit 16 Interchange Overview

17. The Exit 16 interchange will be reconfigured into a DDI. Route 2/7 will cross to the left side of the road under the interstate to improve traffic flow by minimizing conflicting crossing traffic movements at the signalized ramp intersections. All approaches to these crossovers are channelized with curbed islands. The lanes in the interchange area on Route 2/7 will be widened to accommodate large trucks. A heavy-duty, dual sided guardrail will be installed through the middle of the roadway to separate traffic where it has been shifted to the left side of the road.

18. Short, channelizing one-way ramps, called slip ramps, will be constructed at all freeway ramps to facilitate the movement of vehicles through the interchange. Two of these ramps (off-ramp right turns) will be controlled by traffic signals to assist in the protection of pedestrian crossings and to create gaps in arterial traffic for downstream drives and intersections.

19. Overhead guide signs to indicate lane assignment and to provide destination information will be installed on structures in advance of approaching the interchange along Route 2/7 and both Exit 16 off-ramps.

II. The Stormwater Appeal

The Stormwater System

20. The Project area currently has 10.2 acres of existing impervious surface.

21. The total impervious area post-construction will be 11.3 acres, an increase of 11% from existing conditions. This will include 1.576 acres of new impervious surface and 3.203 acres of redeveloped impervious surface, for a total jurisdictional area of 4.779 acres to be covered by a discharge permit. The Project also proposes 6.51 acres of resurfaced impervious area and 0.46 acres of new pervious area, neither of which is considered jurisdictional for purposes of stormwater permitting.

22. The stormwater system is designed to comply with the Stormwater Management Rule for non-impaired watersheds (Chapter 18 of the Environmental Protection Rule) and the 2002 Vermont Stormwater Management Manual (VSMM).

23. The VSMM Water Quality, Groundwater Recharge, and Channel Protection standards are to be satisfied by structural stormwater treatment practices (STPs). The STPs include three dry ponds (Dry Ponds 007, 008, and 4/98) and eight grass channels (designated, from south to north,

as GC1, GC4, GC5, GC6, GC7, GC8, GC9, and GC10). The Project intends to satisfy waiver conditions for the Overbank Flood Protection and Extreme Flood Protection standards.

24. The stormwater system has eight discharge points that discharge into Sunnyside Brook, which is east of and roughly parallel to the Project. VTrans Ex. 4, Bates 022904–05, 023029. From south to north (i.e. downstream to upstream) these are designated as S/N 007, S/N 008, S/N 006, S/N 005, S/N 004, S/N 003, S/N 002, S/N 001. VTrans Ex. 4, Bates 023029.[3]

Site balancing

25. VTrans has applied ANR's Site Balancing Procedure for the Discharge of Stormwater Runoff from the Expansion or Redevelopment of Impervious Surfaces (the Site Balancing Procedure) to the Project's stormwater system. VTrans Ex. 10.

26. "Site balancing means that where control and/or treatment of certain limited areas of the expanded or redeveloped impervious surfaces are deemed impracticable, the impact from these areas of untreated impervious surfaces will be compensated on an equivalent basis by controlling and/or treating impervious surfaces within the project limits that would not otherwise be subject to treatment and/or control requirements. . . . [T]he requirements for treatment and/or control . . . shall be equal to or greater than the treatment and/or control requirements on the expanded or redeveloped impervious surfaces for which treatment is impracticable." VTrans Ex. 10, p. 2.

27. To apply the Site Balancing Procedure, a stormwater project designer must demonstrate to ANR that "treatment and/or control of the impervious areas in question is impracticable due to physical, topographical, or environmental constraints." VTrans Ex. 10, p. 2–3. The Site Balancing Procedure includes a non-exclusive list of "[E]xamples of impracticability." Id.

28. Mr. LaCroix credibly testified that site balancing is commonly used for linear transportation projects, such as that proposed here, because they are fairly large and complex, and constrained by surrounding development.

[3] The southernmost part of the Project drains to a ninth discharge point, S/N 009, into the City of Winooski's closed drainage system. VTrans Ex. 4, Bates 022905. The only impervious surface area in the Project draining to this point is non-jurisdictional resurfacing, and so no stormwater management practices are proposed associated with this area or discharge point.

29. Chris Gianfagna is an Environmental Analyst with ANR's Stormwater Program who reviews stormwater permit applications for ANR. See ANR Ex. 1. Mr. Gianfagna testified that "impracticability" under the Procedure is a site-specific determination.

30. Mr. Gianfagna testified that ten to eleven of the "easily 100" stormwater permit applications he has reviewed involved the Site Balancing Procedure.

31. Mr. Torizzo has never used the Site Balancing Procedure. He opined that there is always a way to provide direct treatment, and that site balancing would be necessary only in extremely rare circumstances.

32. The Court finds Mr. Torizzo's opinion that site balancing is generally unnecessary not credible, given his relative lack of experience and the competing credible testimony from Mr. LaCroix and Mr. Gianfagna. Mr. Torizzo's opinion is also belied by the basic fact that ANR has developed the procedure and made it available to stormwater permit applicants.

33. Mr. LaCroix and Mr. Nelson credibly testified that site balancing is appropriate here because direct treatment is impracticable. VTrans Ex. 76, 11.

34. Mr. LaCroix testified that VTrans considered using dry swales, grass channels, and a wet pond to treat stormwater in the southern portion of the Project, but these all failed to provide direct treatment. Specifically, VTrans considered:

- Installing a Grass Channel on the northbound off-ramp to meet the Water Quality Treatment Standard; however, this failed to meet VSMM treatment standards, and so it was taken out of the stormwater application (note that this is shown on VTrans Ex. 99, and identified on VTrans Ex. 11 as "special channel," but is not included as part of the stormwater permit application).
- Installing a Grass Channel along the north side of the northbound on-ramp. This was removed from the stormwater application because it failed to meet the ten-minute residence time requirement under the VSMM.
- Installing a wet pond south of the southbound on-ramp (where Dry Pond 007 is planned). This wet pond failed to meet VSMM standards.

35. VTrans Ex. 11 is a graphic representation of the site constraints justifying use of the Site Balancing Procedure.

36. One of the constraints listed is poor draining soils. VTrans' soil surveys indicated that the soils in the area of the interchange were either hydro group type E or fill material, both of which are poorly draining and not conducive to infiltration.

37. Another constraint is proximity to commercial properties, associated parking areas, and drive accesses. There are commercial properties close to the roadway at the southeast and northeast of the interchange, and on Route 2/7 south of the interchange.

38. Other constraints in and around the area of the interchange are steep slopes, exposed and buried ledge, buried utilities, and the need for underground storage and/or treatment.

39. Mr. Torizzo opined that physical, topographical, or environmental constraints do not make treatment and/or control of the impervious areas in question impracticable. Mr. Torizzo's opinion that direct treatment is practicable rests on his own ability to design an alternative stormwater system.

40. Mr. Torizzo offered extensive evidence of an alternative stormwater system that he designed and which, he opined, could be installed to provide direct treatment of stormwater runoff from the Project without resorting to the Site Balancing Procedure. Vallee Ex. U, V.

41. While Mr. Torizzo's expert report suggests that his alternative system is fully designed (Vallee Ex. R at 13), at trial he admitted it is not completely designed, would need to be adjusted to meet treatment standards, and is not sufficiently developed to apply for a discharge permit.

42. Mr. Torizzo does not know for certain whether his design would require relocating existing utilities, how much it would cost, or how long it would take if utilities had to be relocated. Mr. Torizzo's design extends slightly outside of the Project area proposed by VTrans. Vallee Ex. U. Mr. Torizzo does not know if this would require additional land acquisitions or how much these would cost.

43. Mr. Torizzo's design employs media filter drains. These are acceptable practices under the 2017 VSMM, but not in the 2002 VSMM, the relevant manual in this appeal. As proposed in his plans, these would also require some adjustments to meet site conditions. Mr. Torizzo admitted that one of the media filter drains included in his design will not treat any runoff from the Project.

44. Mr. Torizzo's design includes three gravel wetlands. The designs for these wetlands are not fully developed and include several flaws. For example, gravel wetland 7 is intended to provide 24 hours of detention but calculated to provide only 20 hours. Vallee Ex. V, "WCA_Post_Condition_DDI" p. 48. Gravel wetland 4 would also fail to provide the 12 hours of detention time intended. Id. p. 75. There are also substantial discrepancies between the outlet pipes as proposed in the plans and as analyzed through HydroCAD modelling. Mr. Torizzo credibly testified that these flaws could be corrected.

45. The Site Balancing Procedure states that:

> Site balancing will be allowed if it can be accomplished on a discharge by discharge basis. This can be accomplished by providing additional control and/or treatment beyond what is required for redeveloped impervious surfaces or by controlling and/or treating impervious surfaces that are not otherwise required to provide stormwater treatment within the immediate drainage area for a given discharge point.
>
> If site balancing beyond a discharge by discharge basis is necessary, the applicant shall meet with the stormwater Management Program to describe the site-specific details of the site balancing that is to be proposed . . . . Site balancing will be allowed on a watershed basis within the same receiving water if the Secretary determines that any impacts to water quality and/or channel protection as a result of the proposed site balancing are *de minimus*.

VTrans Ex. 10 p. 3.

46. Here, VTrans proposes to apply site balancing on a watershed basis to meet the Water Quality Treatment Standard, Groundwater Recharge Standard, and Channel Protection Treatment Standard.[4]

47. ANR did not require any additional analysis regarding whether the impact from site balancing in relation to the Water Quality Treatment Standard, Groundwater Recharge Standard, and Channel Protection Treatment Standard would be de minimus.

48. Runoff will be treated to meet the Channel Protection Treatment Standard at Dry Pond 4/98, which will discharge to Sunnyside Brook via discharge point S/N 004. VTrans Ex. 4, Bates 022907. No treatment practices are designed to meet the Channel Protection Treatment

[4] At the same time, the Project includes some discharge by discharge site balancing via GC4, which will treat runoff from both jurisdictional and non-jurisdictional surfaces. See Ex. 4, Bates 022982, 022984.

Standard south and upstream from this (i.e. at discharge points S/N 007, S/N 008, S/N 006, and S/N 005).

49. Some runoff will be treated to meet the Water Quality Treatment and Groundwater Recharge Standards via GC1, GC4, and GC5, which will discharge at S/N 007 and S/N 008. The remaining Grass Channels will discharge at S/N 004 and discharge points downstream from there.

50. The distance between S/N 007, the southernmost and upstream discharge point, and S/N 004 is approximately 1500 to 2000 feet.

51. Mr. Torizzo opined that the proposed use of site balancing would have a more than de minimus impact on water quality because untreated runoff will be discharged upstream from where treated runoff will be discharged. Mr. Torizzo claims that this will cause a significant loading of pollutants. He also opined that the increase of impervious surface at the interchange area and lack of channel protection treatment until S/N 004 would have a more than de minimus impact on Sunnyside Brook between the interchange and S/N 004.

52. Mr. Nelson opined that the impact of site balancing would be de minimus or less than de minimus, that overall the Project would lead to an improvement over existing treatment, and that it would therefore improve water quality in Sunnyside Brook.

53. We find Mr. Nelson's opinion regarding de minimus impact to be more credible. His opinion is supported by evidence, discussed below, that the Project will treat runoff from more surface area than is required to meet the Water Quality Treatment Standard and Channel Protection Treatment Standard. Additionally, there is no evidence to support Mr. Torizzo's opinion that meeting these standards downstream, as opposed to upstream, will have a negative impact on Sunnyside Brook.

Stormwater modelling

54. VTrans used HydroCAD to model the stormwater system.

55. The modelling includes a Downstream Analysis conducted by VHB to analyze flow at each discharge point. An initial Downstream Analysis was conducted in January 2015, then updated in May 2016. VTrans Ex. 4, Bates 023194. The Downstream Analysis was further updated in February 2018. VTrans Ex. 47.

56. Mr. Torizzo opined that the modelling is unreliable due to alleged errors and inconsistencies in the underlying data and assumptions.

57. For example, the stormwater application includes a map titled "Sunnyside Watershed Map" dated September 11, 2014 showing a watershed area of 0.91 acres. VTrans Ex. 4, Bates 023031. Mr. Torizzo opined that this map is inaccurate, noting that this is important because the map forms the basis for many of the calculations in designing the stormwater system and modelling assumptions.

58. Mr. LaCroix testified, however, that this map is illustrative only and was not used for modelling purposes.

59. This clarification by Mr. LaCroix demonstrates that Mr. Torizzo did not fully understand the purpose of this map and suggests that he may not have fully understood the modelling included in the stormwater application. We find his observation that the modelling is flawed to be unreliable, and not credible.

Grass Channels: Water Quality Treatment Standard

60. The proposed stormwater treatment system includes eight Grass Channels, designated from south to north as GC1, GC4, GC5, GC6, GC7, GC8, GC9, and GC10. VTrans Ex. 99.

61. The stormwater permit application includes a summary sheet detailing the characteristics of each Grass Channel and calculations related to stormwater runoff treatment, VTrans 4, Bates 023038 et seq., maps showing the impervious surfaces to be treated by each Grass Channel, VTrans Ex. 4, Bates 022980 et seq., and maps showing the on- and off-site impervious and pervious surface runoff to be treated by each Grass Channel, VTrans Ex. 4, Bates 023157 et seq.

62. In its pre-development condition, there is an existing ditch or swale where each grass channel will be installed. Vallee Ex. N. The existing ditches are not controlled by any existing stormwater permit. There is no evidence that the ditches were designed to treat stormwater runoff.

63. Grass Channels must be maintained to certain standards through a "legally binding and enforceable maintenance agreement." VSMM § 2.7.5.F, p. 2-55. Without maintenance, grass channels can fall into disrepair and no longer be effective in treating stormwater.

64. VTrans proposes meeting the Water Quality Treatment Standard with the eight Grass Channels.

65. GC1 and GC4 will provide direct treatment in the area of the interchange south of the Mountain View Drive intersection. GC1 discharges to S/N 007, and GC4 discharges to S/N 008. VTrans Ex. 4, Bates 022907.

66. The remaining Grass Channels are located north of the Mountain View Drive intersection.

67. The Water Quality Treatment Standard (WQTS) aims to "capture 90 percent of the annual storm events, and to remove 80 percent of the average annual post development total suspended solids load (TSS), and 40 percent of the total phosphorus (TP) load." ANR Ex. 2, VSMM § 1.1.1, p. 1-3.

68. The Project is required to treat stormwater runoff from 100% of expanded impervious area (1.576 acres) and 20% of redeveloped impervious area (0.641 acres), for a total of 2.217 acres to be treated. VTrans Ex. 4, Bates 022909 (application narrative); 023037 (WQTS summary table).

69. The Grass Channels here are calculated to treat stormwater runoff from 2.569 acres, well above the 2.217 acres required. VTrans Ex. 4, Bates 023037.

70. The VSMM includes the following design standards for Grass Channels:

- Sufficient length to detain the peak discharge associated with the water quality storm (0.9 inches) "for an average residence time of 10 minutes, at a velocity of no greater than 1 ft/s, and at a depth generally no greater than 4 [inches]." VSMM § 2.7.5.D, p. 2-55.
- Maximum side slope of 2:1. VSMM § 2.7.5.B, p. 2-54.
- Bottom that is 2-8 feet wide and flat. VSMM § 2.7.5.D, p. 2-55.
- Designed to convey the 10-year storm with minimum of 6 inches of freeboard. VSMM § 2.7.5.B, p. 2-54.
- Designed to pass the one-year storm without producing erosive velocities (i.e. 2.5 ft/s). VTrans 70, VSMM Vol. II, Appendix D7, p. 186.

71. All Grass Channels in the Project are designed:

- To have flat bottoms from 4 feet to 6 feet wide with side slopes either 3:1 or 4:1. VTrans Ex. 4, Bates 023038–53.
- To convey the 10-year storm with a minimum of 6 inches of freeboard. Id.
- To be of sufficient length to detain the peak discharge associated with the water quality storm (0.9 inches) for an average residence time of 10 minutes, at a velocity of no greater than 1 ft/s. Id.
- To pass the one-year storm without producing erosive velocities (i.e. 2.5 ft/s). Id.

72. Five of the Grass Channels are of sufficient length to maintain the water quality storm at a depth under 4 inches. Id. Three have a depth of flow over 4 inches: GC4 (4.4 inches), GC8 (4.49 inches), and GC10 (4.705 inches).

73. GC4 would have to be deeper to reduce flow depth to 4 inches or less. Because of site constraints and proximity to the roadway, GC4 cannot be made deeper without installing some form of traffic protection, such as a guardrail. A guardrail would create an additional safety hazard to traffic and additional expense. VTrans considered installing a guardrail but decided against doing so based on the hazard and expense it would create, and the minimal improvement to water treatment (0.4 inch depth reduction) that it would achieve.

74. GC8 and GC10 exceed the 4-inch recommended depth of flow due to the large amount of off-site runoff that they collect. VTrans Ex. 4, Bates 023049, 023162 (GC8); 023053, 023164 (GC10).

75. Mr. Lacroix prepared a memo dated March 12, 2018 comparing dimensions of the existing ditches to the proposed Grass Channels, admitted into evidence as Vallee Ex. EEE. His measurements are taken from the VTrans HydroCAD model.

76. The measurements show that at many different points the existing ditches do not meet VSMM requirements for grass channels and would therefore not function to meet treatment standards.

