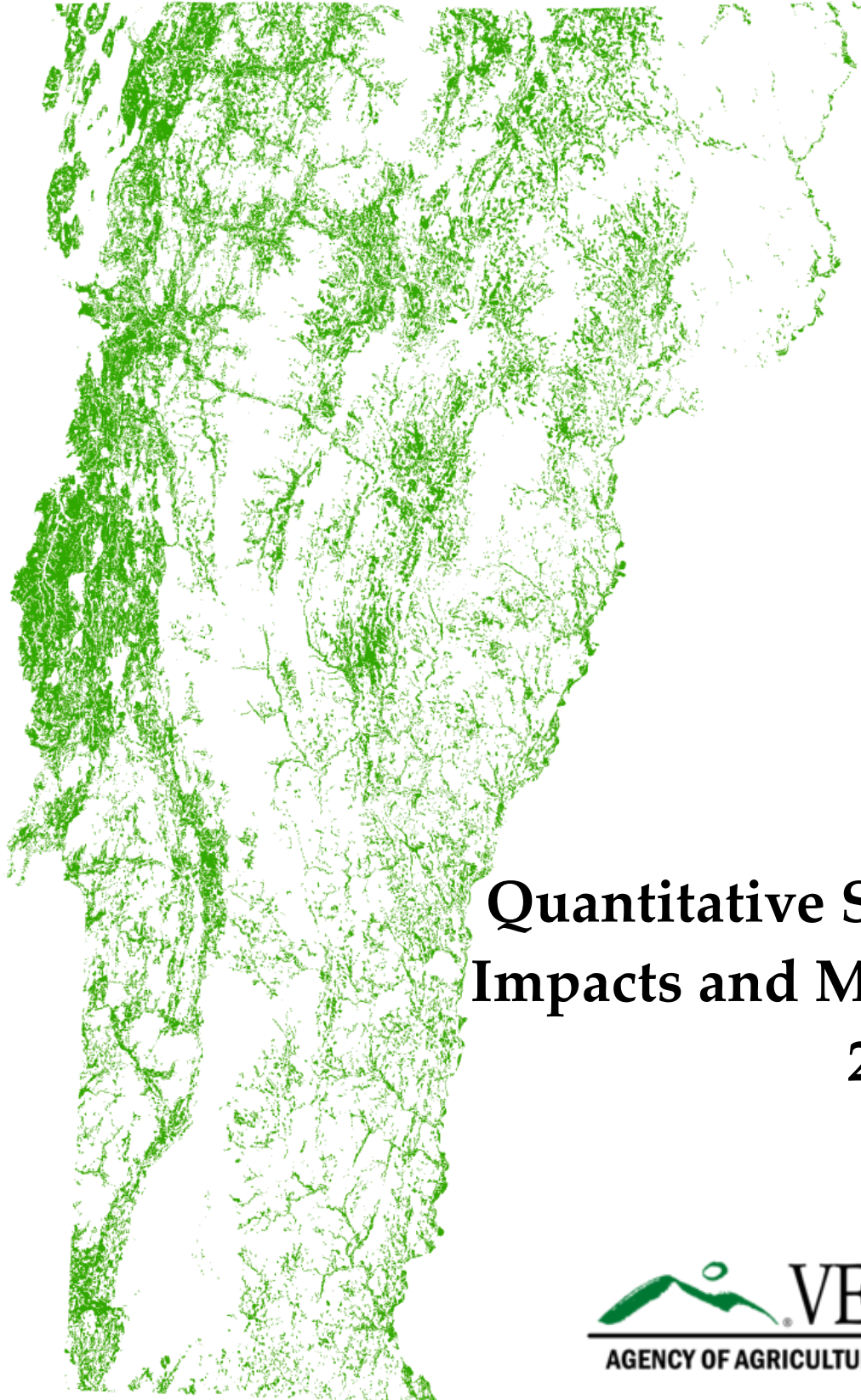


# Act 250 Criterion 9(B) Primary Agricultural Soils



**Quantitative Summary  
Impacts and Mitigation  
2015-2022**

## **Acknowledgements**

I would like to express my gratitude to Ari Rockland-Miller, the Senior Agricultural Development Coordinator, for providing me with the necessary resources and guidance to complete this report. I would also like to thank the Vermont Housing & Conservation Board (VHCB) for making this internship program possible through a generous grant. Finally, I want to acknowledge the dedication and hard work of all those involved in the mitigation of primary agricultural soils in Vermont.

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# Introduction

From 2015 - 2022

230

Potential developments containing PAS reviewed and permitted

1152

Acres PAS Impacted

1965

Acres PAS Mitigated

## Criterion 9(B)

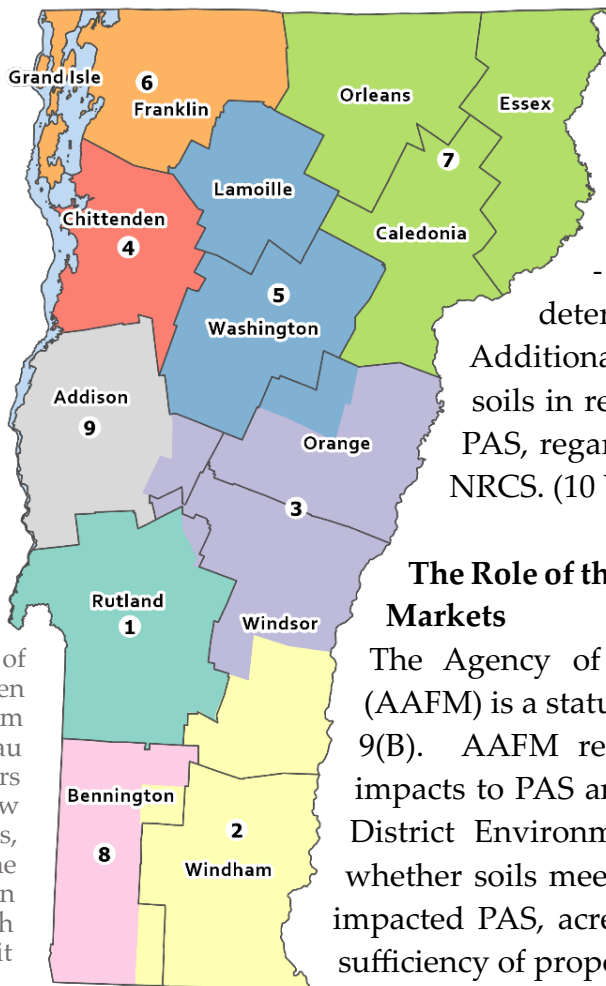
Criterion 9(B), Primary agricultural soils (PAS), seeks to preserve high-quality agricultural land in Vermont, recognizing these soils as a finite and valuable natural resource. Permits are issued if impacts to PAS are minimized and mitigated for as determined necessary by the District Commissions, with the statute laying out frameworks for mitigation of impacts within or outside of designated areas. 10 V.S.A. § 6086 9(B).