77. Mr. Torizzo opined that the dimensions of the existing ditches shown in Vallee Ex. EEE are inaccurate.

78. Mr. Torizzo testified that he measured the ditches (which he called “grass channels”) with a tape measure at some point during the Act 250 proceedings (i.e. prior to November 2016), and

re-measured them the Monday before he testified. When the judge noted that Mr. Torizzo had been in the courtroom that day, Mr. Torizzo changed his testimony and stated that he had taken the measurements the previous week. He did not record any of his measurements.

79. Mr. Torizzo offered specific testimony regarding the dimensions of certain points in the existing ditches at GC8 and GC10 and opined that these two existing ditches already qualify as grass channels under the VSMM.

80. By contrast, at certain points in his deposition, which took place approximately six weeks before trial, Mr. Torizzo confused the numbering of the Grass Channels, could not recall how many Grass Channels were proposed, and could not recall where certain Grass Channels would be located.

81. The Court does not find Mr. Torizzo's testimony credible. He apparently measured the ditches immediately before trial, but misstated when he took those measurements until the Court challenged his testimony. He did not record his measurements but recalled measurements at very specific points in different ditches. This contrasts with his poor memory in other areas of testimony and at his deposition. He also appeared reluctant to discuss his own measurements without looking at maps of existing conditions, which calls into question whether the measurements he offered were based on his own observations, or on his interpretation of the existing conditions maps. Finally, his opinion that the existing ditches meet VSMM standards for grass channels ignores the maintenance requirement at VSMM § 2.7.5.F, p. 2-55.

82. A map included in the application shows 13.50 of 23.58 acres as impervious. Id. Bates 023158.

83. HydroCAD modelling for the Water Quality Storm for GC4 shows the inflow area as 23.581 acres with 0.00% impervious surface. VTrans Ex. 4, Bates 023066.

84. Modelling for the one-year storm has the same acreage, but with 57.25% impervious surface. Id. Bates 023075.

85. Downstream Analysis modelling of the ten-year storm for GC4 shows 23.579 acres at 4.32% impervious. VTrans Ex. 47, Bates 024717. The cover page of the updated Downstream Analysis says that the drainage area to GC4 was adjusted to equal 23.580 acres. Id. Bates 024647.

Groundwater Recharge Treatment Standard

86. VTrans proposes meeting the Groundwater Recharge Treatment Standard with the eight Grass Channels.

87. The VSMM states:

> If designed according to the following design criteria, the grass channel will meet the WQv [Water Quality Treatment Standard] for certain kinds of residential development. Use of a grass channel will also meet the minimum recharge Rev [Groundwater Recharge Treatment Standard] requirement . . . regardless of the geometry or slope, provided that the remaining criteria related to land use and channel length are met.

VSMM Vol. I, § 3.5, p. 3-9.

88. The 2002 VSMM Vol. II gives an example of a hypothetical arterial road in Chittenden County where the use of grass channels to meet the Water Quality Treatment Standard also serves to automatically meet the Groundwater Recharge Treatment Standard. VTrans Ex. 70, p. 142.

89. ANR's standard stormwater application form for grass channels also indicates that the Groundwater Recharge Treatment Standard is automatically met if the Water Quality Treatment Standard is met. VTrans Ex. 4, Bates 022946.

90. Mr. Torizzo's testimony on this point was somewhat unclear and contradictory. He reluctantly agreed that the Groundwater Recharge Treatment Standard can be met if the Water Quality Treatment Standard is met with grass channels. But, he then opined that the waiver cannot apply here because of the site conditions. He did not explain what these site conditions are, or why they would prevent the waiver from applying. He then testified that even if the waiver is met, an applicant still must generate calculations to show that the Groundwater Recharge Treatment Standard is met. This contradicts the VSMM and ANR application form, which indicate that the standard is automatically met when the Water Quality Treatment Standard is met and does not need to be calculated.

91. Mr. Torizzo seemed to disregard or deem unreliable the example in VSMM Volume II, stating that the VSMM has many contradictions, that he would rely on Volume I and not Volume II, and that VTrans should not rely on this example. At the same time, however, he admitted that

Volume II is a reliable source of guidance for stormwater system design. He provided no explanation as to why Volume II would not be reliable in relation to this Project.

92. This testimony about the VSMM showed a misunderstanding or misapplication of the VSMM, was contradictory, and makes Mr. Torizzo's testimony, here and in general, less credible.

Dry Pond 4/98: Channel Protection Treatment Standard

93. The Channel Protection Treatment Standard requires "storage of the channel protection volume (CPv) . . . be provided by means of 12 to 24 hours of extended detention storage (ED) for the one-year, 24-hour rainfall event," which is estimated to be 2.1 inches in Chittenden County. VSMM § 1.1.2, p. 1-4.

94. The Project is required to meet the detention criteria for 1.58 acres of impervious surface. VTrans Ex. 78 p. 10.

95. VTrans proposes to meet the Channel Protection Treatment Standard with the installation of a dry pond, referred to in the stormwater permit application as Dry Pond 4 or Dry Pond 98, east of Route 2/7 between stations 36+80 and 38+90. VTrans Ex. 4 p. 8, Bates 022910; Vtrans Ex. 99; see also VTrans Ex. 4, Bates 023165 (summary sheet of Dry Pond 4/98).

96. Dry Pond 4/98 is designed to treat the required Channel Protection Volume for 4.89 acres of impervious surface, including 3.20 acres off site and 1.67 on site. VTrans Ex. 78, p. 10.

97. The Project proposes installing a diversion channel to the west of, and parallel to, Route 2/7 south of GC8 and across Route 2/7 from Pond 4/98. Vtrans Ex. 99. The diversion channel will divert some off-site stormwater runoff away from Pond 4/98.

98. The diversion channel is sized and designed to similar specifications as the Grass Channels. The diversion channel is neither required under the VSMM, nor modelled in the stormwater permit application.

99. There is no evidence that the diversion channel would overflow. Mr. LaCroix nevertheless testified that if the diversion channel did overflow, the overflow would run into Pond 4/98. Mr. LaCroix explained that this would not cause the pond to "fail." Instead, if the amount of water entering Pond 4/98 exceeded the 10-year or 100-year levels it would spill over the pond's emergency spillway.

100. The stormwater application includes two maps depicting the area to be drained to Pond 4/98. VTrans Ex. 4, Bates 023190, 023191. The maps show approximately 11.15 acres of off-site and on-site areas that drain to the pond. See VTrans Ex. 4, Bates 023165.

101. Mr. Torizzo and Mr. LaCroix offered competing testimony as to the accuracy of these maps.

102. Mr. Torizzo and Mr. LaCroix identified the area to the southwest showing an off-site roof, in pink, and off-site paved area surrounding that roof, in orange, as a credit union and parking lot located on Water Tower Hill. They both identified the green rectangle to the right of the parking lot (and to the left of the off-site woods, in yellow) as a grass berm that collects runoff from the credit union roof and parking lot. They agreed that runoff from the berm runs to the east and onto the street.

103. Mr. Torizzo opined that this runoff flows eventually to the diversion channel across Route 2/7 from Pond 4/98 and does not enter Pond 4/98. Mr. Torizzo testified that the area of the credit union on Water Tower Hill which he believes is incorrectly designated as draining to Pond 4/98 is about 1.25 acres. VTrans Ex. 4, Bates 023190.

104. Mr. LaCroix disagreed, opining that the water sheet-flows off the street, down the slope, and to Pond 4/98.

105. This dispute has no impact on our analysis. Even if Water Tower Hill did not drain into Pond 4/98 as predicted by VTrans, the pond would still treat runoff from 1.67 acres of on-site impervious surface, thereby satisfying the Channel Protection Treatment Standard requirement of treating 1.58 acres of on-site impervious surface runoff.

106. The VSMM states:

> If a stormwater discharge is to a coldwater fish habitat, 12 hours of extended detention is required and if a stormwater discharge is to a warmwater fish habitat, 24 hours of extended detention is required. Coldwater fish habitats and warm water fish habitat designations are listed in the Vermont Water Quality Standards.

VSMM § 1.1.2, p. 1-4.

107. Pond 4/98 discharges to discharge point S/N 004. VTrans Ex. 4, Bates 022904–05; 023170. The stormwater permit application designates all discharge points for the Project, including S/N

004, as discharging to Sunnyside Brook. VTrans Ex. 4, Bates 022904.[5] Sunnyside Brook is a coldwater fish habitat. ANR Ex. 4, Appendix A.

108. Runoff leaves the Project from Pond 007, passes through a Class III wetland, and then enters Sunnyside Brook at S/N 007.

109. The Vermont Water Quality Standards (VWQS) states that "[a]ll wetlands . . . are designated as warm water fish habitat for purposes of these rules." ANR Ex. 4, p. A-1.

110. Mr. Torizzo opined that Pond 007 discharges to a wetland, because a discharge is where runoff first enters the waters of the State. He opined that under the Channel Protection Treatment Standard it would therefore have to provide 24 hours of extended detention storage for the one-year, 24-hour rainfall event. VSMM § 1.1.2, p. 1-4. Mr. Torizzo added that he observed surface water at the area of the wetland and opined that 24 hours of detention would be necessary to protect the aquatic habitat in the wetland at discharge point S/N 007, although he was unable to say whether the wetland actually supports any fish habitat. Mr. Torizzo is not a wetland ecologist, nor did he perform any formal assessment of the wetland.

111. Mr. Torizzo opined that because the Site Balancing Procedure requires an equivalent level of treatment, Pond 4/98 should also be required to provide 24 hours of detention storage for the one-year, 24-hour rainfall event to satisfy the procedure. VTrans Ex. 10. Mr. Torizzo did not identify any practical effect that 24 hours of storage at Pond 4/98 would have, or why this would satisfy the purpose of the Channel Protection Treatment Standard better than 12 hours of storage. He testified that 24 hours would be necessary to protect the aquatic habitat in the wetlands; however, Pond 4/98 does not discharge to a wetland.

112. VHB conducted a wetland and stream delineation for the Project. VTrans Ex. 44. The delineation summary identifies this Class III wetland as "2012-P2." Id., Bates 024479.

113. The data sheet associated with the wetland notes that no surface water is present at this wetland under typical conditions, that no surface water was observed, and that the wetland has zero function as fish habitat. Id., Bates 022486. The data sheet notes that surface water is present in other areas of the wetland; however, the other data points indicating no surface water are used to characterize the wetland as a whole.

[5] Excluding discharge point S/N 009.

114. Because VHB was conducting a formal analysis, and given Mr. Torizzo's general unreliability, we find the VHB data to be more reliable than Mr. Torizzo's observation regarding the presence of standing water.

115. The drainage area for Pond 4/98 is 11.159 acres. VTrans Ex. 4, Bates 023165. This drainage area is depicted on two maps which detail the different surface types included in the area. VTrans Ex. 4, Bates 023190–91.

116. The Downstream Analysis modelling shows the impervious cover for the Pond 4/98 drainage area as 14.99% (VTrans Ex. 47, Bates 024739) while the Channel Protection Treatment Standard modelling shows the same impervious cover as 47.80% (VTrans Ex. 4, Bates 023184).

117. Mr. Torizzo opined that these impervious surface percentages should be the same, and the fact that it is different indicates the modelling is unreliable.

118. Mr. LaCroix explained that this discrepancy is due to the way data was inputted for the two models. Details of the different surface types shown on the maps at 023190–91 were inputted into the Channel Protection model via HydroCAD. A summary of the acreage for these areas was inputted manually into the Downstream Analysis at 023184. Because a summary was entered manually into the Downstream Analysis, that model then calculated a different percentage of impervious surface. Mr. LaCroix explained that although the models show different impervious coverage, they are both reliable.

Ponds 007 and 008 and the Overbank Flood Protection Standard

119. The Overbank Flood Protection Standard requires that "[t]he post-development peak discharge rate shall not exceed the pre-development peak discharge rate for the 10-year, 24-hour storm event." VSMM § 1.1.4.

120. Two dry ponds are designed to attenuate Project flows during the 10-year storm event. One dry pond was assigned to each of two on-site sub-catchment areas with the highest amount of impervious expansion.

121. Pond 007 will be situated to the southeast of the DDI, adjacent to and south of the southbound on-ramp. Pond 007 discharges to Sunnyside Brook at discharge point S/N 007. VTrans Ex. 4, Bates 022918, 023029 (map). Pond 008 will be to the east of the DDI, between the

I-89 northbound lanes and the northbound off-ramp. Pond 008 discharges to discharge point S/N 008. VTrans Ex. 4, Bates 022919.

122. Under the "10% rule," the developer, through a downstream analysis, calculates flow rates and velocities downstream of a proposed project "to the point where the site represents 10% of the total drainage area. For example, a 60-acre site would be analyzed to the point downstream with a drainage area of 600 acres." VSMM § 1.2, p. 1-11–1-12. "If flow rates and velocities (for [the ten-year and one-hundred-year storms]) with the proposed detention facility increase by less than 5% from the pre-developed condition, and no existing structures are impacted, then no additional analysis is necessary." Id. ANR "will waive the 10-year control requirement on a case-by-case basis where the developer demonstrates that there will be no increase in flood threat downstream to the point of the 'so-called' 10% rule." VSMM § 1.1.4, p. 1-9. In other words, if the downstream analysis shows increased flow rates and velocities of less than 5%, then the Overbank Flood Protection Standard is met.

123. VHB conducted an initial Downstream Analysis in January 2015, then updated it in May 2016. VTrans Ex. 4, Bates 023194. The Downstream Analysis was further updated in February 2018. VTrans Ex. 47.

124. According to the most recent Downstream Analysis, the flow rate for the 10-year storm at S/N 007 is 16.7 cubic feet per second (cfs) pre-development, and 17.4 cfs post-development with retention from Pond 007. This represents a post-development increase of 0.7 cfs, or 4.2%. VTrans Ex. 47, Bates 024648.

125. The flow rate for the 10-year storm at S/N 008 is 40.1 cfs pre-development, and 34.4 cfs post-development with retention from Pond 008. This represents a post-development decrease of 5.7 cfs, or -14%. VTrans Ex. 47, Bates 024648.

126. All other discharge points will have a decreased flow rate for the 10-year storm post-development. VTrans Ex. 47, Bates 024648.

127. S/N 007 is at the inlet end of an existing 36-inch culvert running under I-89, and S/N 008 is at the outlet end of the same culvert. Sunnyside Brook flows from S/N 007 through the culvert to S/N 008, and downstream past the remaining discharge points. VTrans Ex. 4, Bates 023029

(map showing S/N 007 and 008); 023210 (map showing existing culvert, with S/N 007 and S/N 008 marked in blue pen by Mr. Nelson).

128. Because peak flow for the 10-year storm increases at S/N 007, but then decreases to a greater degree at S/N 008, there will only be an increased flow between these two points, in the culvert. Downstream of S/N 008, peak flows for the 10-year storm will decrease.

129. Mr. Torizzo opined that the Downstream Analysis is unreliable. We have doubts about Mr. Torizzo's credibility in testifying to the accuracy of the Downstream Analysis. Mr. Torizzo did not review, or did not fully review, the Downstream Analysis prior to his February 2018 deposition. At trial he explained that prior to his deposition he had been either unable to fully review the stormwater application, or unable to fully analyze it, noting that it is over 800 pages long. He described the application as a "moving target" due to changes that have been made over time and suggested that at the time of his deposition he did not fully understand what was included in the most up-to-date version of the application.

130. When the Court asked Mr. Torizzo about the contrast between his inability to recall aspects of the Project at that deposition and his more certain testimony at trial, Mr. Torizzo stated that "throughout this process" he had been very overwhelmed by the complexity of the Project and the different versions of the stormwater system, but that he had prepared for trial.

131. The May 2016 Downstream Analysis includes a map titled "Off-Site Watersheds and Times of Concentration Flow Paths" dated April 26, 2016. VTrans Ex. 4, Bates 023208. This map was not altered in the February 2018 Downstream Analysis. VTrans Ex. 47.

132. The "Off-Site Watersheds and Times of Concentration Flow Paths" (Bates 023208) and "Sunnyside Watershed Map" (Bates 023031) depict the Sunnyside Brook watershed differently. For example, the "Off-Site Watersheds and Times of Concentration Flow Paths" map shows an area to the southwest that is in the watershed, and the "Sunnyside Watershed Map" shows this area as outside the watershed. The "Off-Site Watersheds and Times of Concentration Flow Paths" map shows sub-watersheds marked OS7_1 and OS7_2 to the southeast of the interchange as being in the watershed, but they are out of the watershed in the "Sunnyside Watershed Map."

133. Mr. Torizzo pointed to these as inconsistencies in the application that render the modelling unreliable.

134. Mr. LaCroix explained that the "Off-Site Watersheds and Times of Concentration Flow Paths" map, which was used for the Downstream Analysis, is based on more refined information than the "Sunnyside Watershed Map," which was not used for modelling. Based on this explanation, we find the discrepancies do not render the modelling unreliable.

135. The "Off-Site Watersheds and Times of Concentration Flow Paths" map depicts subwatersheds for each discharge point. VTrans Ex. 4, Bates 023208. The subwatershed draining to discharge point S/N 007 depicts areas marked OS7_1 and OS7_2 (among others) as part of the subwatershed draining to S/N 007. At trial, Mr. Torizzo opined, and Mr. LaCroix agreed, that that the entirety of OS7_1 and a large portion of OS7_2 do not drain to Sunnyside Brook.

136. Mr. Torizzo opined that the Downstream Analysis is unreliable because it is based on an inaccurate assumption that OS7_1 and OS7_2 discharge to S/N 007. He explained that if the subwatershed depicted as flowing to S/N 007 on the "Off-Site Watersheds and Times of Concentration Flow Paths" map is corrected to remove OS7_1 and part of OS7_2, that subwatershed will be smaller. With this smaller, more accurate subwatershed, there would be less runoff draining to S/N 007 than what is modelled in the Downstream Analysis.

137. Mr. Torizzo opined that where a relatively small project area is within a large off-site watershed, the impact of the project can be "washed out" in the downstream analysis by the impact of runoff from the larger watershed. Alternatively, if the off-site watershed is smaller, the impacts of the project will be more pronounced. He therefore opined that the increase in the ten-year peak flow will be more than the predicted 4.2%.

138. Mr. Nelson disputed Mr. Torizzo's "washed out" characterization. He explained that if the OS7_1 and OS7_2 areas do not fully drain to Sunnyside Brook, and the subwatershed draining to S/N 007 is actually smaller than the model assumes, then Pond 007 will have a greater impact in treating the stormwater runoff because there would be less stormwater to treat. The increase in the ten-year peak flow will therefore be less than the predicted 4.2%. In other words, if the subwatershed is smaller than the model assumes, treatment will improve.

139. We find Mr. Nelson's explanation to be more credible, because Mr. Torizzo's explanation fails to account for the impact of Pond 007.

140. Mr. Nelson credibly testified that the stormwater system complies with all applicable regulations, and that it will result in an improvement in stormwater management in the Project area and the Sunnyside Brook watershed.

III. The Act 250 Appeal

Act 250 Application Timeline

141. VTrans' initial Act 250 application was submitted in November 2013. The application included a Schedule E. VTrans Ex. 3, Bates 022060. The application assumed that the Project's 9.82 acres of involved land would not trigger the ten-acre Act 250 jurisdictional threshold, and therefore sought only to amend existing Act 250 permits that would be affected by the Project. Vallee Ex. UU.

142. By March 2014, VTrans determined that revisions to the Project (including to the stormwater system) would cause it to exceed the ten-acre threshold. VTrans therefore revised the application to request an Act 250 permit for the Project. Vallee Ex. WW, XX.

143. VTrans submitted new materials to supplement the November 2013 application in April 2014. Vallee Ex. XX. In a cover letter accompanying the new materials, VTrans notes that the Project will basically remain the same as originally proposed but will now exceed the ten-acre threshold. The letter notes that VTrans will file a revised Schedule E, pursuant to the District Commission's March 13, 2014 memorandum. The March 13, 2014 memorandum is not in evidence, and the Court has no information about the contents of the memorandum.

144. VTrans submitted a revised Schedule E on June 4, 2014. Vallee Ex. YY.

Traffic Planning: Pedestrians and Bicycles

145. The Vermont Pedestrian and Bicycle Facility Planning and Design Manual (the Design Manual) states that "VTrans will use this manual in combination with the applicable VTrans Standard Drawings as the standard for development, design, construction and maintenance of pedestrian and bicycle facilities that are implemented by VTrans or any entity using VTrans and/or Federal-Aid Highway funds." VTrans Ex. 22 § 1.1, p. 1-2.

146. Mr. LaCroix credibly testified that the Design Manual would not normally be applied to projects that do not involve the development, design, construction or maintenance of pedestrian or bicycle facilities, such as the northern part of the Project proposed here.

147. The Vermont State Design Standards (the Design Standards) "present the physical design parameters and guidelines of . . . roadways in Vermont." VTrans Ex. 21, § 1.6. Roadway designers are to consider the geometric values in the Design Standards as "minimum values," although these values can in some cases be less strictly applied "to avoid or reduce impact to the natural and built environments." Id.; see also § 1.1 ("The Standards have been designed to be flexible . . .").

148. Roadway designers rely primarily on the Design Standards and look to other materials (such as the Design Manual) to supplement the Design Standards.

Shared-use Paths and Sidewalks

149. There are currently no sidewalks or shared paths along the Route 2/7 portion of the Project. Bicyclists and pedestrians moving through the Project area travel on unmaintained dirt paths outside the limits of the roadway, or in roadway shoulders that in some places are less than one foot wide.

150. The Project will include new five-foot-wide concrete sidewalks for pedestrians, and eight-foot-wide asphalt shared-use paths for pedestrians and bicyclists.

151. The sidewalks and shared-use paths will meet the requirements of the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

152. New sidewalks will begin south of the DDI at the South Park Drive intersection on either side of Route 2/7, connecting to existing sidewalks to the south. The sidewalks will run north and transition to shared-use paths as they enter and run through the DDI, after which they transition back to sidewalks. The sidewalks continue north to connect to existing sidewalks running east-west on Mountain View Drive and Lower Mountain View Drive.

153. Retaining walls will be constructed to allow the shared-use path to run outside of the piers, or abutments, supporting the I-89 overpass.

154. According to Design Manual, eight feet is the minimum width for a paved shared-use path, while the preferred width is 10–14 feet. VTrans Ex. 22, § 5.3.2, Table 5-1, p. 5-13.

155. The eight-foot minimum is only recommended when certain circumstances prevail, such as when "[n]o practical alternative design exists," "[f]or limited distances . . . to bypass a physical

barrier (i.e., building, water body or other immoveable objects)," or where only limited bicycle traffic is expected. Id.

156. Mr. Marshall testified that the shared-use path should be 10–14 feet wide, instead of only eight feet wide, as the current design calls for. He opined that the retaining walls being built to allow the shared-use path to run outside the highway overpass piers could be moved back to allow a ten-foot path to be constructed. This opinion was based only on a general observation of the site, without any in-depth analysis to determine whether moving the retaining wall would be feasible.

157. Based on the opinion that the path could be widened, Mr. Marshall concluded that a practical alternative to an eight-foot path exists. He also concluded that the "limited distances . . . to bypass a physical barrier" exception should not apply for the same reason. Vallee Ex. LL at 3. He opined that bicycle traffic will not be limited, based on the fact that the shared-use path is included in the Project. Id. at 2. He therefore concluded that none of the exceptions that would allow the minimum eight-foot path apply.

158. Mr. Marshall did not conduct any pedestrian or bike studies for the Project area.

159. We find Mr. Marshall's opinion regarding the width of the shared-use path somewhat unreliable. His opinion on bicycle traffic is circular (there must be a high level of bicycle traffic because the proposed path accommodates bicycle traffic). His opinion that the path could be widened to 10 feet is based on a cursory analysis which fails to show that doing so would be "practical" (to rebut the idea that there is "no practical alternative" to an 8-foot path). Finally, the Design Manual's minimum width allowance "[f]or limited distances . . . to bypass a physical barrier" is separate from the "no practical alternative" exception. The Design Manual therefore appears to allow minimum width to go around a physical barrier even where there is a practical alternative. Mr. Marshall's opinion fails to consider this.

Northern Sidewalk

160. No sidewalk or shared-use path will be installed north of the Mountain View Drive intersection. The decision to limit sidewalks and shared paths to the southern part of the Project is based on Project scope, lack of connection to existing facilities, material and construction costs,

impacts to natural resources, utilities, additional right-of-way acquisitions, additional impacts to town services, and usefulness.

161. Vallee argues that a sidewalk should be constructed in the northern part of the Project. To this end, Mr. Marshall designed a ten-foot-wide shared-use path that he claims could be built along Route 2/7 from the Mountain View Drive intersection to the Rathe Road intersection. Vallee Ex. MM.

162. VTrans contends that a northern sidewalk or shared path is outside the scope of the Project because the northern part of the Project as largely a resurfacing operation. Mr. Lacroix testified that adding new sidewalks is typically outside the scope of resurfacing projects such as this.

163. While there are some businesses that attract pedestrian traffic from the south up to the Mountain View Drive intersection, there are fewer such businesses to the north of the intersection. There is no evidence that the businesses at the Mountain View Drive intersection attract pedestrian traffic from the north.

164. There is no evidence that the park and ride to be constructed across from Hercules Drive is intended to accommodate pedestrians. The name "park and ride" alone suggests use by vehicle traffic. The Pedestrian and Bicycle Facility Planning and Design Manual and Vermont State Design Standards each briefly mention park and rides but make no reference to any need to connect them to pedestrian or bicycle traffic. VTrans Ex. 21, 22.

165. A sidewalk or shared path in the northern section of the Project would increase the Project's impervious surface, thereby increasing stormwater runoff. It would also require an additional federal funding request, and it is unclear whether this request would be granted or how long it would take. It would likely require additional right-of-way acquisitions, although the extent of these is not clear. It would require grading and ledge work and would likely require moving telephone poles. It would require additional town services in the form of plowing.

166. Mr. Marshall's expert report notes that a northern sidewalk is needed in part because there is a residential neighborhood to the north of the Project area. Vallee Ex. LL p. 3–4; citing Design Manual p. 3-12. There is no evidence indicating the distance between this neighborhood and the Project, or that there is any pedestrian traffic between the two.

167. The new sidewalks proposed by VTrans will connect to existing sidewalks on Mountain View Drive and Lower Mountain View Drive to the north, and to sidewalks from Winooski to the south. If the sidewalks were extended further north, there are no existing sidewalks to connect to. A northern sidewalk proposed by Mr. Marshall would terminate at the Rathe Road intersection, at which point pedestrians would continue walking in the shoulder.

168. The Design Standards state that bicycle and pedestrian traffic may be expected along principal arterial roads, and that these roads should be designed to accommodate this traffic. VTrans Ex. 21, § 3.14. This section also states that pedestrian and bicycle traffic can be accommodated with shoulders.

169. A pedestrian count conducted from 8:00 am to 7:00 pm on March 9, 2017 counted only ten pedestrians entering and exiting the area of the Project north of the Mountain View Drive intersection. Vallee Ex. D.

170. The Town of Colchester commissioned a sidewalk Feasibility Report for the Exit 16 corridor in 2003. Vallee Ex. E. The report was authored by David Rafael from Landworks in association with Mark Smith from Resource Systems Group, Inc.

171. The sidewalk Feasibility Report recommends constructing a ten-foot-wide recreation path and five-foot-wide sidewalk along Route 2/7 from the southern point of the Project area up to Rathe Road. Vallee Ex. E. at 13. As part of "Phase I (1–5 years)" of a three-phase plan, the report calls for installing a five-foot sidewalk along Route 2/7 from south of the Exit 16 interchange north under the highway overpass to the Mountain View Drive intersection, and a ten-foot path from the Mountain View Drive intersection to Rathe Road. Id. at 32.

172. The 2004 Official Map for Colchester shows a "proposed separated path" along Route 2/7 from the Mountain View Drive intersection to Rathe Road. Vallee Ex. HHH.

173. The Exit 16 Scoping Study was authored by Mark Smith of Resource Systems Group, Inc. (one of the authors of the 2003 sidewalk Feasibility Report). The scoping study contemplates including a sidewalk on Route 2/7 from south of South Park Drive up to the Mountain View Drive intersection, but not further to the north.

174. In a March 24, 2014 letter to the Chittenden County Regional Planning Commission, the Director of Public Works for Colchester explains that "Phase 1 of the Exit 16 Sidewalk Project is now complete," and that the Town wants to move on to Phase 2. VTrans Ex. 24, Vallee Ex. E.

175. In an attached map, Phase 1 appears to follow Route 2/7 from the south up to the South Park Drive intersection, where this Project begins. VTrans Ex. 24. The sidewalk and mixed-use path on either side of Route 2/7 from South Park Drive up to, and onto, Mountain View Drive and Lower Mountain View Drive, as proposed by VTrans here, is marked as "VTrans DCDI."[6] The sidewalk along Route 2/7 from the Mountain View Drive intersection to Rathe Road is designated as "Phase 5," the last phase shown.

176. The map shows the "VTrans DCDI" section connecting to an existing sidewalk on Lower Mountain View Drive, and to a sidewalk on Mountain View Drive designated as "Phase 2." VTrans Ex. 24.

177. VTrans understood from communicating with the Town of Colchester that the Town wanted the construction of a sidewalk and mixed-use path from the southern end of the Project to the Mountain View Drive intersection, based on safety and usefulness, but that the Town did not want the Project to include sidewalks north of Mountain View Drive. VTrans Ex. 24.

178. Mr. Marshall estimates that a ten-foot-wide shared-use path from the Mountain View Drive intersection to the Rathe Road intersection would cost $638,000, which includes a 15% contingency. Vallee Ex. PP. Mr. LaCroix estimated the cost of constructing a sidewalk on Route 2/7 north of the Mountain View Drive intersection at $306,000. VTrans Ex. 23.

179. While Mr. Lacroix's cost estimate does not include relocation of utilities, Mr. Marshall's does. Neither estimate includes costs for additional right-of-way land acquisitions or additional stormwater infrastructure. Mr. Lacroix estimates that this sidewalk would add 0.427 acres of impervious surface to the Project, and that the property acquisition costs would be high. VTrans Ex. 23.

The shoulder north of the Mountain View Drive intersection

180. Route 2/7 north of the Mountain View Drive intersection is a four-lane rural principal arterial roadway that transitions to two lanes north of the Rathe Road intersection.

[6] We infer this to be an abbreviation for Double Crossover Diamond Interchange.

181. The speed limit on this section of Route 2/7 was recently reduced from 50 mph to 40 mph. The Design Hour Volume (DHV) is estimated to peak at 1,900 vehicles on Route 2/7 at the intersections of Hercules Road and Rathe Road. VTrans Ex. 2, Bates 021566.

182. In its existing condition, the shoulder of Route 2/7 from the Mountain View Drive intersection to Hercules Drive is inconsistent in width, generally ranging from four to eight feet. It is as narrow as one foot wide in some places, however, with the narrowest point at the east side of Route 2/7 just north of Lower Mountain View Drive.

183. The existing shoulders on Route 2/7 north of the Mountain View Drive intersection will be adjusted to a uniform four-foot width.

184. As noted above, shoulders can be sufficient to accommodate for pedestrian and bicycle traffic. VTrans Ex. 21, § 3.14. According to the Design Manual, shoulders do not have to be ADAAG compliant. VTrans Ex. 22, § 3.3.3, p. 3-13.

185. Design Standards § 3.14.1, Table 3.7, sets out the minimum width of paved shoulder area to accommodate shared use of rural principal arterial roadways by bicycles. For roads with a 40-mph speed limit and DHV over 400, as here, the minimum width is three feet. Table 3.8, which applies to urban or village principal arterials, requires a four-foot shoulder for a 40-mph road with a DHV over 400.

186. VTrans applied the dimensions in Design Standards § 3.14.1, Table 3.7, and, to be conservative, Table 3.8, when designing the shoulders for the northern part of the Project.

187. Design Standards § 3.6, "Lane and Shoulder Widths on Rural Principal Arterials," states that shoulder widths on rural principal arterials "will adhere to values in Table 3.3," which is set out in this section. Table 3.3 indicates that shoulders on two-lane rural principal arterial roads should be eight feet wide.

188. Mr. LaCroix testified that because Route 2/7 north of the Mountain View Drive is a four-lane rural principal arterial and Table 3.3 deals with two-lane rural principal arterials, Table 3.3 does not apply to this part of Route 2/7.

189. Mr. Marshall opined that Table 3.3 should apply to the Project. In support of this, he testified that the purpose of the shoulder is to accommodate breakdowns and cars being stopped by the police. He stated that an eight-foot shoulder is necessary for these uses. He further

testified that even though a four-lane road has two lanes going in each direction and a stopped car in one lane will not entirely stop traffic because one lane would remain open, the need for a full-width shoulder is the same on a four-lane as on a two-lane rural principal arterial.

190. Mr. LaCroix testified that a disabled vehicle in the Project area north of the Mountain View Drive intersection could pull into the right lane and traffic would continue moving in the left lane. He added that it is not atypical for a roadway like Route 2/7 to have shoulders that cannot fully accommodate disabled vehicles.

191. Table 3.3 is the only one of nine tables in Chapter 3 that singles out two-lane principal arterials; the other eight tables refer to "principal arterial[s]," "rural principal arterial[s]," or "urban or village principal arterial[s]."

192. We find Mr. LaCroix's opinion more credible on the applicability of Table 3.3.

193. First, Mr. Marshall ignores the fact that Table 3.3 is the only table among many others in Chapter 3 that specifies two-lane roads in its title.

194. Second, Mr. Marshall's opinion that the Table 3.3 dimensions should apply because the purpose of the shoulder is to accommodate breakdowns is not credible. Design Standards § 3.5 states that shoulders can serve many purposes, and accommodating breakdowns is only one of these. Safety for bicycles and pedestrians are other purposes. Design Standards § 3.14 state that bicycle and pedestrian traffic should be expected on principal arterials, and that designers should plan for bicycle and pedestrian traffic, including in shoulders. There is no similar recommendation that breakdowns should be expected on all principal arterials, and that designers should design to accommodate breakdowns. That there is a recommendation for pedestrians and bicycles, but not for breakdowns, suggests that the authors of the Design Standards are not recommending that all principal arterial roadways should have shoulders that can accommodate breakdowns.

195. Third, we find Mr. LaCroix's assertion that a full breakdown shoulder is more necessary on a two-lane road than on a four-lane road more reasonable than Mr. Marshall's assertion that the necessity is the same.