## Primary Agricultural Soils

Under Criterion 9(B), primary agricultural soils are defined as soils mapped by the USDA Natural Resources Conservation Service (NRCS) as of "Prime", "Statewide", or "Local" importance, that have not lost their agricultural potential due to:

- Impacts of previous development
- Presence of Class I or II wetlands
- Physical or topographical barriers to use or access
- Other relevant factors as determined by the Commission.

Additionally, the Commission may define soils in recent or current agricultural use as PAS, regardless of how they are mapped by NRCS. (10 V.S.A. § 6001(15))



**Figure 1: Districts**  
Act 250 Districts are depicted as colored regions, with county boundaries superimposed. District Environmental Commissions, composed of governor-appointed citizen volunteers, with support from Natural Resources Bureau (NRB) District Coordinators and Technicians, review applications and permits, assist applicants in the proceedings of the application process and compliance with and enforcement of permit conditions.

## The Role of the Agency of Agriculture, Food and Markets

The Agency of Agriculture, Food and Markets (AAFM) is a statutory party under Act 250 Criterion 9(B). AAFM reviews applications with possible impacts to PAS and makes recommendations to the District Environmental Commissions, focusing on whether soils meet the definition of PAS, acreage of impacted PAS, acreage of mitigation warranted, and sufficiency of proposed onsite mitigation.



**Mitigation**

The number of acres of mitigation required is a product of the number of acres of PAS impacted, and a multiplication factor corresponding to the agricultural value group of the impacted soils, as determined by NRCS maps. 10 V.S.A. § 6093(a)(2)(B).

Table 1

Agricultural Value Group	Multiplier
1	3
2	2.75
3	2.5
4	2.25
5 - 7	2

A 1:1 ratio applies to projects in designated areas, including downtown development districts, growth centers, and Industrial Parks as defined and permitted by Act 250 as of Jan 1, 2006. 10 V.S.A. § 6093(a)(1).

**On-site mitigation**

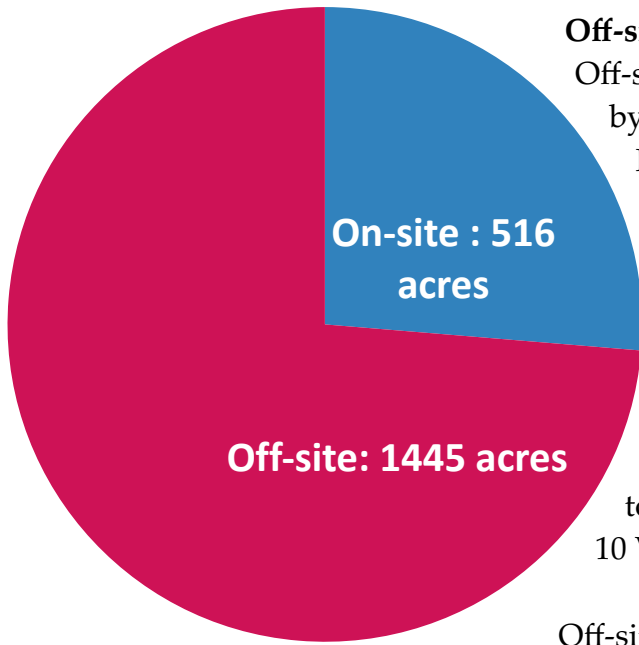
On-site mitigation is the default form of mitigation outside of designated areas. On-site mitigation must reflect “Innovative land use design resulting in compact development patterns which will maintain a sufficient acreage of [PAS] on the project tract capable of supporting or contributing to an economic or commercial agricultural operation.” 10 V.S.A. § 6093(a)(2).

On site mitigation soils:

- must be of equal or better agricultural value than those impacted,
- must not contain Class I or II wetlands or their buffers,
- must be physically and topographically accessible,
- may be actively farmed or preserved for future use,
- must be at least 2 contiguous, undivided acres.







**Figure 2:**  
Total statewide acres of on-site and off-site mitigation for 2015-2022

### Off-site mitigation

Off-site mitigation is available to projects within designated areas by permit condition issued by the District Commission.

Impacts to PAS are mitigated through a fee paid into the Vermont Housing and Conservation Trust (VHCB) Fund for “preserving [PAS] of equal or greater value with the highest priority given to preserving prime agricultural soils.” 10 V.S.A. § 6093(a)(1)

Projects outside of designated areas may be granted mitigation flexibility for off-site, or combined on-site and off-site mitigation, under appropriate circumstances, subject to determination by the District Commission.

10 V.S.A. § 6093(a)(3).

Off-site mitigation rates are based on “recent, per-acre cost to acquire conservation easements for [PAS] in the same geographic region as the proposed development or subdivision” 10 V.S.A. § 6093 (a)(1)(C), and are revised annually by the Secretary of AAFM

### De minimis

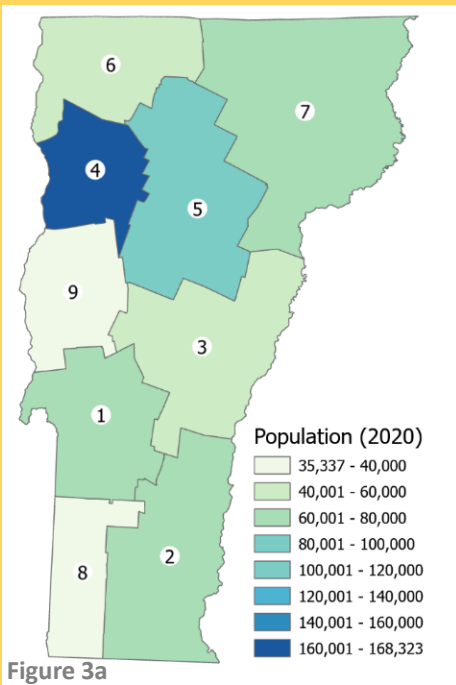
If the mitigation required is less than 2 acres, it is considered “de minimis”. No mitigation is required at that time, but mitigation will be warranted if/when cumulative impacts going forward warrant at least 2 acres mitigation with the multipliers.



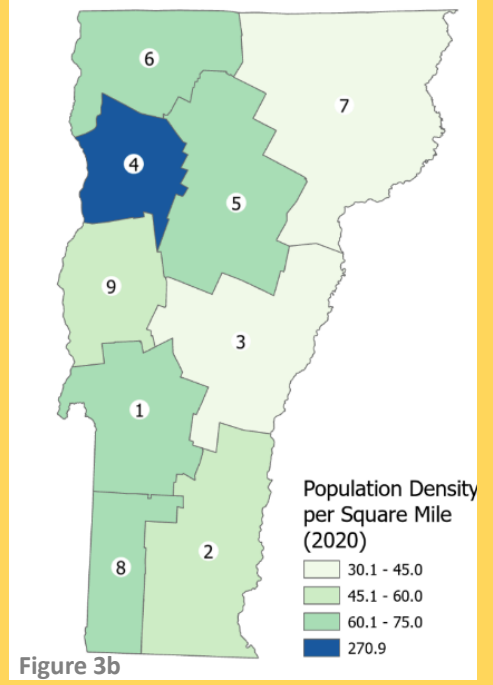
# Purpose

This project aims to tell the story of the results and impacts of Criterion 9(B) over the last eight years, since legislative changes to 9(B) in 2014, including a revision to the definition of primary agricultural soils.

The purpose of this report is to analyze the quantitative impact of Criterion 9(B) and shed light on trends over the last eight years and across the districts. Interpretation of these trends tells a story of 9(B) in practice, sets a foundation for research into the qualitative impacts, and uncovers new questions to explore in further reports. Additionally, it provides a broad overview of the policy in action to inform those involved in 9(B) processes



Vermont's population is not evenly distributed across the state. Figure 3a shows Vermont's population by district, while Figure 3b shows the population density by district. District 4, which encompasses Chittenden County, has the largest population in Vermont by a large margin. When considering the relatively small size of this district, it stands out even stronger, with a population density almost 4 times greater than the next most dense district. In contrast, large districts like 3 and 7 have moderate populations, but very low population densities.





# Methods

## Data Source

The bulk of the data was sourced from AAFM annual reports submitted to the Vermont Housing & Conservation Board, dating back to 2014. Given the changes to Criterion 9(B) and the program over the years, lengthy data cleanup and validation processes were needed to extract and standardize relevant data and discover and input missing data. AAFM archives records of all applications and pre-application inquiries for projects with potential Criterion 9(B) considerations. The Act 250 Database, which provides public access to all these records, was the reference source used to validate this data.

Additional data pertaining to Vermont land cover, land use, and demographics were sourced from VT OpenGeodata and used to provide context when comparing districts and years.

## Scope

This report covers fiscal years 2015 – 2022. The State of Vermont’s fiscal year begins on July 1<sup>st</sup> and runs until June 30<sup>th</sup> of the following year, all calendar dates in this report reference the fiscal year.

AAFM reviews many projects with possible PAS impacts. This report focuses solely on projects that contain PAS within proposed impact areas, as per AAFM review, and received a permit. Since the AAFM review is a recommendation subject to approval by the Commission, there may be projects included in this report that do not have permit conditions precisely reflecting AAFM recommendations for mitigation. Whenever possible, the final permit conditions were used as reference data in this report. For records that remained unclear in the database, the AAFM review recommendations were used as reference data.

Variables analyzed in this report are the total acreage of PAS impacted, PAS mitigated, PAS mitigated on-site, and PAS mitigated off-site, as well as the number of projects with “de-minimis” impacts.

Basic statistics (mean, median, maximum) of impacted and mitigated acres PAS per project were calculated for each district-year. These statistics are found in the Supplementary Data section and intended to provide context to the trends discussed in the finding, particularly to explain outlier district-years.





# Findings

The bulk findings of this report are organized into two large sets of maps and graphs. A comprehensive array of maps (see Figure 7) provides an overview of annual trends for visual comparison of districts. To better understand the trends visualized in these maps, six pairs of graphs (see Figures 8 through 14) present the data both Statewide per year and broken down by district. Additionally, a comprehensive data table of specific values is provided as a supplementary material (see Table S1). Other data is presented throughout, and introductory overview data is visualized below (see Figures 4 through 6).

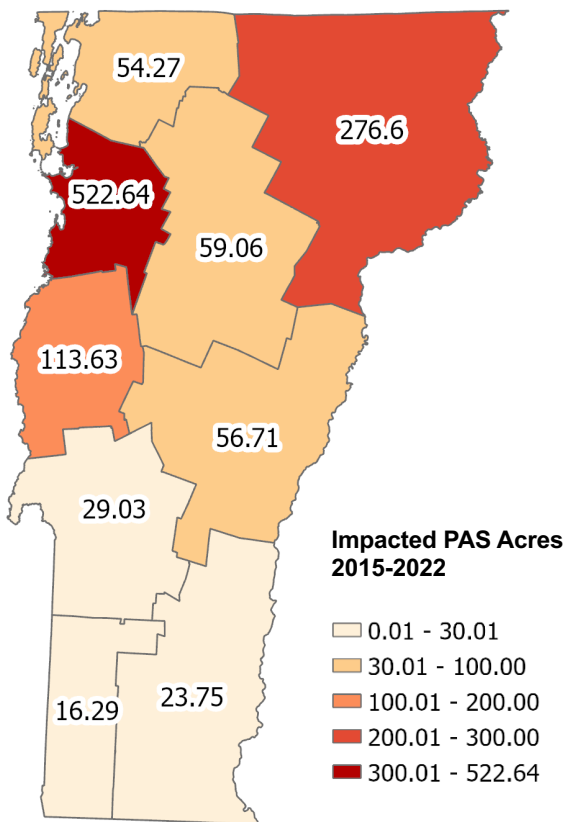


Figure 4a

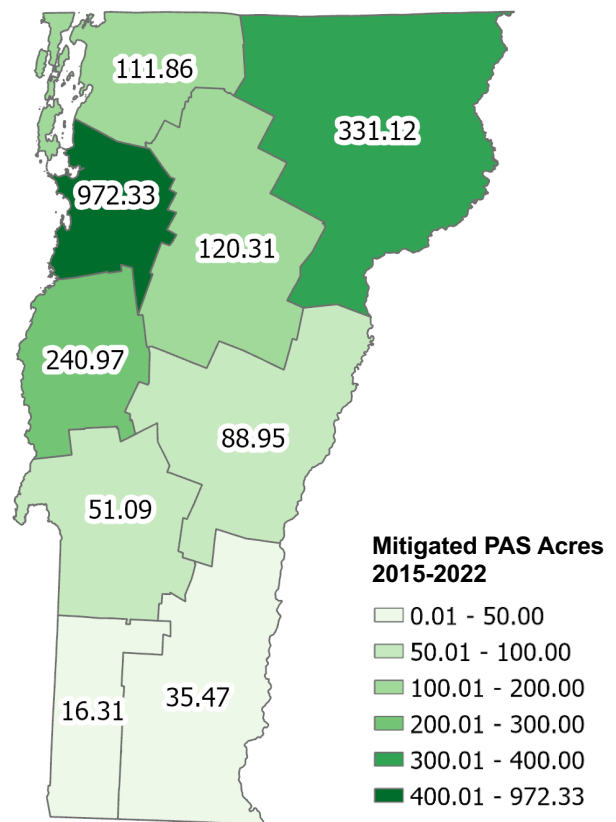


Figure 4b

**Figure 4: Impacted and Mitigated PAS by District**

Cumulative acres of impacted and mitigated PAS over the study years (2015 – 2018), shown per district. Numbers show the exact acreage in each district, and colors show the relative acreage.