196. Some portions of Route 2/7 north of the Mountain View Drive intersection will be widened with new impervious surface as part of the Project. See e.g. VTrans Ex. 2, Bates 022989,

022990; VTrans Ex. 4, Bates 021982–021986. The amount of widening is minimal. Other areas along this part of the roadway will be narrowed as existing impervious surface is returned to pervious, grassed surface. See e.g. VTrans Ex. 4, Bates 022984, 022986. Generally, the widening and narrowing will make the width of the roadway more consistent.

197. Mr. LaCroix characterized the work to be done in this section of roadway as a resurfacing operation. He stated that VTrans does not typically expand impervious area or increase shoulder widths as part of resurfacing projects. Instead, he stated that resurfacing projects try to keep lanes and shoulders as consistent as possible, and that they try to maintain consistent shoulders within the existing footprint of the roadway.

198. Mr. Marshall testified that when he worked on grind and overlay projects for VTrans, they did not alter shoulders to meet design standards. Because the Project here includes proposed widening of Route 2/7 north of the Mountain View Drive intersection, he argues that the Project entails more than a simple grind and overlay. Because the Project involves some widening, he opined that the shoulder should be fully widened.

199. In his report, Mr. Marshall states that pursuant to Chapter 4 of the Design Manual, Route 2/7 north of the Mountain View Drive intersection should have six-foot shoulders. Vallee Ex. LL at 3. At trial, however, he admitted that because the curbs are to be removed from this section of Route 2/7, this recommendation does not apply. Similarly, in his report he states that Chapter 4 of the Design Manual calls for six-foot shoulders on roads where the speed limit is over 35 mph. At trial he admitted that this section of the Design Manual, § 4.3.1, refers to bicycle lanes and does not apply to shoulders. These errors in Mr. Marshall's analysis further lessen his credibility on the subject of shoulders.

200. Mr. LaCroix opined that the four-foot shoulders comply with the complete streets principles in 19 V.S.A. § 10b.

Construction phasing and timeline

201. VTrans has a Transportation Management Plan (TMP) for the Project which is intended to assist with developing a construction phasing and activity schedule and implementing work zone management strategies. VTrans Ex. 29 p. 1.

202. The TMP is a living document, intended to be flexible and subject to change as construction commences. The TMP provides transportation management strategies. The specific implementation of those strategies will be the subject of discussion between VTrans and the contractor that is hired to carry out the Project.

203. The TMP includes a set of assumptions as part of the plan to minimize and mitigate adverse impacts during construction. VTrans Ex. 29 p. 10.

204. The Project is expected to be completed in two construction seasons. VTrans Ex. 29 p. 24. The construction season runs from April 15 to November 15 but may start earlier and end later when conditions allow. Mr. LaCroix credibly testified that the two-year timeline is reasonable and realistic.

205. The first year will largely be off-roadway work, in addition to relocation of a 16" Champlain Water District water line under the innermost southbound lane of Route 2/7 from the South Park Drive intersection to the Mountain View Drive intersection.

206. The second year will include the on-roadway work, including the construction of the DDI itself and the widening of the roadway.

207. Between the first and second years of construction the roadway will be returned to a condition allowing it to function in the same manner as it currently functions.

208. The TMP recommends sequencing for the Project. VTrans Ex. 29 p. 25. More formal construction sequencing and phasing will be done in collaboration with the VTrans construction section and the contractor. The contractor will also coordinate with private property owners impacted by the Project to minimize those impacts.

209. The TMP includes strategies based on modelling the impacts of construction, including lane closures, to avoid, mitigate, and minimize impacts on traffic. VTrans Ex. 29 p. 34–47. The TMP calls for the contractor to prepare contingency plans and build redundancies into construction systems to manage any incidents that arise during construction. VTrans Ex. 29 p. 47.

210. Much of the construction will be carried out at night to minimize impacts on traffic. The number of lanes on Route 2/7 may be reduced during construction. Full lane closures will be avoided; when they are necessary, they will not last more than ten minutes. Closure of side roads

will be avoided to the extent possible, and closures will be timed and arranged to minimize impacts on local businesses. No driveways will be eliminated.

211. The TMP includes a public outreach component to facilitate information sharing.

212. Mr. LaCroix testified that he anticipates blasting to be carried out to remove ledge on the west side of Route 2/7 in the area of the interchange; this is also anticipated in the TMP. VTrans Ex. 29, p. 20.

213. Blasting will require temporary full closure of Route 2/7 and rolling roadblocks on I-89. VTrans Ex. 29, p. 26.

214. Mr. LaCroix testified that he is satisfied with the TMP and construction phasing and sequencing that it sets out.

215. No evidence was introduced to suggest that the TMP is flawed in any way, or that VTrans or the contractor will not follow the TMP.

The Champlain Farms property

216. Champlain Farms is a gas station located at the southeast of the I-89 interchange, adjacent to Route 2/7 and the southbound I-89 on-ramp. Champlain Farms has two driveways onto Route 2/7.

217. The Project will extend onto what is now the northwest corner of the Champlain Farms property, which VTrans will obtain through a negotiated sale or condemnation proceedings. VTrans Ex. 2, Bates 021660 (area to be used for the Project highlighted in yellow).

218. The Project will alter the configuration of Champlain Farms' northern driveway.

219. This alterations and related construction are designed to ensure that large gas tankers and other large vehicles will be able to enter and exit the site and circulate on site. The driveway will maintain the greatest permissible width allowed under the Vermont Design Standards.

220. A VTrans analysis concluded that the Project would not significantly impact cars queuing on the Champlain Farms property as they exit to Route 2/7.

221. The Project will install a sidewalk through a right-of-way between Champlain Farms and Route 2/7 that will cross over the Champlain Farms driveways.

222. During construction, there may be temporary closures to one, but not both, of Champlain Farms' driveways. The contractor will generally avoid closing even one of the two driveways by implementing a partial closure of the driveway.

223. Mr. LaCroix testified that he expects the contractor will not use blasting to remove ledge to the southeast of the interchange near the southbound on-ramp for the installation of Pond 007, given the proximity of the Champlain Farms gas station, but added that the decision to use blasting or not is part of means and methods to be determined by the contractor. VTrans did not identify any ledge in the area where Pond 007 will be installed, including through borings to at least 15 feet below grade. VTrans Ex. 4, Bates 023192.

Costco

224. Jeremy Matosky of Trudell Consulting Engineers testified on behalf of Costco. Costco also offered a number of exhibits into evidence, including a memorandum by Mr. Matosky. Costco Ex. CW-2.

225. Costco recently obtained Act 250 permit #4C0288-19C for its retail outlet located on Mountain View Drive. The permit is conditioned on improvements of the intersection of Route 2/7, Mountain View Drive, and Lower Mountain View Drive, which are part of the Project now before the Court.

226. Mr. Matosky proposed that these improvements could be approved separately from the overall Project proposed here by VTrans.

Conclusions of Law

IV. The Stormwater Appeal

a. Site balancing

Vallee's stormwater appeal Questions 2 and 3 ask whether the stormwater system satisfies Site Balancing Procedure requirements generally, and specifically whether direct treatment throughout the Project is impracticable.

1. Site Balancing and Practicability

To apply the Site Balancing Procedure, a stormwater project designer must demonstrate to ANR that "treatment and/or control of the impervious areas in question is impracticable due

to physical, topographical, or environmental constraints." VTrans Ex. 10, p. 2–3. Mr. LaCroix explained that VTrans considered and tested several different direct treatment methods, but that none met VSMM standards. He also credibly described many constraints that make direct treatment impracticable, including poor soils, steep slopes, exposed and buried ledge, buried utilities, the need for underground storage and/or treatment, and proximity to commercial properties, associated parking areas, and drive accesses. Mr. LaCroix has experience designing linear transportation projects and noted that such projects are particularly suited for site balancing because they are large and must fit into sites constrained by developed surroundings.

The Court does not find Mr. Torizzo's opinion, that direct treatment is practicable, to be credible. Mr. Torizzo has not designed complex linear transportation projects or used the Site Balancing Procedure. His understanding of "constraints" is based on his own subjective, independent assessment of this term, without having ever applied the Site Balancing Procedure or conferred with ANR to understand what is meant by "constraints." His assessment that the procedure should rarely if ever be used is contradicted by Mr. Gianfaga's testimony, which established that up to 10% of stormwater discharge applications he has reviewed involved the Site Balancing Procedure. It is also contradicted by the fact that ANR has made the procedure available generally. Mr. Torizzo also showed a misunderstanding of the procedure. He opined that site balancing is generally unnecessary because there is always a way to provide direct treatment. This sets a higher bar than that anticipated by the procedure by looking at whether direct treatment is <u>possible</u>. The procedure, however, states that it can be applied if direct treatment is <u>impracticable</u>.

Mr. Torizzo also offered an alternative system that he designed to prove that direct treatment is possible. The system, however, is not fully designed, uses treatment practices not approved under the VSMM, and has modelling and design errors that would need to be corrected. It is therefore not clear that the system would satisfy the VSMM. Furthermore, there are questions regarding whether the alternative system would require additional utility relocation or ledge removal, or acquiring additional rights-of-way, how much these would cost, and how long they would take. Given these unknowns, even if the alternative system is <u>possible</u>

to install, it is not necessarily practicable. See In re Goddard Coll. Conditional Use, 2014 VT 124, ¶ 12, 198 Vt. 85.

We note in addition that we are not "a higher environmental agency entrusted with the power to make environmental law and policy," but rather exercise a "narrow role in ensuring that the decisions of ANR are made in accordance with law." Conservation Law Found. v. Burke, 162 Vt. 115, 126, (1993). Given this mandate, it is not our role to instruct an applicant to install an entirely different system than the one they have proposed. See Re: Bernand and Suzanne Carrier, No. 7R0639-EB (Vt. Envtl. Bd. Aug. 14, 1997) ("The Board does not design projects for Applicants nor does it provide advisory opinions on what hypothetical elements of design would receive the Board's approval.").

We conclude that the weight of the evidence supports a conclusion that direct treatment is impracticable under the Site Balancing Procedure.

2. Site Balancing, Grass Channels, and Existing Ditches

In pre-development conditions there is an existing ditch where each grass channel will be installed. Vallee argues that these already provide stormwater runoff treatment as grass channels, and therefore the channels cannot be counted as providing equivalent compensatory treatment under the Site Balancing Procedure.

In support of this argument, Vallee points to the Site Balancing Procedure's requirement for "equivalent" treatment. This reading of the procedure is flawed. The Site Balancing Procedure requires that "the impact from . . . areas of untreated impervious surfaces will be compensated on an equivalent basis by controlling and/or treating impervious surfaces within the project limits that would not otherwise be subject to treatment and/or control requirements." VTrans Ex. 10, p. 2.

VTrans proposes treating runoff from the roadway in the northern part of the Project that is to be resurfaced. The area to be treated will be equal to or greater than the area of new and redeveloped roadway that will not be treated in the southern part. Because the Project only calls for resurfacing these northern roadways, they are not jurisdictional surfaces for the purposes of stormwater permitting, and therefore "not otherwise . . . subject to treatment and/or control requirements." The "equivalent basis" requirement of the Site Balancing Procedure will

therefore be satisfied, because the impact from areas of untreated impervious surfaces (i.e. new and redeveloped roadway in the southern part of the Project) will be compensated on an equivalent basis by controlling and/or treating impervious surfaces within the project limits that would not otherwise be subject to treatment and/or control requirements (i.e. resurfaced roadway in the northern part of the Project).

Whether existing ditches already provide treatment in the northern area is irrelevant to this equation. The premise of Vallee's argument therefore has no basis.

Even if Vallee's premise was correct, the ditches do not qualify as grass channels under the VSMM, and therefore cannot be assumed to provide treatment.

First, to qualify as acceptable treatment practices, grass channels must be maintained to certain standards through a "legally binding and enforceable maintenance agreement." VSMM § 2.7.5.F, p. 2-55. Without maintenance, grass channels can fall into disrepair and no longer be effective in treating stormwater. The existing ditches are not controlled by any existing stormwater permit, or any other binding maintenance agreement. The ditches therefore do not satisfy VSMM standards for grass channels.

Second, based on the testimony of Mr. LaCroix and the measurements presented in Mr. LaCroix's March 12, 2018 memorandum providing existing ditch measurements (admitted into evidence as Vallee Exhibit EEE), the existing ditches do not meet dimensional standards for grass channels. Because they do not meet these dimensional standards, they cannot be assumed to provide any treatment as grass channels under the VSMM.

The Court finds Mr. Torizzo's testimony to the contrary not credible. He measured the ditches a number of years ago and again immediately before trial but got confused and could not remember when he took the most recent measurements. He did not record his measurements either time, but nevertheless offered rough measurements at very specific points in different ditches. This contrasts with his poor memory in other areas of testimony. He also appeared reluctant to explain his own measurements without referring to maps of existing conditions, which made it unclear whether the measurements he offered were based on his own observations on the ground or on his interpretation of the existing conditions maps.

3. Site Balancing and Equivalent Treatment at Dry Pond 4/98

Vallee argues that Pond 007 discharges into a wetland, which would require 24 hours of detention for the one-year, 24-hour rainfall event to satisfy the Channel Protection Treatment Standard, and that in order to provide an equivalent level of treatment at Pond 4/98 under the Site Balancing Procedure, Pond 4/98 must also provide 24 hours of retention.

This argument fails at two levels. First, it relies on a misreading of the Site Balancing Procedure's equivalent treatment standard, and second, it incorrectly assumes that Pond 007 will discharge to a wetland.

The Channel Protection Treatment Standard requires 12 hours of detention for the one-year, 24-hour rainfall event for discharges to a coldwater fish habitats, and 24 hours for discharges to warmwater fish habitats, as those waters are designated in the Vermont Water Quality Standards (VWQS). VSMM § 1.1.2, p. 1-4. Under the VWQS, Sunnyside Brook is a coldwater fish habitat, and all wetlands (apart from specific wetlands not relevant here) are warmwater fish habitat. ANR Ex. ANR-4, Appendix A.[7]

As explained above, the Site Balancing Procedure requires compensation "on an equivalent basis" and that "the requirements for treatment and/or control . . . shall be equal to or greater than the treatment and/or control requirements on the expanded or redeveloped impervious surfaces for which treatment is impracticable." VTrans Ex. 10, p. 2.

Instead of meeting the Channel Protection Treatment Standard for the required 1.58 acres of new and redeveloped impervious surfaces in the southern portion of the Project, VTrans proposes treating 1.67 acres of (primarily resurfaced) impervious surface in the northern part of the project via Pond 004/98.

Vallee contends that Pond 007, in the southern portion of the project, will discharge to a wetland, and that it would therefore need to provide 24 hours of retention to satisfy the Channel Protection Treatment Standard. Therefore, the argument goes, an "equivalent" level of control under the Site Balancing Procedure requires 24 hours of retention at Pond 4/98, where VTrans intends to meet the Channel Protection Treatment Standard.

[7] Based on the vesting date of the stormwater permit application here we look to the December 30, 2011 VWQS.

This interpretation of the Site Balancing Procedure is an illogical elevation of form over function. Even if Pond 007 discharged into a wetland (which it does not), Pond 4/98 discharges to Sunnyside Brook. There is no evidence that 24 hours of detention at Pond 4/98, as opposed to 12 hours, would have any practical impact whatsoever on Sunnyside Brook, or that it would satisfy the purpose of the Channel Protection Treatment Standard better than 12 hours of storage. To the contrary, both the VSMM and VWQS are satisfied with 12 hours of detention prior to discharge in the coldwater fish habitat of Sunnyside Brook. Requiring 24 hours of storage at Dry Pond 4/98 therefore makes no practical sense. Instead, it would be an overly rigid and unreasoned reading of the Site Balancing Procedure's equivalent treatment requirement.

In addition, we disagree with the factual basis of the argument, that Pond 007 discharges to a wetland.

ANR only considers a wetland to be a "waters" if it contains surface water, and a "receiving water" only if it is a distinct body of surface water with a water column.[8] We give substantial deference to ANR's interpretation of the VWQS. In re ANR Permits in Lowell Mountain Wind Project, 2014 VT 50, ¶ 15, 196 Vt. 467 (citation omitted). Here, Vallee has not shown that ANR's interpretation of whether a wetland is a "water" or "receiving water" is "wholly irrational and unreasonable in relation to its intended purpose." Id. ¶ 17 (quotation omitted).

While VWQS Appendix A does not specifically limit itself to wetlands with a distinct body of surface water, such a limitation is reasonable when considering the definitions of "water" and "receiving water," and the purpose of the warm and cold designations. See Richards v. Nowicki, 172 Vt. 142, 149 (2001) ("We must read the sections of the regulatory scheme in context and the entire scheme in pari materia.") (citation omitted). The VWQS define "receiving water" as "all waters adjacent to a discharge, and all downstream or other waters the quality of which may be affected by that discharge." ANR Ex. ANR-4, VWQS § 1-01(B). The VWQS define "waters" as all "rivers, streams, creeks, brooks, reservoirs, ponds, lakes, springs and all bodies of surface waters, artificial or natural, which are contained within, flow through or border upon the State or any

[8] In its post-trial reply memorandum, Vallee argues that the Court should not consider this interpretation because it was introduced only in ANR's post-trial brief, and not through a witness at trial. This is ANR's legal analysis of its regulations; it is not a factual issue. It was therefore not necessary for ANR to introduce this interpretation through a witness at trial.

portion of it." Id. In light of these definitions, it is reasonable to conclude that wetlands without a distinct body of surface water are not "waters" or "receiving waters." The VWQS explains that the warm or cold fish habitat designations are made to "waters of the State . . . [t]o provide for the protection and management of fisheries." VWQS § 3-05.

If a wetland is not "waters," then it need not be designated warm or cold. Furthermore, if the purpose of the designation is to protect fisheries, it is reasonable to exclude wetlands that do not have a distinct body of surface water and are therefore unlikely to contain fish.

Here, runoff leaves the Project from Pond 007, passes through a Class III wetland, and then enters Sunnyside Brook at S/N 007.

Mr. Torizzo opined that the wetland should be considered the discharge point because this is where runoff leaves the Project site and enters waters of the State. He noted that he observed standing water at the area of the wetland and opined that 24 hours of detention would be necessary to protect the aquatic habitat in the wetland, although he was unable to say whether the wetland actually supports any fish. Mr. Torizzo is not a wetland ecologist.

Mr. Torizzo's opinion conflicts with VHB's wetland and stream delineation. According to that study, although there may be some standing water in some areas of the wetland, the wetland in its typical condition does not have surface water and has zero function as fish habitat.

We find VHB's study more credible than Mr. Torizzo's observation and opinion based on VHB's expertise, the fact that they conducted a more comprehensive study as opposed to Mr. Torizzo's casual field observations, and the general lack of reliability of Mr. Torizzo.

ANR submits that based on the absence of surface water in the VHB study, the wetland here is neither a water nor a receiving water under the VWQS, and that the discharge point is properly designated as S/N 007 discharging to Sunnyside Brook. While we give this interpretation substantial deference, we would reach the same conclusion without deferring to ANR.

For these reasons, we conclude that the Site Balancing Procedure does not require 24 hours of detention for the one-year, 24-hour rainfall event at Pond 4/98 to satisfy the Channel Protection Treatment Standard. The standard is met with 12 hours of detention.

4. Site Balancing and De Minimus Impacts

Vallee submits that VTrans should have conducted a formal analysis to show that the impacts of site balancing on a watershed basis are no more than de minimus in order to satisfy the Site Balancing Procedure.

The Site Balancing Procedure does not require this. Instead, the procedure states that "[s]ite balancing will be allowed on a watershed basis within the same receiving water if the Secretary determines that any impacts to water quality and/or channel protection as a result of the proposed site balancing are *de minimus*." VTrans Ex. 10 p. 3. This puts the responsibility on ANR to determine if impacts are de minimus. We do not read this as requiring the application to provide an impact analysis. In its post-trial brief, ANR explains that it also does not read this language to require an analysis on the part of the applicant to prove that impacts will be no more than de minimus. This interpretation is to be given a high level of deference. Plum Creek Maine Timberlands, LLC v. Vermont Dep't of Forests, Parks & Recreation, 2016 VT 103, ¶ 25, 203 Vt. 197.

Mr. Torizzo opined that the impact of watershed-basis site balancing here would be more than de minimus because untreated runoff will be discharged upstream from where treated runoff will be discharged, which will cause a significant loading of pollutants, and because of the distance between the untreated and treated discharges—the 1,500 to 2,000 feet between S/N 007 and S/N 004.

Mr. Torizzo's opinion rests on conclusory statements that the lack of water quality treatment upstream would have more than a de minimus impact on the brook, without explaining what that alleged impact would be. It also relies on the incorrect assumption that upstream discharges will not be treated. In fact, runoff from a portion of the upstream area of the Project will be treated to meet the Water Quality Treatment and Groundwater Recharge Standards via GC1, GC4, and GC5 and discharged at S/N 007 and S/N 008.

There is no evidence that the use of site balancing to meet the Water Quality Treatment and Groundwater Recharge Standards will have any negative impact on Sunnyside Brook. Rather, Mr. Nelson credibly testified that the impact of site balancing would be de minimus or less than de minimus. He explained this by noting that the Project would have a net positive impact on

water quality in Sunnyside Brook. This is borne out by VTrans' modelling, which shows that the Project will add 1.576 acres of new impervious surface, is required to treat stormwater runoff from 2.217 acres of impervious surface, and will treat 2.569 acres of impervious surface. The net effect of the project is to treat more impervious surface than is required.

Mr. Torizzo also opined that the lack of Channel Protection Treatment from discharge point S/N 007 to discharge point S/N 004 would impact the stretch of Sunnyside Brook between those discharge points. We find this conclusory statement, without any explanation of what the alleged impact might be, unpersuasive. Again, there is no evidence that meeting the Channel Protection Treatment Standard 1500 to 2000 feet downstream from the most upstream discharge point will have any negative impact on Sunnyside Brook. Mr. Nelson, however, credibly testified that the use of site balancing will be de minimus or less than de minimus, and that the stormwater system, with site balancing, will lead to an overall improvement of water quality in Sunnyside Brook.

Based on the evidence presented, we conclude that the use of site balancing on a watershed basis will have a less than de minimus impact on water quality and channel protection in Sunnyside Brook.

5. Conclusion: Site Balancing

We conclude that site balancing on a watershed basis is appropriate here because direct treatment is impracticable (Vallee stormwater appeal Question 3). We further conclude that the Project satisfies the requirements of the Site Balancing Procedure (Vallee stormwater appeal Question 2).

b. Compliance with 10 V.S.A. § 1264

Vallee's Stormwater Appeal Question 1 asks, in part, whether the Project satisfies the requirements of 10 V.S.A. § 1264.

In our pretrial summary judgment decision, we concluded that the Stormwater Permit application in this matter vested in the laws and regulations in effect on October 3, 2014. Diverging Diamond Interchange Act 250 and Stormwater Permit Appeals, Nos. 169-12-16 Vtec, 50-6-16 Vtec (Vt. Super. Ct. Envtl. Div. Oct. 11, 2017) (Walsh, J.). Section 1264 was modified after

that date. 2015, No. 64, § 31. We therefore refer to the prior version of the statute, which went into effect on July 1, 2014. 2013, Adj. Sess., No. 199, § 30.

Section 1264 requires permits for certain stormwater discharges and requires those permits to comply with the 2002 Vermont Stormwater Management Manual (VSMM). 10 V.S.A. § 1264(e)(1) (2014). Section 1264 is also one of the enabling statutes for the Stormwater Management Rule. 10 V.S.A. § 1264(d)(1) (2013); 16-3 Vt. Code. R. § 505:18-102.

Apart from the fact that § 1264 incorporates the VSMM, no evidence or argument was raised by any party regarding the application of this statute.

c. Compliance with the Stormwater Management Rule

Vallee's Stormwater Appeal Question 1 asks, in part, whether the Project satisfies the requirements of Chapter 18, sections 302, 306 and 309.

We note that the Stormwater Management Rule was amended July 1, 2017. Because the application here vested in the Rule as it existed prior to this amendment, we refer to that earlier version of the Rule.

Section 18-302 of the Stormwater Management Rule governs when a stormwater discharge permit is required—in other words, the section determines what surfaces are within the jurisdiction of, and therefore subject to regulation under, the stormwater discharge permitting program. 16-3 Vt. Code. R. § 505:18-302.

There is no dispute here that the Project requires a permit. We addressed to some degree the scope of the permit required in our summary judgment decision, where we held that VTrans had properly identified certain activities on Route 2/7 in the Project area as non-jurisdictional resurfacing. Diverging Diamond, Nos. 169-12-16 Vtec, 50-6-16 Vtec at 26 (Oct. 11, 2017).

Section 18-306 sets out standards for stormwater discharge to waters that are not stormwater impaired. 16-3 Vt. Code. R. § 505:18-306.[9] Generally, § 18-306 sets out treatment requirements for stormwater discharge from new development, expansions of existing impervious surfaces, and redeveloped impervious surfaces, and requires conformity with the VSMM.

[9] It is not disputed that the stormwater discharge from the Project does not enter stormwater-impaired waters.

Section 18-309 includes procedural requirements for obtaining a permit and general requirements to be included in issued permits. 16-3 Vt. Code. R. § 505:18-309.

Neither Vallee nor any other party presented any evidence suggesting any challenge related specifically to these sections of the Stormwater Management Rule.

d. The Vermont Stormwater Management Manual

Vallee's Stormwater Appeal Question 1 asks, in part, whether the Project satisfies the 2002 Vermont Stormwater Management Manual's (VSMM) treatment standards for water quality, groundwater recharge, channel protection, overbank flood protection and extreme flood control.

1. Water Quality Treatment Standard

The Water Quality Treatment Standard aims to "capture 90 percent of the annual storm events, and to remove 80 percent of the average annual post development total suspended solids load (TSS), and 40 percent of the total phosphorus (TP) load." VSMM § 1.1.1, p. 1-3.[10]

VTrans intends to satisfy the Water Quality Treatment Standard with Grass Channels, as provided for in the VSMM. Id. §§ 1.1.1, 2.2 Table 2.1.

The Water Quality Treatment Standard requires treatment of runoff from 100% of expanded impervious area and 20% of redeveloped impervious area. VSMM § 1.1.1, p. 1-3. The Project's total expanded impervious area is 1.576 acres and 20% of redeveloped impervious area is 0.641 acres, for a total of 2.217 acres to be treated. The Grass Channels here are calculated to treat stormwater runoff from 2.569 acres.

Grass Channels must conform with certain design standards in order to meet treatment standards. They must have a maximum side slope of 2:1 (VSMM § 2.7.5.B, p. 2-54) and bottoms that are 2-8 feet wide and flat (VSMM § 2.7.5.D, p. 2-55). They must be designed to convey the 10-year storm with minimum of 6 inches of freeboard (VSMM § 2.7.5.B, p. 2-54) and designed to pass the one-year storm without producing erosive velocities (i.e. 2.5 ft/s) (VSMM Vol. II, Appendix D7, p. 186). The Grass Channels here conform to all of these standards.

[10] We concluded pretrial that the stormwater permit application vested in laws that predated phosphorus limitations. Diverging Diamond, Nos. 169-12-16 Vtec, 50-6-16 Vtec at 14 (Oct. 11, 2017).

Grass Channels must be of sufficient length to detain the peak discharge associated with the water quality storm (0.9 inches) "for an average residence time of 10 minutes, at a velocity of no greater than 1 ft/s, and at a depth generally no greater than 4 [inches]." VSMM §2.7.5.D, p. 2-55. All of the Grass Channels comply with this requirement, although three have a projected depth of flow greater than four inches: GC4 (4.4 inches), GC8 (4.49 inches), and GC10 (4.705 inches).

GC4 would have to be made deeper to reduce flow depth to 4 inches or less. Because of site constraints and proximity to the roadway, GC4 could not be made deeper without installing some form of traffic protection, such as a guardrail. A guardrail would create an additional safety hazard to traffic, and additional expense. VTrans considered installing a guardrail but decided against doing so based on the hazard and expense, and the minimal improvement to water treatment (0.4 inch depth reduction) that it would achieve. GC8 and GC10 exceed the 4-inch recommended depth of flow due to the large amount of off-site runoff that they collect.

While the VSMM requires Grass Channels to strictly comply with certain parameters, it only calls for them to detain water quality storm peak discharge "at a depth *generally* no greater than 4 [inches]." VSMM § 2.7.5.D (emphasis added). While GC4, GC8, and GC10 exceed four inches, the excess is slight. Importantly, no evidence was introduced to suggest any negative consequences would result, or the Grass Channels would fail, due to this increased depth. For these reasons, we conclude that GC4, GC8, and GC10 comply with the VSMM standards for Grass Channels.

VTrans modelling of GC4 includes discrepancies regarding what percent of the drainage area is impervious surface. Modelling for the Water Quality Storm indicates 0.0% impervious surface, the Downstream Analysis modelling for the ten-year storm shows 4.32% impervious, and modelling for the one-year storm shows 57.25% impervious surface. Vallee argues in its post-trial memorandum that these percentages should all be the same.

VTrans' stormwater application is hundreds of pages long and includes extensive and complex data on modelling. Vallee has pointed to discrete figures which may appear, to the layman, to be inconsistent. Vallee fails, however, to explain why these figures should be the same, whether the different percentages would have a negative impact on the modelling or the

functioning of the stormwater system, or what that negative impact would be. This conclusory allegation, without explanation or context, does not provide the Court with a sufficient basis to doubt the accuracy of the modelling. Given that the different percentages are used to model different storm events, we see no inherent inconsistency in the modelling. Because the Grass Channels are designed according to VSMM standards, and because they are designed to treat more runoff than is required by the VSMM, we conclude that the Water Quality Treatment Standard is satisfied.

2. Channel Protection Treatment Standard

The Channel Protection Treatment Standard requires "storage of the channel protection volume (CPv) . . . be provided by means of 12 to 24 hours of extended detention storage (ED) for the one-year, 24-hour rainfall event." VSMM § 1.1.2, p. 1-4. The one-year, 24-hour rainfall event in Chittenden County is 2.1 inches. Id.

The Project is required to meet the detention criteria for 1.58 acres of impervious surface. VTrans proposes to meet the Channel Protection Treatment Standard with the installation of Pond 4/98, which is designed to treat the required Channel Protection Volume for 4.89 acres of impervious surface, including 3.20 acres off site and 1.67 on site.

The Diversion Channel

The Project includes a diversion channel across Route 2/7 from Pond 4/98 which will divert some off-site stormwater runoff from Pond 4/98. While there was no evidence that the diversion channel might overflow, Mr. LaCroix testified that if it did, the overflow would run into Pond 4/98. Mr. LaCroix credibly testified that even then, Pond 4/98 would not fail. This is because if the amount of water entering Pond 4/98 exceeded the 10-year or 100-year levels, it would simply spill over the emergency spillway.

The Runoff Area to Pond 4/98

Mr. Torizzo and Mr. LaCroix offered competing testimony as to the accuracy of maps depicting the off-site area on Water Tower Hill that would drain to Pond 4/98. VTrans Ex. 4, Bates 023190, 023191.

Mr. Torizzo and Mr. LaCroix agreed that stormwater runoff from a credit union and surrounding parking lot would be collected and diverted by a berm onto the street. They

disagreed, however, as to where the runoff would go after that. Mr. LaCroix stated that the runoff enters Pond 4/98; Mr. Torizzo opined that it enters the diversion channel and does not enter Pond 4/98.

If Water Tower Hill does not drain into Pond 4/98, the pond would still treat runoff from 1.67 acres of on-site impervious surface, thereby satisfying the Channel Protection Treatment Standard requirement of treating 1.58 acres of on-site impervious surface runoff. The opposing testimony therefore has no impact on whether the Channel Protection Treatment Standard is met.

The Runoff Area to Pond 4/98 and Impervious Surfaces

The Downstream Analysis modelling of the ten-year storm shows the impervious cover for the Pond 4/98 drainage area as 14.99% (VTrans Ex. 47, Bates 024739) while the Channel Protection Treatment Standard modelling of the one-year storm shows the same impervious cover as 47.80% (VTrans Ex. 4, Bates 023184).

Mr. Torizzo opined that this difference indicates the modelling is unreliable. Mr. LaCroix explained that this discrepancy is due to the way data was inputted for the two models. Details of different surface types were inputted into the Channel Protection model via HydroCAD. A summary of the acreage for these areas was inputted manually into the Downstream Analysis model. Because a summary was entered manually into the Downstream Analysis, that model calculated a different percentage of impervious surface. Mr. LaCroix explained that although the models show different impervious coverage, they are both reliable. As with Vallee's similar critique of GC4, discussed above, the conclusory allegation that the impervious percentages should be the same throughout the modelling fails to persuade the Court that the modelling is inaccurate, especially where Mr. LaCroix testified that both impervious cover percentages are correct. Given this evidence, and considering that the different percentages are used to model different storm events, we see no inconsistency in the modelling.

3. Groundwater Recharge Treatment Standard

The Groundwater Recharge Treatment Standard requires systems to be designed to maintain the average annual recharge rate for the prevailing hydrologic soil groups to preserve existing water table elevations. VSMM § 1.1.3. Under the VSMM, a grass channel that meets the

Water Quality Treatment Standard is presumed to also meet the Groundwater Recharge Treatment Standard. VSMM § 3.5, p. 3-9; VSMM Vol. II, p. 142.

Here, the use of Grass Channels to meet the Water Quality Treatment Standard serves to automatically meet the Groundwater Recharge Treatment Standard.

We note that Mr. Torizzo's contradictory testimony on this point puts his credibility and reliability as an expert witness into doubt.

4. Overbank Flood Protection Standard

The Overbank Flood Protection Standard requires that "[t]he post-development peak discharge rate shall not exceed the pre-development peak discharge rate for the 10-year, 24-hour storm event." VSMM § 1.1.4. This treatment standard is waived if the site is smaller than five acres, which is the case here, and "the channel has adequate capacity to convey the post-development 10-year discharge downstream to the point of the so-called 10% rule; and downstream conveyance systems have adequate capacity to convey the 10-year storm." VSMM § 1.1.4, p. 1-10. A channel is considered to have adequate capacity to convey post-development ten-year storm discharge, and will satisfy waiver conditions, if a downstream analysis shows that flow rates for the ten-year storm increase by less than 5% from pre-developed conditions. VSMM § 1.2, p. 1-11–1-12.