Figures 4 and 5 show that acres of impacted and mitigated PAS are highly concentrated to District 4, with moderate amounts in District 7 and 9. Within these districts, impacts are concentrated in specific towns, notably Burlington and the metro area, Middlebury, and Coventry. Outside of the Burlington area, individual outlier towns may represent local population centers, or simply be the result of a single large-scale development during the study period.

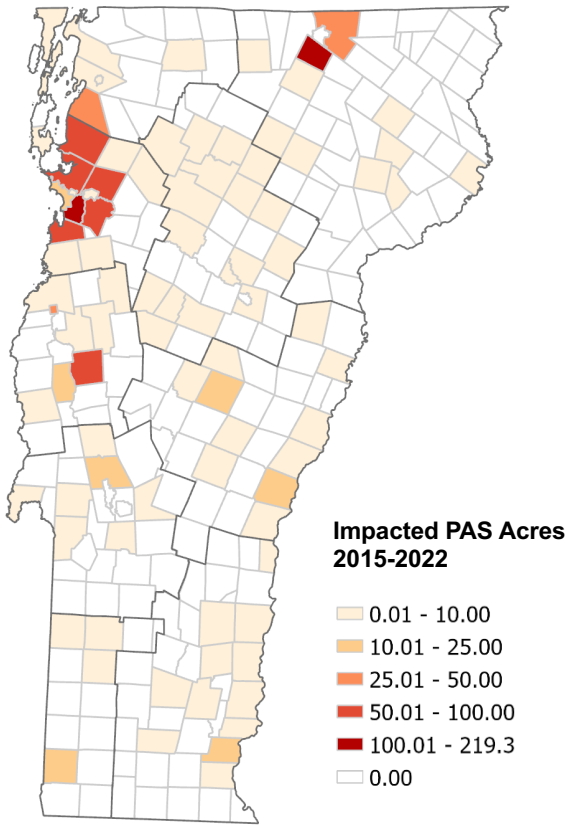


Figure 5a

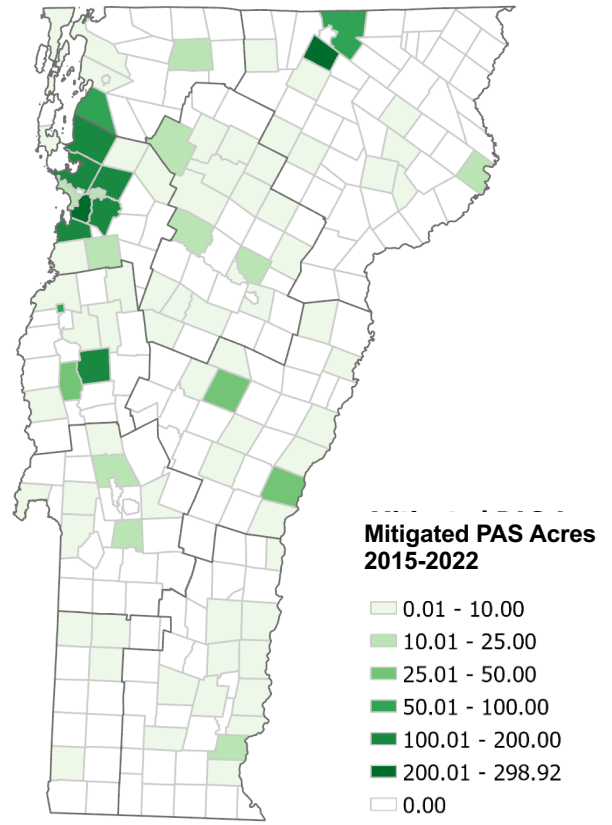
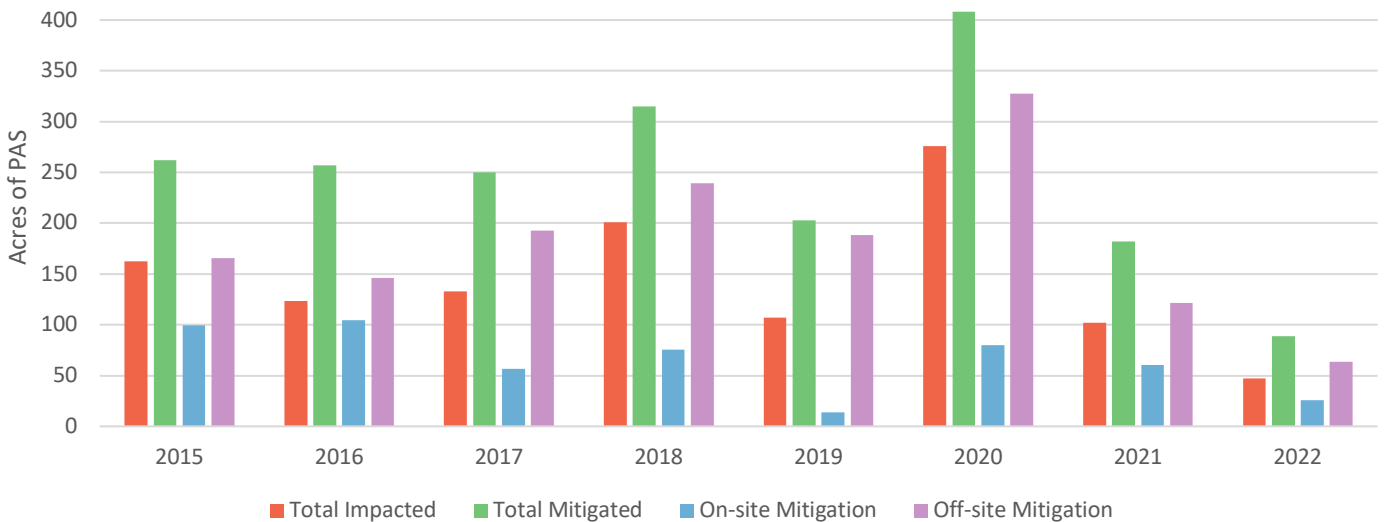


Figure 5b

**Figure 5: Impacted and Mitigated PAS by Town**

Cumulative acres of impacted and mitigated PAS over during the study years (2015 – 2018), shown per town. Darker outlines depict district boundaries.



**Figure 6: Statewide Annual Totals of Key Variables**

Statewide total acreage of PAS impacted, mitigated, mitigated on-site, and mitigated off-site each year. Trends in impacted (red) and mitigated (green) acres move in tandem, there is constantly 1.5-2 times more mitigation than impact. This could indicate that the policy is being consistently implemented, and the distribution of soil value groups being impacted is relatively consistent. The ratio of on-site/off-site mitigation is more variable, with some years, like 2019, having very little on-site mitigation. This could be the result of a great proportion of projects being in designated areas, design considerations, or economic factors



**Figure 7** (following two pages):

Map array depicting total acres of PAS impacted (7a), total acres of PAS mitigated (7b), acres of on-site mitigation (7c), and acres of off-site mitigation (7d), divided by district and fiscal year. These variables are shown in rows progressing through the years, with corresponding legends on the left. Years 2015-2018 are depicted in the first half of this figure, and years 2019-2022 are in the second half.

**Impacted PAS Acres**

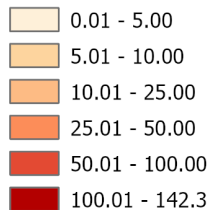
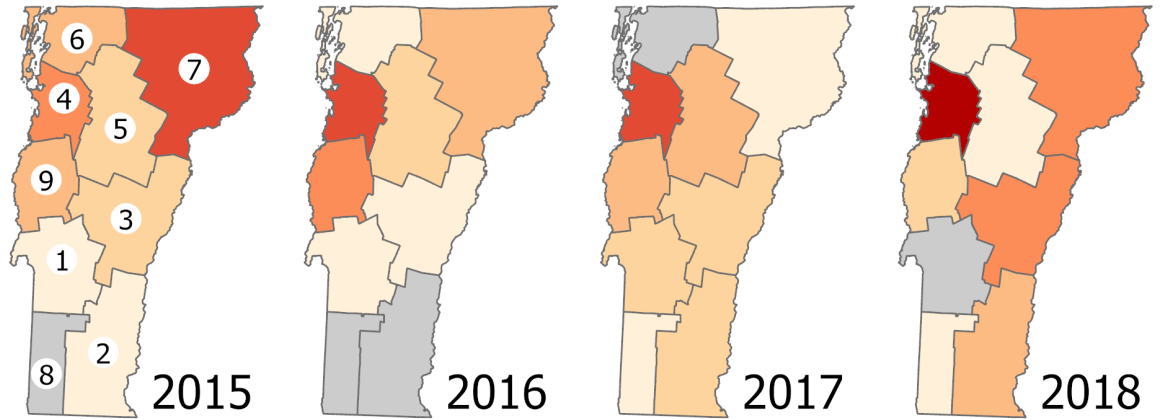


Figure 7a-1



**Mitigated PAS Acres**

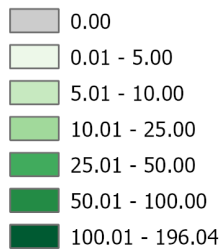
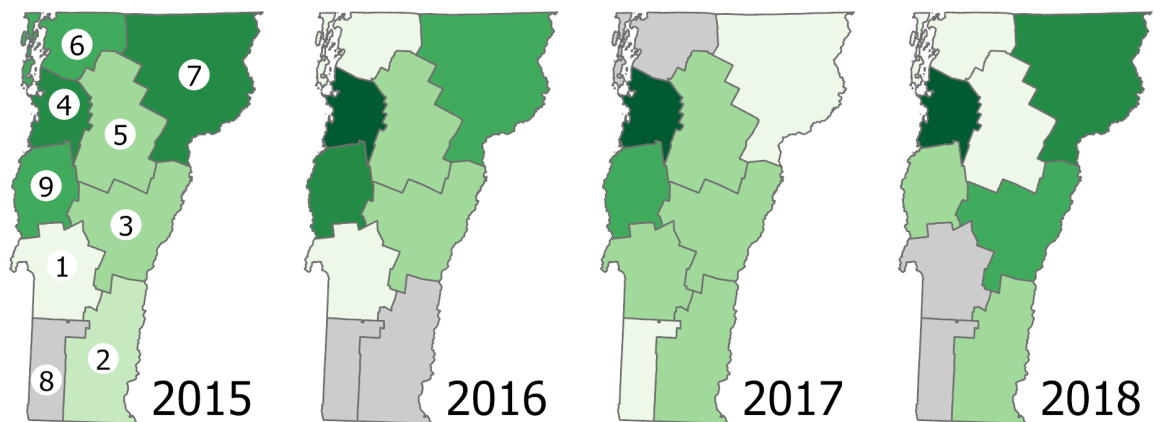


Figure 7b-1



**On-site Mitigation Acres**

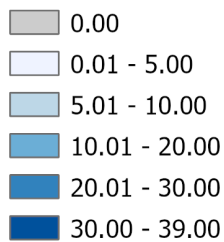
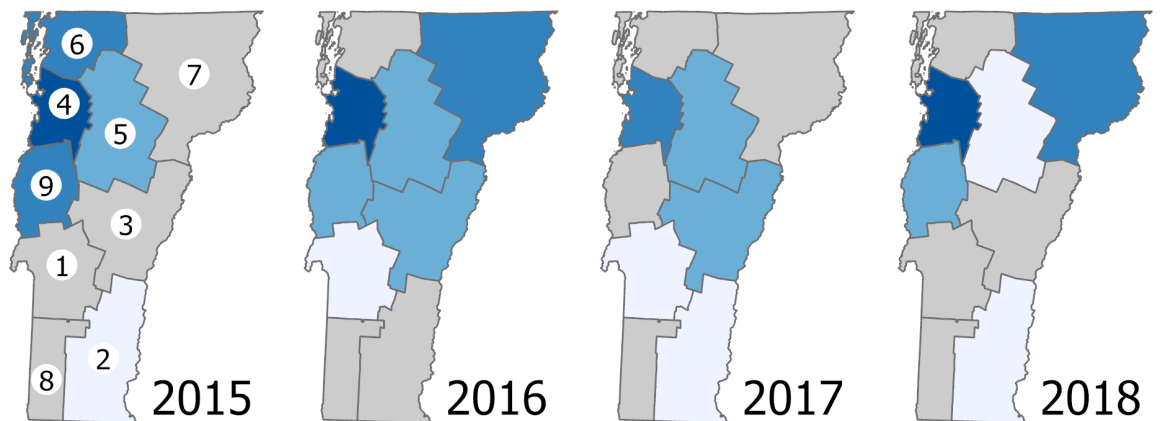