With attenuation from Pond 007 and Pond 008, the Downstream Analysis shows changes in flow rates at the Project discharge points from +4% to -31%. Although the Downstream Analysis projects a 4% increased flow rate at S/N 007, this is below the 5% threshold and therefore satisfies waiver conditions. VSMM § 1.2, p. 1-11–1-12.

In addition, the flow rate at the next discharge point downstream, S/N 008, will decrease by 5.7 cfs, or -14%. The brook passes through a culvert between these points. Because peak flow for the 10-year storm increases at S/N 007, but then decreases to a greater degree at S/N 008, there will only be an increased flow in the culvert between these two points. Downstream of S/N 008, peak flows for the 10-year storm will decrease at all discharge points.

Downstream Analysis Mapping

The Downstream Analysis watershed map (VTrans Ex. 4, Bates 023208) differs from another watershed map included in the stormwater application (Bates 023031). Mr. LaCriox

explained that the Downstream Analysis map is more accurate and based on more refined information. We find this explanation credible, especially given the later date on the Downstream Analysis map. We do not find that the difference between the maps renders the Downstream Analysis unreliable.

Mr. Torizzo incorrectly stated that the accuracy of the watershed map at Bates 023031 is important because it is used for modelling. Mr. LaCroix, however, clarified that this map was not used for modelling. This raises the question of how well Mr. Torizzo understands both the application and the modelling, which in turn makes his analysis of the application and modelling less credible.

Downstream Analysis Mapping of OS7_1 and OS7_2

Mr. LaCroix and Mr. Torizzo agreed that OS7_1 and a large portion of OS7_2 marked on VTrans Ex. 4, Bates 023208 are not part of the subwatershed for discharge point S/N 007, and do not drain to Sunnyside Brook. Without OS7_1 and part of OS7_2, this subwatershed is smaller than it is depicted on the map and modelled in the Downstream Analysis.

Mr. Torizzo opined that with a smaller subwatershed, the increase in the post-construction flow rate for the 10-year storm at S/N 007 would be higher than the 4% projected by the Downstream Analysis. Mr. Torizzo explained that this is because starting with a larger baseline watershed (as was done here) washes out the impact of the Project by making the increase caused by the Project appear as a smaller percentage in the bigger baseline watershed (the 4% calculated here) than it would in a smaller watershed (more than 4%).

Mr. Nelson disagreed, arguing that with a smaller subwatershed Pond 007 would be more effective and have a greater impact in treating the stormwater runoff because there would be less stormwater to treat. The increase in the ten-year peak flow would therefore be less than the 4% that the model currently predicts.

We find Mr. Nelson's assessment to be more credible, largely because Mr. Torizzo's analysis fails to account for the impact of Pond 007. Mr. Nelson credibly explained that if one assumes a smaller baseline watershed, then Pond 007 will be more effective at managing that smaller watershed and additional runoff from the Project. The post-construction increase in flow

will therefore be less than 4%. Mr. Torizzo offered no evidence or opinion to counter this explanation.

5. Extreme Flood Protection Standard

The Extreme Flood Protection Standard in VSMM § 1.1.5 requires "[t]he post-development peak discharge rate shall not exceed the pre-development peak discharge rate for the 100-year, 24-hour storm event." The Extreme Flood Protection Standard is waived if the impervious area of a proposed project is less than 10 acres. VSMM § 1.1.5, p. 1-11. Here, the sum of all jurisdictional area is less than 10 acres. See 16-3 Vt. Code. R. § 505:18-302 (defining jurisdictional surfaces for the stormwater discharge permit program). This standard is therefore waived.

6. Conclusion: VSMM standards

For the above reasons, we conclude that the stormwater system satisfies the standards set out in the 2002 VSMM.

e. The Stormwater Appeal: Conclusion

Because the use of site balancing here is appropriate and the Site Balancing Procedure was properly applied, we resolve stormwater Questions 2 and 3 in favor of VTrans. Because the Project conforms with the Stormwater Management Rule, 10 V.S.A. § 1264, and the 2002 VSMM, we resolve stormwater Question 1 in favor of VTrans.

Having resolved all Questions in favor of VTrans, we conclude that the stormwater discharge permit application must be approved.

V. The Act 250 Appeal

a. Vallee Standing

At the close of evidence, the Court expressed concern regarding Vallee's status under Act 250 Criteria 1(B), and 1(E), noting that in five days of trial Vallee had presented no evidence that stormwater from the Project would, or even might, enter or affect its property.

The subject matter jurisdiction of Vermont courts is limited to "actual cases or controversies." Bischoff v. Bletz, 2008 VT 16, ¶ 15, 183 Vt. 235 (citation omitted); Parker v. Town of Milton, 169 Vt. 74, 76–77 (1998). This limitation is created by the Vermont Constitution, and

is the same limitation as that set by the United States Constitution on federal courts. Parker, 169 Vt. 77 (citing In re Constitutionality of House Bill 88, 115 Vt. 524, 529 (1949)). Standing is an element of subject matter jurisdiction. Bischoff, 2008 VT 16, ¶ 15. If the party bringing a case does not have standing, the Court does not have jurisdiction to adjudicate the case. Id. (citing Brod v. Agency of Natural Res., 2007 VT 87, ¶ 2, 182 Vt. 234). As an element of subject matter jurisdiction, standing can be raised at any stage in a proceeding. Id. (citing cases).[11]

To establish standing, a party must show injury in fact, causation, and redressability. Parker, 169 Vt. at 77–78 (citing Hinesburg Sand & Gravel Co. v. State, 166 Vt. 337, 341 (1997); Lujan v. Defenders of Wildlife, 504 U.S. 555, 560–61 (1992)). An "injury in fact" is one that will impact a party specifically (i.e., is a concrete and particularized injury) and is not hypothetical (i.e., an actual or imminent injury). See Lujan, 504 U.S. at 560–61; see also Brod, 2007 VT 87, ¶¶ 9–13 (indicating that an injury in fact cannot be generalized or speculative).

These principles are reflected in Act 250. See, e.g., In re Stokes Commc'ns Corp., 164 Vt. 30, 34–35 (1995). Thus, a person with a particularized interest that is protected by an Act 250 criterion and which may be affected by a proposed project may be granted "party status" on that criterion in an Act 250 proceeding. 10 V.S.A. § 6085(c)(1)(E). A party that has been granted party status, participated in the proceedings before the District Commission, and retained party status in those proceedings may appeal the District Commission's decision to the Environmental Division. 10 V.S.A. § 8504(d)(1); see also 10 V.S.A. §§ 8502(7) (defining "person aggrieved"), 8504(a), 8504(d)(2) (allowing aggrieved persons to appeal District Commission decisions). A party that does not retain party status by the District Commission may appeal that party status determination to the Environmental Division. 10 V.S.A. § 8504(d)(2)(B); VRECP 5(d)(2).

These statutory restrictions regarding who can appeal Act 250 decisions do not supplant or supersede principles of constitutional standing. Rather, constitutional standing principles

[11] In In re Denio, 158 Vt. 230, 236 (1992), the Supreme Court held that a party's subject matter jurisdiction objection was waived when it only raised the issue on appeal before the Supreme Court, and failed to raise the issue before the Environmental Board. That case can be distinguished from the one now before us, because here the issue of Vallee's party status under Criteria 1(B) and 1(E) was addressed by the District Commission. In addition, the Denio decision rests in large part on the interpretation of a statutory provision, 10 V.S.A. § 6089(c), which required parties to preserve objections before the Environmental Board. Id. That statute has since been repealed. 2003, Adj. Sess., No. 115, § 58.

underpin our understanding and construction of these statutes. See In re Bennington Wal-Mart Demolition / Constr. Permit, No. 158-10-11 Vtec, slip op. at 7 (Vt. Super. Ct. Envtl. Div. Apr. 24, 2012) (Walsh, J); In re Morgan Meadows/Black Dog Realty, No. 267-12-07 Vtec, slip op. at 5–6 (Vt. Envtl. Ct. May 1, 2008) (Wright, J.). In addition, the Act 250 statutes add a layer of "statutory standing restrictions" that supplement the underlying constitutional standing requirements. Verizon Wireless Barton Act 250 Permit Telecomm. Facility, No. 6-1-09 Vtec, slip op. at 5–6, 9 (Vt. Envtl. Ct. Feb. 2, 2010) (Durkin, J.).

Where a person claims party status based on a protected particularized interest in an Act 250 hearing, the District Commission makes a preliminary ruling on that claim and then a final determination at the end of the hearing. 10 V.S.A. § 6085(c). At the initial stage, the party seeking status "need only show that there is a reasonable possibility that [its] particularized interests may be affected by a decision on the proposed project." Bennington Wal-Mart Demolition/Constr. Permit, No. 158-10-11 Vtec, slip op. at 9–10 (Vt. Super. Ct. Envtl. Div. Apr. 24, 2012) (Walsh, J.) (citation omitted). On reexamination of party status at the close of hearing, the party must have demonstrated—and not simply alleged—a reasonable possibility that its particularized interests may be affected by the proposed project. See, e.g., Verizon Wireless Barton Act 250 Permit, No. 6-1-09 Vtec at 3 (Feb. 2, 2010). Without that demonstration, party status is lost. 10 V.S.A. § 6085(c)(6).

Whether a person qualifies for party status is thus a question that continues throughout the Act 250 permit application review process. Because our review of a District Commission decision on appeal is de novo, "we stand in the place of the District Commission and review anew the application presented below as if no proceeding had previously occurred." In re Big Spruce Rd. Act 250 Subdivision, No. 95-5-09 Vtec, slip op. at 9 (Vt. Envtl. Ct. Apr. 21, 2010) (Durkin, J.). Sitting in the District Commission's place, the Environmental Division reconsiders initial party status determinations after evidence has been presented. 10 V.S.A. § 6085(c)(6).

In the Act 250 proceeding below, Vallee was denied final party status under Criteria 1, 1(B), and 1(E). Vallee moved for status before this Court when it filed its Notice of Appeal. VTrans filed an opposition to that motion on January 6, 2017. Based on affidavits filed by Vallee, we granted Vallee status under Criterion 1(B) because it alleged a reasonable possibility that

"wastewater in the form of stormwater runoff may enter its property and affect its interest in keeping the property free from pollution." Diverging Diamond Interchange Act 250 and SW Permits, Nos. 169-12-16 Vtec, 50-6-16 Vtec, slip op. at 4 (Vt. Super. Ct. Envtl. Div. Mar. 17, 2017) (Walsh, J.) (citing In re N. E. Materials Grp. LLC, No. 35-3-13 Vtec, slip op. at 2–3 (Vt. Super. Ct. Envtl. Div. Aug. 21, 2013) (Walsh, J.)). We granted Vallee status under Criterion 1(E) based on Vallee's allegations regarding the potential impacts from chloride in stormwater runoff from the Project, and on how this would affect Vallee's own use and treatment of de-icing salts. Id. at 5.[12]

During our five-day trial, Vallee had ample opportunity to cross examine VTrans and ANR witnesses and to present evidence through its own witnesses. Despite this opportunity, Vallee failed to introduce any evidence to connect stormwater runoff from the Project in any way at all to Vallee's property, or to show how Vallee might have a particularized interest in the condition of Sunnyside Brook. The basic premise of Vallee's appeal, that the stormwater system would impact interests particular to Vallee, was not addressed.[13]

In a post-trial memorandum, Timberlake notes that sua sponte dismissal of a party is discouraged. While that may be true as a general proposition, we disagree that it applies here. First, the issue of Vallee's party status was raised and contested, and we ruled on that issue, pre-trial. See Diverging Diamond, Nos. 169-12-16 Vtec, 50-6-16 Vtec at 4 (Mar. 17, 2017). This is not a new issue raised only by the Court. Second, as noted above, the Act 250 process mandates initial and final party status determinations. Third, the Court has given Vallee an opportunity to address the issue in its post-trial brief by pointing to evidence demonstrating party status. Huminski v. Lavoie, 173 Vt. 517, 519 (2001) (mem.).

[12] The entry order also granted Vallee status under Criterion 1, which is no longer before the Court.

[13] Vallee argues in its post-trial memorandum that the evidence (i.e. plans showing the road sloping toward Vallee's property) supports the conclusion that stormwater runoff from the Project will flow onto Vallee's property, and that this is sufficient to establish standing based on Vallee's interest in keeping its property free from pollution. We disagree that some runoff from the roadway may enter Vallee's property is sufficient to demonstrate that the Project will affect an interest particular to Vallee that Act 250 was designed to protect. Vallee introduced no evidence identifying how the runoff would impact its property or identifying any connection between its property and stormwater impacts. Vallee also entirely failed to identify how it might have a particularized interest in the condition of Sunnyside Brook. Instead, in the five days of trial and reams of exhibits admitted into evidence, Vallee focused entirely on the general effects, and effectiveness, of the stormwater system.

Because at trial Vallee failed to identify, or even allege, how the Project's stormwater system might impact its particularized interest, we conclude that Vallee cannot retain final party status on Criteria 1(B) and 1(E). We therefore **DISMISS** Vallee's party status under Criteria 1(B) and 1(E). We will nevertheless treat Vallee as a "friend of the Court" and consider the evidence it offered on these criteria through cross examination and through its own witnesses. 10 V.S.A. § 6085(c)(5). We also consider the evidence offered by Vallee to avoid prejudicing Timberlake and CLF. Although neither of these parties formally adopted Vallee's position or evidence at trial, based on pre-trial events it is clear that these parties shared Vallee's position and wished to rely on Vallee's introduction of that evidence. Furthermore, we do not want to create or require a process of repetitive offers of duplicative evidence.

b. Criterion 1(B)

Criterion 1 (B) reads:

> Waste disposal. A permit will be granted whenever it is demonstrated by the applicant that, in addition to all other applicable criteria, the development or subdivision will meet any applicable Health and Environmental Conservation Department regulations regarding the disposal of wastes, and will not involve the injection of waste materials or any harmful or toxic substances into ground water or wells.

10 V.S.A. § 6086(a)(1)(B).

Applicants bear the burden of proof under Criterion 1(B). 10 V.S.A. § 6088(a).

A stormwater discharge permit creates a rebuttable presumption of compliance with Criterion 1(B). 10 V.S.A. § 6086(d); Act 250 Rule 19(E)(1). An opponent can rebut the presumption by introducing evidence "fairly and reasonably indicating that the real fact is not as presumed." See In re Hawk Mountain, 149 Vt. 179, 186 (1988). If the presumption is rebutted, the burden shifts back to the applicant to prove compliance with Criterion 1(B), in which case the permit may still be considered as evidence of compliance with the criterion. Act 250 Rule 19(F).

Vallee's Act 250 Question 2 indicates that Vallee intended to show noncompliance with Criterion 1(B) by showing that a stormwater discharge permit should not be issued.[14] Because we conclude that the stormwater permit should be issued, this basic argument fails. Neither Vallee, nor any other party, has made further argument to rebut the presumption that the permit creates.

Because the stormwater permit creates a presumption of compliance with Criterion 1(B), and that presumption has not been rebutted, we conclude that the Project complies with Criterion 1(B).

c. Criterion 1(E)

Criterion 1(E) reads:

> Streams. A permit will be granted whenever it is demonstrated by the applicant that, in addition to all other applicable criteria, the development or subdivision of lands on or adjacent to the banks of a stream will, whenever feasible, maintain the natural condition of the stream, and will not endanger the health, safety, or welfare of the public or of adjoining landowners.

10 V.S.A. § 6086(a)(1)(E).

Vallee's Act 250 Question 3 asks:

> 3. Pursuant to Criterion 1(E) (Will the Project maintain the natural condition of Sunnyside Brook and not endanger the health, safety, or welfare of the public or adjoining landowners):
>
> 3.a. Will the Project maintain the natural condition of Sunnyside Brook due to an increase in Chloride discharges to Sunnyside Brook due to non-stormwater-based chloride impacts? *(underlined portion added based on our February 8, 2018 decision)*.

[14] Vallee's full Question 2 reads:

> Pursuant to Criterion 1(B) (Will the Project meet environmental conservation department regulations regarding the disposal of wastes):
>
> 2.a. VTrans intends to use the issuance of an individual stormwater discharge permit (#6469-INDS) to create a rebuttable presumption that its project satisfies Criterion 1(B). In coordinated Docket 50-6-16 Vtec, Vallee intends to show that VTrans is not entitled to an individual discharge permit. Thus this Court must determine based on its ruling in Docket 50-6-16 Vtec, whether VTrans has satisfied Criterion 1(B) with respect to the issuance of an individual discharge permit.

There is no evidence or suggestion that the Project will cause an increase in chloride discharges to Sunnyside Brook due to non-stormwater-based chloride impacts. We conclude that there will be no such impact, and that the Project complies with Criterion 1(E).[15]

d. Criterion 5, 5(A), and 5(B)

Vallee's amended and clarified Questions 4 and 5 ask whether the Project complies with Criteria 5(A) and 5(B). Before we can address the substance of these Questions, we must address the threshold issue of whether the Act 250 application vested before or after Criteria 5(A) and 5(B) went into effect.

1. Criterion 5, 5(A), 5(B), and vested rights

Procedural History

Until June 1, 2014, Criterion 5 required the District Commission to find that a proposed development "[w]ill not cause unreasonable congestion or unsafe conditions with respect to use of the highways, waterways, railways, airports and airways, and other means of transportation existing or proposed." 2013, Adj. Sess., No. 147, § 2. Effective June 1, 2014, what was formerly Criterion 5 became Criterion 5(A). Id.; 10 V.S.A. § 6086(a)(5)(A). The statute was further amended to include Criterion 5(B), which requires projects to "incorporate transportation demand management strategies and provide safe access and connections to adjacent lands and facilities and to existing and planned pedestrian, bicycle, and transit networks and services" as appropriate. Id. 10 V.S.A. § 6086(a)(5)(B).

The parties dispute whether the Act 250 application here vested in Act 250 before or after Criterion 5(B) went into effect.

Whether the vesting question was property preserved in the Statement of Questions

The Court raised the issue prior to trial of whether Vallee's Statement of Questions properly preserved for our review the question of whether the application vested in former Criterion 5 or new Criteria 5(A) and 5(B). In particular, the Court was concerned that the vesting issue is not explicitly raised in any of the Questions and may not be intrinsic to any of the

[15] We concluded pretrial that the stormwater permit application vested in stormwater regulations that had no chloride standards, and that we are therefore unable to consider stormwater-related chloride impacts in considering the application. Diverging Diamond, Nos. 169-12-16 Vtec, 50-6-16 Vtec at 14 (Oct. 11, 2017).

Questions. See In re Atwood Planned Unit Dev., 2017 VT 16, ¶ 17 (Mar. 17, 2017). Nevertheless, because the parties had briefly addressed the vesting question in pretrial motion practice, the Court concluded on the record at the outset of trial that the vesting question is properly within the scope of our review.

Vesting analysis

VTrans argues that the application vested in November 2013, when the original complete application was filed. Vallee contends that the application was substantially revised, and the complete revised application was not submitted until June 3, 2014 (and deemed complete by the District Commission on June 4, 2014). Vallee's theory appears to be that if a complete application is submitted and vests, and the application is then revised, at some point the revisions are so substantial that the applicant is essentially proposing a new project. Vallee contends that this extinguishes the original vesting date and replaces it with a new vesting date.

There is very little support for this theory in the law.

Our Supreme Court chose to adopt the minority vested rights rule, rather than the majority rule, in Smith v. Winhall Planning Comm'n, 140 Vt. 178, 181–82 (1981). The Court explained that under the majority rule, an application does not vest against future regulation changes unless the applicant proves a substantial change in position in reliance on the existing regulations or shows that the regulations were changed to thwart the applicant's development plans. Id. at 181 (citing Annot., 50 A.L.R.3d 596 (1973)). The Court noted that these are both fact-specific determinations which can often only be resolved through litigation. Id. By contrast, under the minority rule rights vest "under the then existing regulations as of the time when proper application is filed." Id. The Court found the minority rule "the more practical one to administer" because it "makes for greater certainty in the law and its administration" and avoids protracted litigation. Id. at 181–82. In a later case, the Court described the rule adopted in Smith as a "bright line." In re Taft Corners Assocs., Inc., 171 Vt. 135, 142 (2000).

In In re Paynter 2-Lot Subdivision, 2010 VT 28, ¶ 9, 187 Vt. 637, the Court explained that an application is "proper" for vesting purposes when it is "full and complete." (citing Smith, 140 Vt. at 182). Rights do not vest, therefore, when an application is incomplete. In re Ross, 151 Vt. 54, 55–56 (1989) (holding that application failed to vest in town plan where the information in

an Act 250 application was so "inadequate" that it was "insufficient" for the District Commission to make any findings).[16] In addition, Act 250 Rule 10(D) indicates that an application is complete and can be reviewed as long as it is substantially complete. See also Pike Indus., Inc. JO 9-072, No. 151-12-15 Vtec, slip op. at 8–9 (Vt. Super. Ct. Envtl. Div. Sep. 2, 2016) (Walsh, J.).

The purpose of requiring a complete application before rights vest is, at least in part, to prevent applicants from filing bad faith placeholder applications to avoid pending unfavorable changes to regulations. Id. at 59 ("the orderly processes of town government are frustrated when a landowner can easily avoid regulatory requirements by submitting a request for a permit based on partial and insufficient information"); In re Handy, 171 Vt. 336, 350 (2000) ("the zoning proceedings must be 'validly brought and pursued in good faith'") (quoting Smith, 140 Vt. at 182).

There is little case law suggesting that once a proper application is filed and rights vest, those rights can be extinguished.

Once a complete application vests, it is unclear whether vested rights are lost when the application is denied, and then subsequently revised and resubmitted. For example, if an Act 250 permit is denied the applicant can correct the deficiencies in the application and ask the District Commission to reconsider it. 10 V.S.A. § 6087(c). The Supreme Court has explained that "the submission of a reconsideration application is not a separate vesting event," and the revised application is therefore considered under the regulations in effect at the time the original application was filed. In re Times & Seasons, LLC, 2011 VT 76, ¶ 11, 190 Vt. 163.

Similarly, in In re Jolley Assocs., 2006 VT 132, ¶ 3, 181 Vt. 190, a complete conditional use application was filed and vested in existing regulations, but was denied for failing to comply with zoning regulations. The Supreme Court held that a revised application which addressed the reasons for the denial was not "the sort of substantial revision that should dictate a loss of vested rights," and concluded that the revised application vested in the regulations in effect when the

[16] Likewise, rights do not vest through an action other than submitting an application. See In re Keystone Dev. Corp., 2009 VT 13, ¶ 5, 186 Vt. 523 (mem.) (in which the would-be developer sent a letter or email alerting the municipality of an intent to do some work); In re B & M Realty, LLC, 2016 VT 114, ¶ 20 (Oct. 21, 2016) (where the would-be developer requested an amendment to the zoning regulations). An application for one type of permit generally does not vest rights for the purposes of a subsequent permit. Taft Corners, 171 Vt. at 139–40 (application for subdivision permit does not vest rights for subsequent applications to develop the subdivision). The one exception to this is that an Act 250 application's conformity with a town plan is measured "as of the start of the development process in the town." Taft Corners, 171 Vt. at 141 (citations omitted).

first application was filed. Id. ¶ 16. The Court distinguished Ross because in that case the original application was incomplete and so it never vested in the first place. Id.

The Supreme Court has indicated, in dicta, that if an applicant withdraws an application and then submits a new application, rights vesting in the original application are extinguished and the applicant vests in the laws and regulations in effect at the time the new application is filed. Times & Seasons, LLC, 2011 VT 76, ¶ 16; In re John A. Russell Corp., 2003 VT 93, ¶ 13, 176 Vt. 520 (mem.).

Read together, the case law does not support the idea that vested rights, once established, can be lost by revising an application. The Supreme Court has developed a bright line rule by which rights are vested in the laws and regulations in effect at the time a full and complete application is filed. Paynter, 2010 VT 28, ¶ 9; Taft Corners, 171 Vt. at 142. There is no case law indicating that, once obtained, vested rights can be lost or reset by revising an application; indeed, such a rule would seem to go against the idea of a "bright line" rule. Furthermore, as we noted in an earlier decision in this case,

> Land use permit applications can be complex, and are often subject to revision as they are shepherded through the review process. It is impractical to have any small change trigger a new vesting event, which could require a review of the entire application under entirely new laws or regulations.

Diverging Diamond, Nos. 50-6-16, 169-12-16 Vtec, slip op. at 14 (Oct. 11, 2017).[17]

The purpose of the minority rule, as originally set out by our Supreme Court, is to create certainty and avoid protracted litigation over vested rights. Smith, 140 Vt. at 181–82. Modifying the rule to take away vested rights when an application is substantially changed would decrease certainty and would encourage litigation (over whether a modification is "substantial"). It would also disincentivize collaboration between the applicant and the permitting agency because the

[17] The only suggestion that a substantial revision might push the reset button on vested rights comes in Jolley, where the Court noted that a change to the application to address the reasons for the application being denied was not "the sort of substantial revision that should dictate a loss of vested rights." 2006 VT 132, ¶ 16. This suggests a substantial revision could lead to a loss of vested rights. The Supreme Court has not, however, identified the parameters in which this might occur. Based on the weight of the case law which leans against a loss of vested rights when applications are changed, and on the facts of the case now before us, we need not explore these parameters here.

permitting agency would want applications to conform to regulations while applicants would fear altering their proposals too much and losing their vested rights.

In this matter the Act 250 application was filed in November 2013. There is no suggestion that the application was incomplete. VTrans subsequently made some changes to the Project. While these changes were insubstantial—the Project remained basically the same as initially proposed—the changes brought the Project from 9.82 acres of involved land to over ten acres, thereby triggering the jurisdictional threshold requiring an Act 250 permit. Other adjustments to the application were subsequently made. There is no suggestion of bad faith on the part of VTrans, or of an effort to try to avoid having to comply with incoming Criteria 5(A) and 5(B). As with the stormwater permit application, which we addressed in our October 11, 2017 summary judgment decision, revisions to the Act 250 application did not extinguish the rights that vested when the original application was filed in November 2013. The application therefore vested in former Criterion 5, and new Criteria 5(A) and 5(B) do not apply to the Project.[18] Vallee's Question 5.a is therefore dismissed.[19]

[18] Even if rights vested anew with the revisions that brought the Project over ten acres, those revisions were presented to the District Coordinator in April 2014, and still vested in former Criterion 5. Furthermore, although 5(A) and (B) do not apply, we effectively address those criteria in our analysis, because 5(A) is the same as former Criterion 5; and because we address the connectivity issues raised under 5(B).

[19] Act 250 Question 5. Pursuant to Criterion 5(B) (Will the Project incorporate demand management strategies and provide safe access and connections to adjacent lands and facilities and to existing and planned pedestrian, bicycle and transit networks and services):

5.a. Does the Project incorporate and provide safe access and connections to adjacent land and facilities and to existing and planned pedestrian and bicycle networks as required by Act 250, Criterion 5(B) by failing to provide a sidewalk or shared use path north of Mountain View Drive and/or adequate width shoulders throughout the Project?

2. Whether the Project conforms with Criterion 5

Vallee's Question 4.a asks whether the lack of sidewalks, a mixed-use path, adequate bike lanes and crosswalks, or adequate width shoulders fail to conform to Criterion 5(A). Question 4.b asks whether the construction phasing or timeline fail to conform to Criterion 5(A).[20]

Because the Project vested in former Criterion 5, and not new Criteria 5(A) and 5(B), we will analyze whether the shoulders, shared-use path, and sidewalks satisfy former Criterion 5. We will also analyze whether the construction phasing and timeline comply with former Criterion 5.

Standard of Review

Under former Criterion 5, the Court must find the proposed development "[w]ill not cause unreasonable congestion or unsafe conditions with respect to use of the highways, waterways, railways, airports and airways, and other means of transportation existing or proposed." 10 V.S.A. § 6086(a)(5) (2014).[21] In reviewing a project under Criterion 5, we also consider whether the Project may exacerbate already congested or unsafe traffic conditions. In re Pilgrim P'ship, 153 Vt. 594, 596–97 (1990).

A permit may not be denied solely due to traffic impacts, but the Court can impose conditions to alleviate impacts from traffic. 10 V.S.A. § 6087(b). "[C]ourts must decide on a case-by-case basis whether to impose mitigating conditions and which conditions to impose." In re Hinesburg Hannaford Act 250 Permit, 2017 VT 106, ¶ 56 (Nov. 9, 2017).

For Criterion 5, "[t]he party opposing the applicant bears the burden of proof . . . but the applicant bears the burden of production to establish at least a 'prima facie case' of compliance." In re N. E. Materials Grp., LLC, 2017 VT 43, ¶ 21 (May 26, 2017), reargument denied (Sept. 22, 2017). An opponent's burden extends to demonstrating that a mitigating condition is supported

[20] Act 250 Question 4. Pursuant to Criterion 5(A) (Will the Project not cause unreasonable congestion or unsafe conditions with respect to the use of highways):

4.a. Does the Project, by failing to provide sidewalks, a mixed use path, adequate bike lanes and crosswalks, or adequate width shoulders, cause unsafe conditions with respect to the use of highways and other means of transportation—existing or proposed—in violation of Act 250, Criterion 5(A)?

4.b. Will the construction phasing or timeline of the Project's construction result in unreasonable congestion or unsafe conditions?

[21] New Criterion 5(A) contains the same language as former Criterion 5. 10 V.S.A. § 6086(a)(5)(A).

by the evidence and is "reasonable in the sense that it [is] likely to be attainable." Hinesburg Hannaford, 2017 VT 106, ¶¶ 70, 73.

Criterion 5 and the Project in general

Whether the Project generally complies with Criterion 5 is not being challenged. General compliance, however, establishes some context for determining whether the specific challenged elements conform with Criterion 5.

Route 2/7 from the Winooski / Colchester town line to the Mountain View Drive intersection is designated as a high-crash location. Safety problems in this area are caused by traffic congestion.

The DDI will improve traffic flow and increase safety by minimizing conflicting crossing traffic movements at signalized ramp intersections.

In existing conditions, congestion is common at the intersections of Route 2/7 and Mountain View Drive and Lower Mountain View Drive, Hercules Drive, and Rathe Road. This congestion will be ameliorated by widening the road and adding the following turn lanes:

a. A dedicated right turn lane from Route 2/7 northbound to Lower Mountain View Drive.
b. An additional left turn lane from Lower Mountain View Drive to Route 2/7 southbound.
c. An additional right turn lane from Mountain View Drive to Route 2/7 southbound.
d. Dedicated left turn lanes on Route 2/7 for the Hercules Drive intersection.
e. An additional through land for Route 2/7 northbound at Rathe Road.

Two sub-standard horizontal curves along Route 2/7 (between Mountain View Drive and Hercules Drive and between Rathe Road and Sunderland Woods Road) will be corrected by regrading the roadway banking within those curves.

Upgraded LED street lighting, traffic signal equipment, signage and pavement markings will be installed at each intersection along Route 2/7 in the Project, including at the intersection of Main Street and Tigan Street in the City of Winooski. Street lighting will be added along Route 2/7 from South Park Drive through the interchange to the Mountain View Drive intersection.

Based on these facts, we conclude that the Project will generally improve safety and decrease congestion in the Project area.[22]

3. Whether the shoulders, shared-use path, and sidewalks satisfy former Criterion 5

Whether the shoulder north of the Mountain View Drive intersection satisfies Criterion 5

Vallee asserts that the shoulder on Route 2/7 north of the Mountain View Drive intersection fails to comply with Criterion 5.

Route 2/7 north of the Mountain View Drive intersection is a four-lane rural principal arterial roadway. The speed limit on this section of Route 2/7 was recently reduced from 50 mph to 40 mph. The Design Hour Volume (DHV) is estimated to peak at 1,900 vehicles on Route 2/7 at the intersections of Hercules Road and Rathe Road. In its existing condition, the shoulder of Route 2/7 from the Mountain View Drive intersection to Hercules Drive is inconsistent in width, generally ranging from four to eight feet wide but as narrow as one foot wide in some places. The narrowest shoulder is on the east side of Route 2/7 just north of Lower Mountain View Drive.

The Project will adjust the existing shoulders north of the Mountain View Drive intersection to a uniform four-foot width. Along this section the width of the roadway will be slightly increased in some places and slightly decreased in others.

Under the Design Standards § 3.14, principal arterial roads should be designed to accommodate pedestrian and bicycle traffic, which can be done with shoulders. Pursuant to the Design Manual § 3.3.3, shoulders of roadways do not have to be ADAAG compliant.[23] Design Standards § 3.14.1, Table 3.7, sets out the minimum width of paved shoulder area to accommodate shared use of rural principal arterial roadways by bicycles. For roads with a 40-mph speed limit and Design Hour Volume over 400, like Route 2/7 here, the minimum width is

[22] This conclusion is consistent with the one we reached in a separate case that looked, in somewhat less detail, at many of the improvements proposed here. In re Costco Stormwater Discharge Permit Application, Nos. 75-6-12 Vtec, 104-8-12 Vtec, 132-10-13 Vtec, 41-4-13 Vtec, 59-5-14 Vtec, slip op. at 44–45 (Vt. Super. Ct. Envtl. Div. Aug. 27, 2015) (Durkin, J.), *aff'd* 2016 VT 86, 202 Vt. 564.

[23] The Design Manual states that "VTrans will use this manual in combination with the applicable VTrans Standard Drawings as the standard for development, design, construction and maintenance of pedestrian and bicycle facilities." VTrans Ex. 22, § 1.1, p. 1-2. Because the northern part of the Project repaving and slightly expanding the roadway, the Design Manual does not apply to that part of the Project.

three feet. The four-foot shoulder therefore meets and exceeds the standards in Table 3.7. There is no similar minimal width for pedestrians.

Design Standards § 3.6, "Lane and Shoulder Widths on Rural Principal Arterials," states that shoulder widths on rural principal arterials "will adhere to values in Table 3.3," which is set out in this section. Table 3.3 indicates that shoulders on two-lane rural principal arterial roads should be eight feet wide. There are no values in this table, or elsewhere in the Design Standards, specifying shoulder dimensions for four-lane rural principal arterial roads.

Mr. LaCroix testified that because Route 2/7 north of the Mountain View Drive is a four-lane rural principal arterial, and Table 3.3 deals with two-lane rural principal arterials, Table 3.3 does not apply to this part of Route 2/7. Mr. Marshall disagreed, opining that the shoulder dimensions in Table 3.3 should apply to the Project.