Figure 7c-1



**Off-site Mitigation Acres**

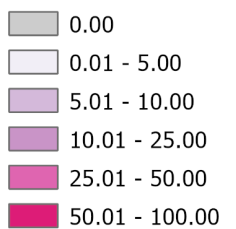
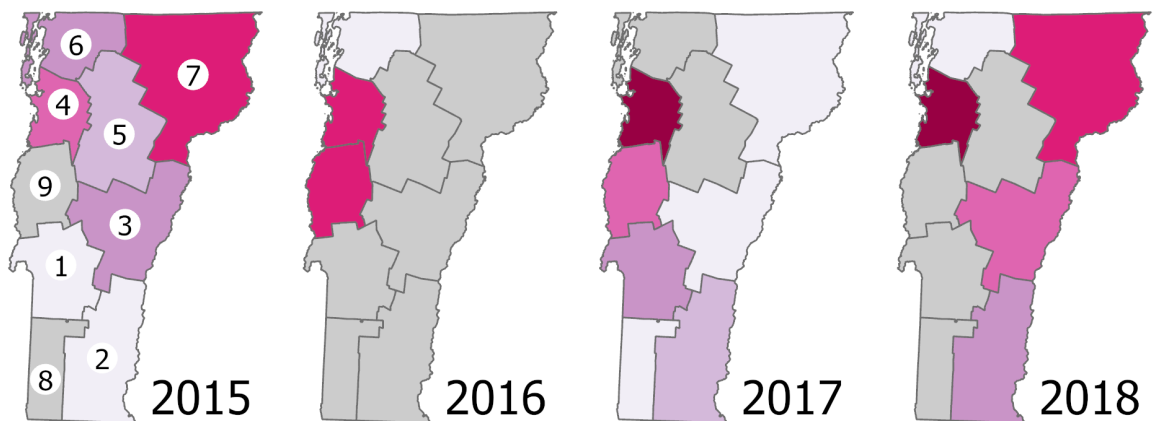


Figure 7d-1



### Impacted PAS Acres

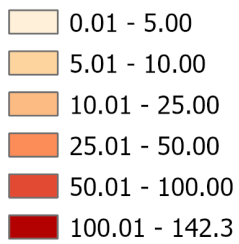
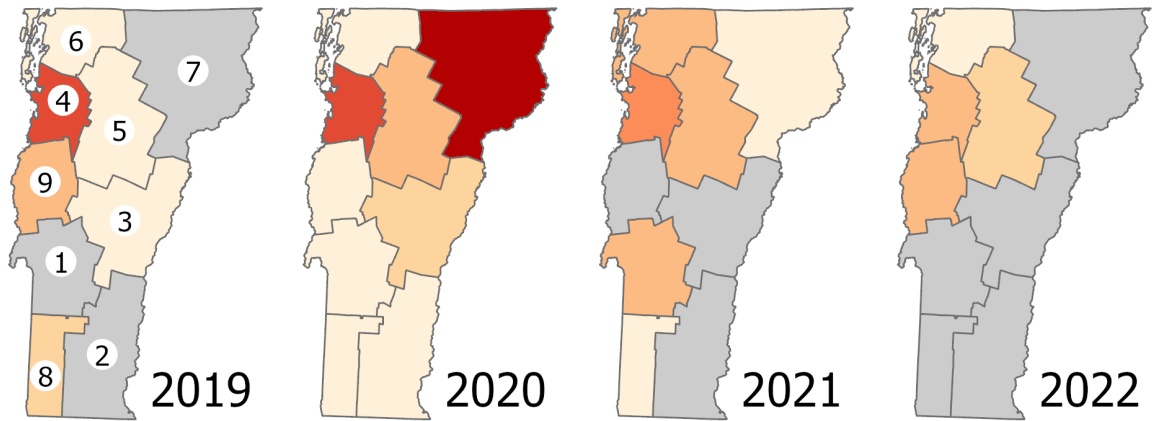


Figure 7a-2



### Mitigated PAS Acres

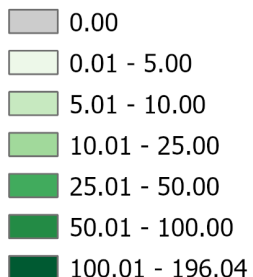
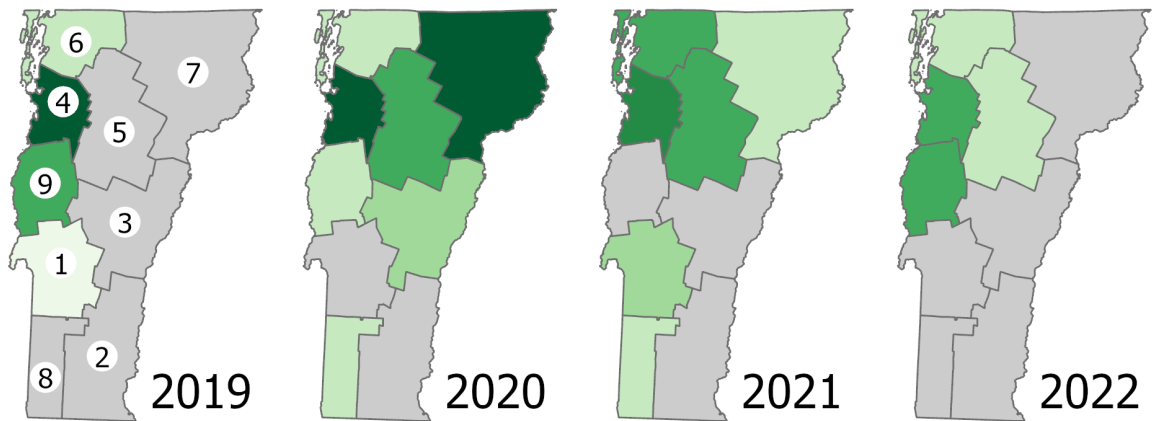


Figure 7b-2



### On-site Mitigation Acres

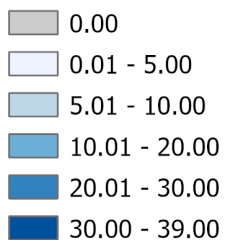
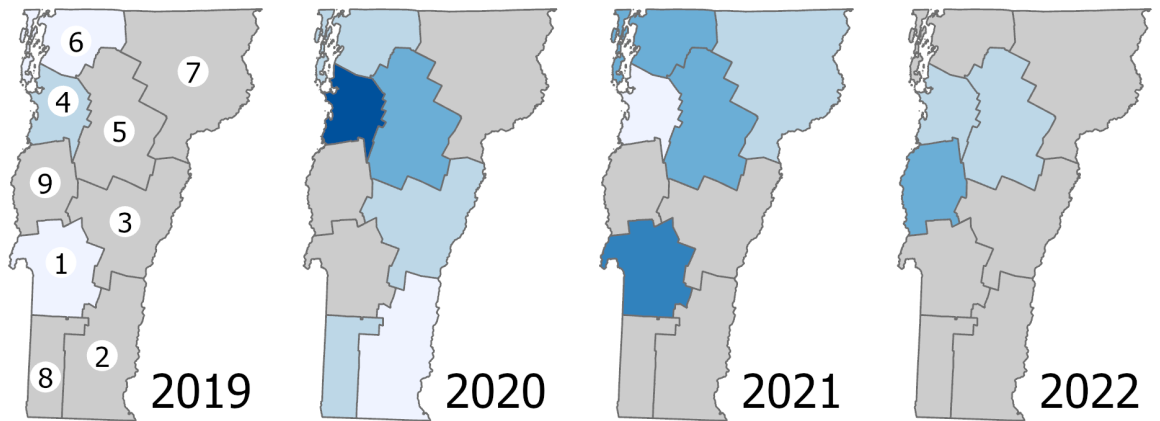