Table 3.3 is titled "Minimum Width of Lanes and Shoulders for Two Lane Rural Principal Arterials." Of nine tables in Chapter 3, this is the only one that singles out two-lane principal arterials. The other eight tables refer to "principal arterial[s]," "rural principal arterial[s]," or "urban or village principal arterial[s]." Based on this context, we assume that the inclusion of "Two Lane" in Table 3.3 was intentional and was intended as a directive that Table 3.3 should be applied more narrowly (i.e. only to two-lane principal arterials) than the other tables in Chapter 3 (which apply to principal arterials regardless of the number of lanes).

We also find the basis of Mr. Marshall's opinion that the Table 3.3 dimensions should apply—because the purpose of the shoulder is to accommodate breakdowns—not credible.

Design Standards § 3.5 states that shoulders can serve many purposes, and accommodating breakdowns is only one of these. Safety for bicycles and pedestrians are other purposes. The Design Standards § 3.14 state that bicycle and pedestrian traffic should be expected on principal arterials, and that designers should plan for bicycle and pedestrian traffic, including in shoulders. There is no similar recommendation that breakdowns should be expected on all principal arterials, and that designers should design to accommodate breakdowns. That there is a recommendation for pedestrians and bicycles, but not for breakdowns, suggests that the authors of the Design Standards are not recommending that all principal arterial roadways should have shoulders that can accommodate breakdowns.

This interpretation is further supported by Design Standards § 3.5, which states that shoulders "are desirable on urban and village Principal Arterials, and should be provided where feasible for maneuvering room, space for immobilized vehicles, safety for the pedestrian in areas where sidewalks are not provided, safe accommodation of bicycles, speed-change lanes for vehicles turning into driveways, and storage space for plowed snow. . . . Where shoulders are provided to accommodate disabled vehicles, they must be at least 6 feet wide." While this section applies to village and urban principal arterials, it demonstrates that not all shoulders are expected to accommodate breakdowns.

Mr. LaCroix testified that a disabled vehicle in the Project area north of the Mountain View Drive intersection could pull into the right lane and traffic would continue moving in the left lane. He added that it is not atypical for a roadway like Route 2/7 to have shoulders that cannot fully accommodate disabled vehicles. Although this section of Route 2/7 has two lanes going in each direction, and a stopped car in one lane will not entirely stop traffic because the second lane would remain open, Mr. Marshall opined that the need for a shoulder large enough to accommodate a stopped vehicle is the same on a four-lane road as it is on a two-lane road. This strikes the Court as contrary to common sense.[24]

Finally, while the Project north of the Mountain View Drive intersection will widen Route 2/7 in some places and narrow it in others, this part of the Project is primarily a resurfacing operation. The work on this section is focused on resurfacing the roadway and ensuring that the lanes and shoulders are uniform.[25] Both Mr. Marshall and Mr. LaCroix opined that widening shoulders is generally outside the scope of a resurfacing project. That general rule applies here. Simply because VTrans proposes widening some parts of the roadway to a limited degree does

[24] Mr. Marshall's credibility on this point is also questionable given some apparently erroneous opinions regarding the shoulder that are included in his expert report. For example, his report states that pursuant to Chapter 4 of the Design Manual, Route 2/7 north of the Mountain View Drive intersection should have six-foot shoulders. Vallee Ex. LL at 3. At trial, however, he admitted that because the curbs are to be removed from this section of Route 2/7, this recommendation does not apply. Similarly, in his report he states that Chapter 4 of the Design Manual calls for six-foot shoulders on roads where the speed limit is over 35 mph. At trial he admitted that this section of the Design Manual, § 4.3.1, refers to bicycle lanes, and does not apply to shoulders.

[25] Vallee argues in its post-trial memorandum that Route 2/7 changes to two lanes north of Rathe Road, and that Table 3.3 therefore applies and requires an eight-foot shoulder. VTrans offers that this section of the Project is resurfacing only and, as such, shoulders are not widened.

not mean that it must widen the entire section of Route 2/7. This is particularly true given that the shoulders as proposed will comply with the Design Standards and Design Manual.

Mr. LaCroix also opined that the four-foot shoulders comply with the complete streets principles set out in 19 V.S.A. § 10b. This further supports the conclusion that widening the shoulders as Mr. Marshall suggests is unnecessary.

By demonstrating that the shoulders in the northern section of the Project comply with relevant standards, VTrans has made out a prima facie case of compliance with Criterion 5 and satisfied its burden of production. Neither Vallee nor any other party in opposition has met the burden of proof to show that the shoulders as submitted in VTrans' application will cause or exacerbate unreasonable congestion or unsafe conditions, and therefore do not comply with Criterion 5. We therefore conclude that the shoulders as designed comply with Criterion 5. Because the four-foot shoulders will comply with Criterion 5, requiring a wider shoulder would not be a reasonable condition to place on the Project.

Whether sidewalks should be included in the northern part of the Project

While the Project does not include any sidewalk north of the Mountain View Drive intersection, Vallee argues that such a sidewalk is necessary to satisfy Criterion 5. We conclude that the evidence does not support this argument, for several reasons.

First, as discussed above, the four-foot shoulder proposed by VTrans satisfies the Design Standards and Design Manual for pedestrian and bicycle use on Route 2/7 north of the Mountain View Drive intersection. There is therefore no need to install a sidewalk or shared use path to compensate for inadequate shoulders. Nor is there any standard that mandates installing a sidewalk or shared-use path in this section of the Project.

Second, the evidence introduced at trial demonstrates there is currently little need for a sidewalk on this part of Route 2/7. A pedestrian study showed very limited pedestrian traffic on Route 2/7 north of the Mountain View Drive intersection. There are few pedestrian destinations in this part of the Project area that might supply or attract pedestrians. While Mr. Marshall noted there is a residential area to the north of the Project area, it is unclear how close it is, whether pedestrians travel between that area and the Project site, and why providing a sidewalk for part, but not all, of the distance between the Project and that residential area would be useful. There

is no logical terminus for a northern sidewalk; a potential sidewalk proposed by Mr. Marshall would terminate at the Rathe Road intersection, at which point pedestrians would have to continue walking in the shoulder. Thus, there is no evidence that a northern sidewalk will make the area safer for pedestrians and bicyclists.

Third, this part of the Project is primarily a resurfacing operation, as discussed above. While a widened shoulder north of the Mountain View Drive intersection is outside the scope of this Project for the reasons set forth above, the inclusion of a sidewalk is even further outside of that scope.

Fourth, while there is evidence that the Town wants to install a sidewalk or shared use path north of the Mountain View Drive intersection, that evidence shows that plans for a sidewalk along this section have evolved over time and become a less immediate priority. The 2003 sidewalk Feasibility Report called for installing a ten-foot-wide recreation path along Route 2/7 north of the Mountain View Drive intersection, designating this as part of Phase I of a three-phase plan. The 2004 Official Map also shows a "proposed separated path" along this section of Route 2/7. More recently, a sidewalk along Route 2/7 north of the Mountain View Drive intersection is a less immediate priority. The Exit 16 Scoping Study, which was written by one of the authors of the 2003 sidewalk Feasibility Report, excludes the northern sidewalk.

Materials produced by the Town in 2014 show the Town is planning sidewalk construction with the expectation that this Project will include a sidewalk / shared-use path along the exact area proposed by VTrans. The materials note that Phase 1 of the Exit 16 Sidewalk Project (sidewalks on Route 2/7 from the Winooski/Colchester town line up to the South Park Drive intersection) is complete, and requests funding for Phase 2, which is a sidewalk along Mountain View Drive. These materials designate a sidewalk or mixed-use path on either side of Route 2/7 from South Park Drive up to, and onto, Mountain View Drive and Lower Mountain View Drive, as proposed by VTrans here, as "VTrans DCDI."[26]

[26] We infer this to be an abbreviation for Double Crossover Diamond Interchange. See, e.g., VTrans Ex. 9, p. 15.

These materials also show that a sidewalk along Route 2/7 north of the Mountain View Drive intersection is not an immediate priority. In fact, this section of sidewalk is designated as Phase 5 of the five-phase plan.

Further communication from the Town to VTrans in 2014 confirmed more directly that the Town wanted VTrans to build a sidewalk and mixed-use path from the southern end of the Project to Mountain View Drive, based on safety and usefulness, but that the Town did not want the Project to include sidewalks on Route 2/7 north of Mountain View Drive.

All of this supports the conclusion that the northern sidewalk is no longer an immediate priority for the Town, which in turn suggests that there is no immediate need for a northern sidewalk, either for safety or connectivity purposes.

Fifth, even if there was some indication that a sidewalk is needed in this part of the Project, there are questions about how reasonable it would be for the Court to require such a sidewalk. The base cost of this sidewalk is estimated to be in the $300,000 to $600,000 range, plus additional costs for right-of-way acquisitions and stormwater treatment. This would again require an additional funding request, and it is not clear that this would be granted or how long it would take. See Goddard Coll., 2014 VT 124, ¶ 12.

We conclude that the lack of a sidewalk on Route 2/7 north of the Mountain View Drive intersection will not create or exacerbate unreasonable congestion or unsafe conditions. Given the limited need for a sidewalk along this section of roadway, particularly as a component of this Project, and considering the estimated cost of such a sidewalk, it would not be reasonable to condition the Project on the construction of such a sidewalk.

Whether the shared-use path satisfies Criterion 5

VTrans proposes installing an eight-foot-wide shared-use path along either side of Route 2/7 through the I-89 interchange.

According to the Design Manual, § 5.3.2, Table 5-1, eight feet is the minimum width for a paved shared-use path, while the preferred width is 10–14 feet. VTrans Ex. 22, p. 5-13. The eight-foot minimum is only recommended when certain circumstances prevail, as set out in the Design Manual, page 5-13. Among these, a minimum-width path is recommended when "[n]o practical alternative design exists," "[f]or limited distances . . . to bypass a physical barrier (i.e.,

building, water body or other immoveable objects)," or where only limited bicycle traffic is expected.

We do not find Mr. Marshall's assertion that the path should be at least 10 feet wide credible. He merely conducted a general observation of the site and did not conduct engineering or other studies to reach the conclusion that a ten-foot-wide path is practical. He has not done any studies of pedestrian or bicycle traffic, but simply assumed that bicycle traffic is probably high because otherwise VTrans would not have proposed a shared-use path to begin with.

The evidence was inconclusive regarding whether a practical alternative design to the eight-foot path exists. On the one hand, Mr. LaCroix explained that significant work would be undertaken—including excavating and building retaining walls—to fit the eight-foot paths into the existing overpass infrastructure. On the other hand, Mr. Marshall gave the offhand opinion, without any real analysis, that the path could be expanded to ten feet.

Even if a ten-foot alternative is practical, however, the Design Manual exception for an eight-foot path for a "limited distance to bypass a physical barrier" can still apply to allow an eight-foot path here. The Design Manual lists this as a separate exception from the "no practical alternative design" exception, and we do not read these two exceptions together. Therefore, we read the Design Manual to allow the "limited distance to bypass a physical barrier" exception to apply, even if there is a "practical alternative design." Here, the piers or abutments and other highway infrastructure present a physical barrier justifying the exception.

We conclude that the eight-foot shared-use path will neither create unsafe conditions or cause unreasonable congestion, 10 V.S.A. § 8606(a)(5), nor exacerbate existing unreasonable congestion or unsafe conditions. Hinesburg Hannaford, 2017 VT 106, ¶ 56. Instead, the path will make the intersection safer and less congested than it is in its current condition with no sidewalk or shared path.

Conclusion: sidewalks, shared-use paths, and shoulders

Vallee's Question 4.a asks whether the lack of sidewalks, a mixed-use path, adequate bike lanes and crosswalks, or adequate width shoulders fail to conform to Criterion 5(A). For the

reasons set out above, we conclude that the sidewalks, shared-use paths, and shoulders conform to Criterion 5, and answer Question 4.a in favor of VTrans.

4. Whether the construction phasing and timeline comply with former Criterion 5

The TMP sets out a two-year construction timeline. The first year will involve primarily off-roadway work, the second will involve on-roadway work, and the roads in the Project area will operate as they do at present during the season between. More specific phasing is set out in the TMP. The TMP also sets out strategies to avoid, mitigate, and minimize impacts on traffic.

The TMP is a living document and offers flexibility as to how construction will be carried out. The process involves collaboration between VTrans, the contractor, local property owners, and the general public.

Regarding Vallee's Question 4.b in general, the TMP designs a process that will avoid, mitigate, and minimize the degree that the Project will exacerbate congestion and unsafe conditions. Neither the parties nor the Court identified any gaps in the TMP that would call for imposing any additional conditions under Criterion 5 in relation to "construction phasing or timeline of the Project's construction." Vallee Question 4.b.

Construction activities are planned to minimize impacts on the Champlain Farms gas station. Gas tankers and other large vehicles will be able to enter and exit the site and circulate on site. Queuing of cars exiting Champlain Farms will be minimized. During construction, there may be temporary closures to either of Champlain Farms' driveways. The contractor will only close one driveway at a time, and even then, will avoid any closures by keeping the driveways partly open. Additionally, based on Mr. Lacroix's testimony, the TMP, and the soil borings conducted in the area where Pond 007 will be installed (adjacent to Champlain Farms), it is unlikely that blasting will occur on any of the land adjacent to the Champlain Farms property. To the extent that blasting does occur, the TMP includes strategies to minimize impacts.

Regarding Timberlake's interest in Vallee's Question 4.b, we therefore conclude that no additional conditions are necessary to mitigate or avoid possible the degree that the Project will exacerbate congestion and unsafe conditions in and around the Champlain Farms gas station in relation to construction phasing or the timeline of the Project's construction.

Although it is generally outside the scope of the Statement of Questions, some of Mr. LaCroix's testimony went to the post-construction impact that the Project will have on Champlain Farms under Criterion 5. While the Project will alter the configuration of the Champlain Farms northern driveway, gas tankers and other large vehicles will still be able to enter and exit the site and circulate on site and there will be no significant impact to cars queuing on the Champlain Farms property as they exit to Route 2/7 post-development. The Project will install a sidewalk through a right-of-way between Champlain Farms and Route 2/7 which will cross over the Champlain Farms driveways. There is no evidence that this will impact Champlain Farms under Criterion 5. We therefore conclude that the Project, post-construction, will not increase congestion or cause unsafe conditions on or around the Champlain Farms property.

We also conclude that, as a whole, the construction phasing will not create or exacerbate unsafe conditions or unreasonable congestion.

In its post-trial brief, Vallee nevertheless asks the Court to condition the Act 250 permit on certain elements and phasing included in the TMP. We decline to do so. Because the construction phasing complies with Criterion 5, conditions to ensure compliance with Criterion 5 are simply unnecessary and therefore it would be unreasonable for the Court to impose such conditions. Furthermore, as Mr. LaCroix explained, the TMP is a living document that is to be updated over time. Tying permit conditions to the TMP as it exists now would prevent such updates and have the effect of making the construction phasing less compliant with Criterion 5.

For these reasons, we conclude that the Project's construction phasing and timeline comply with Criterion 5, and we answer Question 4.b in favor of VTrans.

e. Whether the Project Complies with Criterion 10

In our summary judgment decision, we found, based on the undisputed assertions of the parties, that "[t]he 2014 Colchester Town Plan (Town Plan) applies to the Project." Diverging Diamond, Nos. 169-12-16 Vtec, 50-6-16 Vtec at 28 (Oct. 11, 2017). We subsequently determined that Vallee had not identified any mandatory provision in the Town Plan with which the Project might fail to conform, and we dismissed Vallee's Question regarding conformity with Criterion 10. Diverging Diamond, Nos. 169-12-16 Vtec, 50-6-16 Vtec at 14 (Feb. 8, 2018).

In its post-trial reply brief, Vallee for the first time argues that if the Act 250 application vested on or before April 2, 2014, then the Court must reconsider its pretrial rulings on Criterion 10 and determine whether the Project conforms to an earlier town plan.

This is the first time that any party has raised the possibility that the Act 250 application may have vested in a town plan other than the 2014 Town Plan. It is therefore unclear whether Vallee has properly preserved this argument. Ferrisburgh Realty Inv'rs v. Schumacher, 2010 VT 6, ¶ 27, 187 Vt. 309. Even if the issue is properly raised, no evidence was introduced a trial that would allow us to address this issue. Neither the 2014 Town Plan nor any other town plan was admitted. We are therefore unable to further address this issue, and we decline to alter our previous conclusion that the Project complies with Criterion 10.

f. Act 250: Conclusion

Because the Project complies with all of the Act 250 criteria, we conclude that the Act 250 permit should be **GRANTED**.

VI. Costco Proposal

Costco argues that the Court can approve improvements in the Mountain View Drive intersection separate and apart from the overall Project proposed by VTrans here. This argument is rendered moot by our conclusion that both permit applications should be granted.

VII. Conclusion

For the reasons detailed above, we **GRANT** VTrans' applications for an Act 250 land use permit, with the conditions imposed by the District Commission set out at VTrans Ex. 3, Bates 022019–24, and **GRANT** VTrans' application for an individual stormwater discharge permit.

A Judgment Order accompanies this Decision. This completes the current proceedings before this Court.

Electronically signed on June 01, 2018 at 09:59 AM pursuant to V.R.E.F. 7(d).

Thomas G. Walsh, Judge
Superior Court, Environmental Division