Figure 7c-2



### Off-site Mitigation Acres

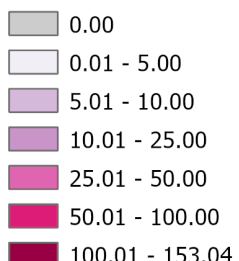
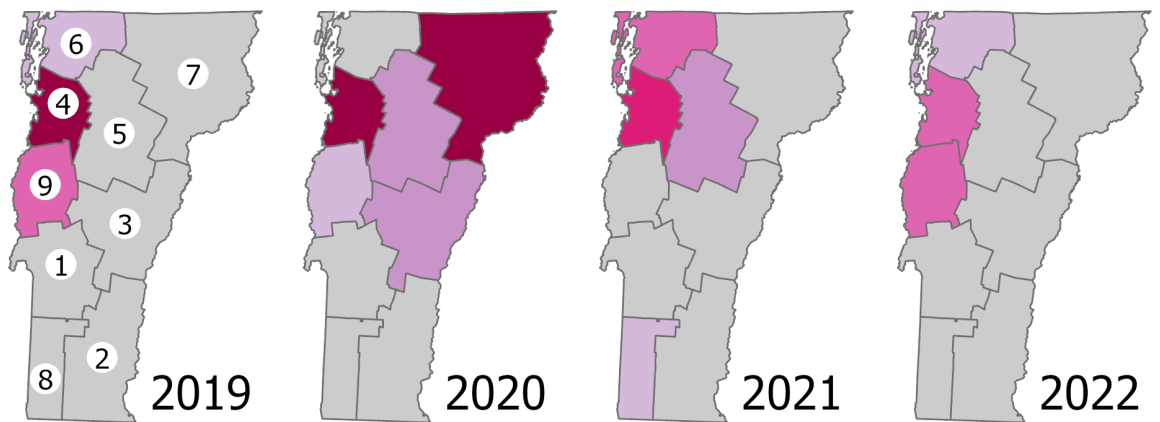


Figure 7d-2





### Number of Permitted Projects Containing PAS Reviewed

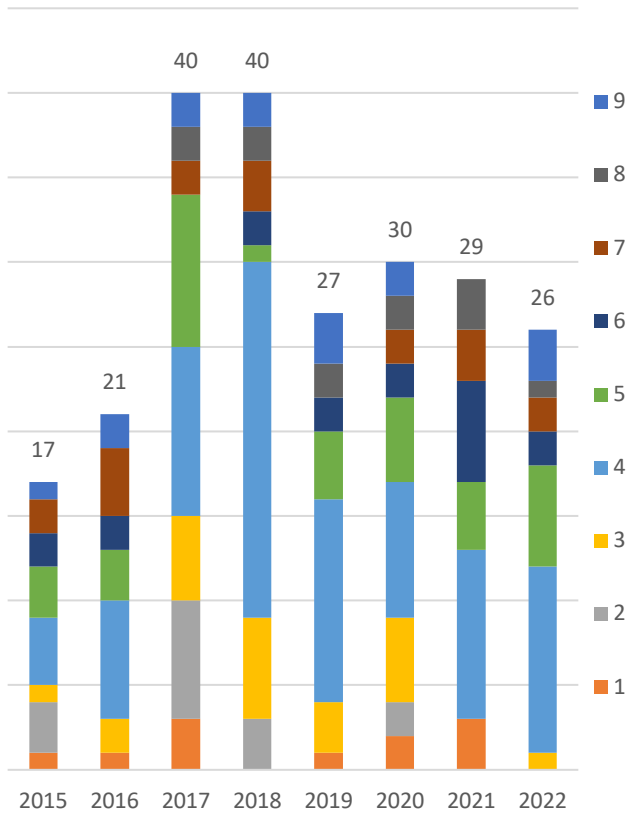


Figure 8a

### Figure 8: Reviewed Projects

Figure 8a shows the cumulative annual number of potential developments contained PAS that were reviewed by AAFM and received a permit. Figure 8b shows this data broken down by year and district.

Figure 8a shows that there is no clear overarching trend in total number of permitted projects with impacts to PAS over the last eight years. There was an increase over the years 2015 to 2020, with two outliers, 2017 and 2018. In the last three years the numbers have decreased again. It is beyond the scope of this report to hypothesize a cause for this trend.

District 4 consistently comprises the largest fraction of total projects, after which District 5 regularly comprises the second largest fraction. This pattern is expected, since these two districts are the two most population dense districts in Vermont (see Figure 3b).

There is no discernable annual pattern that is common to all districts (see Figure 8b). District 4 saw a consistent and substantial increase in number of annual projects from 2015 through 2018, and a steady decrease in the three following years, before increasing slightly this last year. All other districts have irregular fluctuations or relatively consistent numbers of projects

### Number of Permitted Projects Containing PAS Reviewed

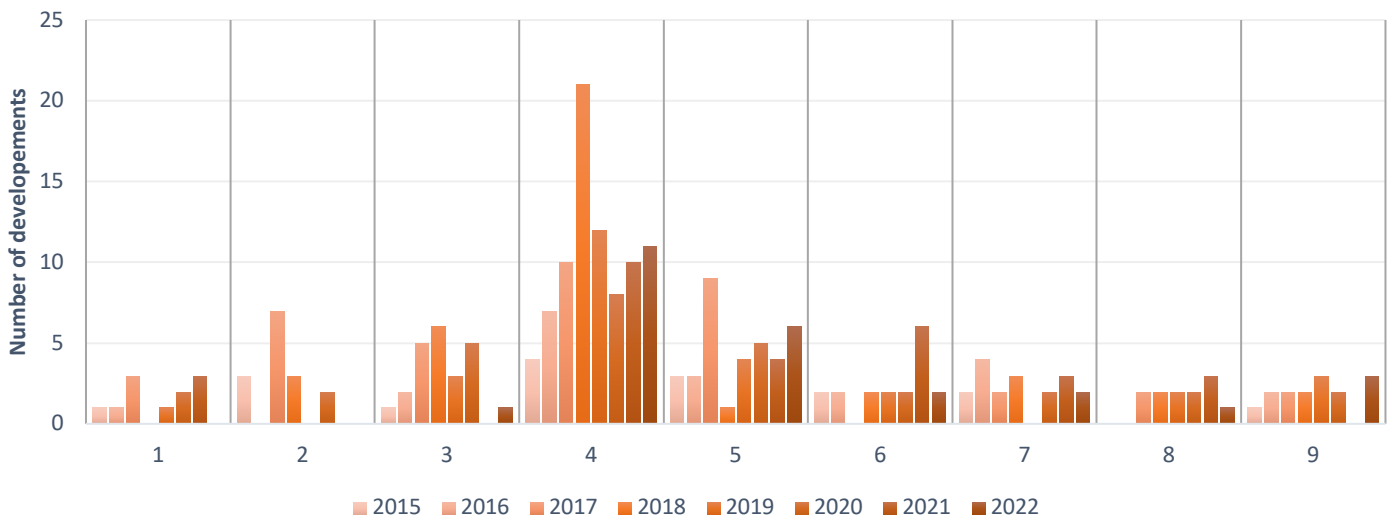
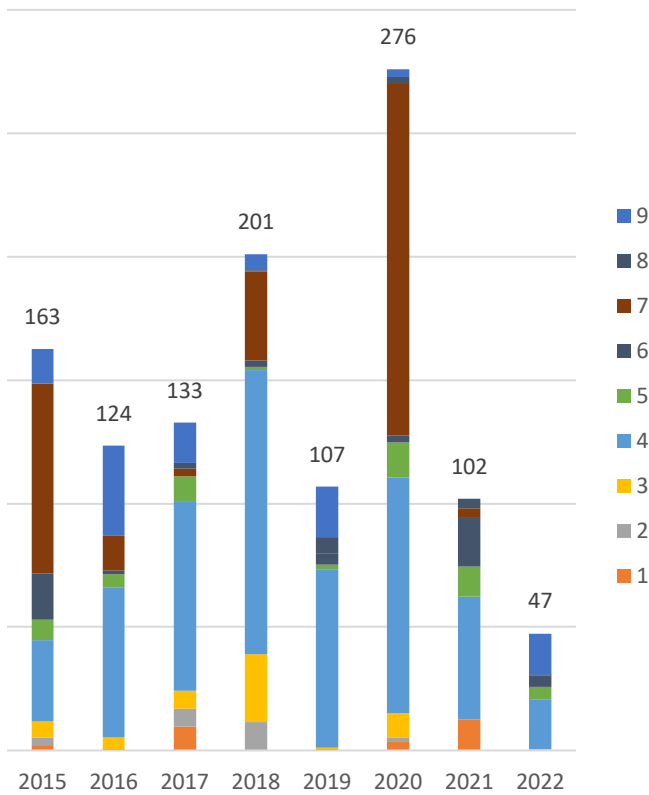


Figure 8b

### Acre Impacted PAS



- 9
- 8
- 7
- 6
- 5
- 4
- 3
- 2
- 1

Figure 9a shows the total annual acres of PAS impacted in all districts, broken down into colors by district. Apart from two outlier years, there is a general downward trend, which may reflect innovative land use design that seeks to minimize PAS impacts where feasible; or could indicate a reduction of intact farmland available for proposed development. 2018 and 2020 stand out as high impact outlier years.

District 4 consistently makes up a large fraction of the impacted acres, however District 9 in 2016 and District 7 in 2015 and 2020 make up significant fractions as well.

The annual trends of impacted acres in figures 9a and 9b do not seem to correspond to proportional fluctuations in number of developments (see figures 8a and 8b), indicating that the number of developments is not the main driver of large impact years, but rather one or a few individual large-scale projects may increase the total impact for a given district and year. One exception is District 4 in 2018 which had a spike in project numbers (see figure 8b), and a spike in impacted acres.

Figure 9a

### Figure 9: Total Impacted Acres

Figure 9a depicts the cumulative annual statewide impacted acres of PAS, broken down into districts by color. Figure 9b depicts the annual impacted acres of PAS per district.

Compared to trends in project numbers, notable outlier years in acres of impact are District 4 in

### Acres Impacted PAS per District

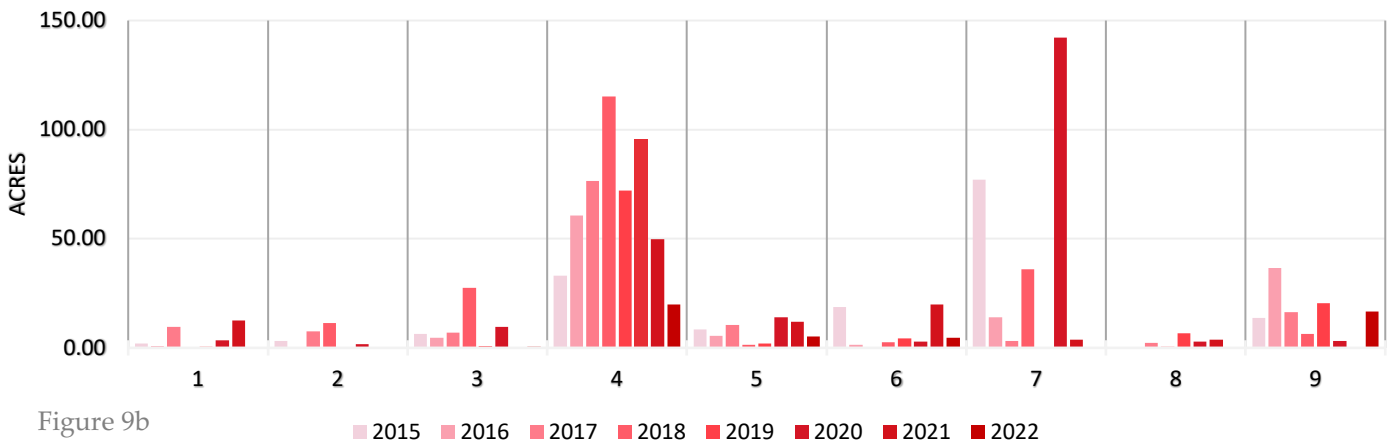


Figure 9b



District	Year	Projects	Average Impact	Median Impact	Maximum Impact
4	2018	21	5.48	2.90	27.60
7	2015	2	38.59	38.59	77.10
7	2020	2	71.15	71.15	142.20
9	2016	2	18.33	18.33	36.30

**Table 2**  
 Statistical values for selected outlier district-years. The median value represents an actual project that falls exactly in the middle of the range, or in the case of even, numbered sets, it is the average of the two middle most projects. In cases that the average project value is significantly different than median value, the distribution of projects is considered “skewed”, indicating the presence of outliers. Large-scale outlier projects will drag the average impacted / mitigated acres up, while small-scale outlier projects will drag the average down.

2018, District 7 in 2015 and 2020, and District 9 in 2016. Statistical values shown in Table 2 (also see Table S1) can shed light on these outlier district-years.

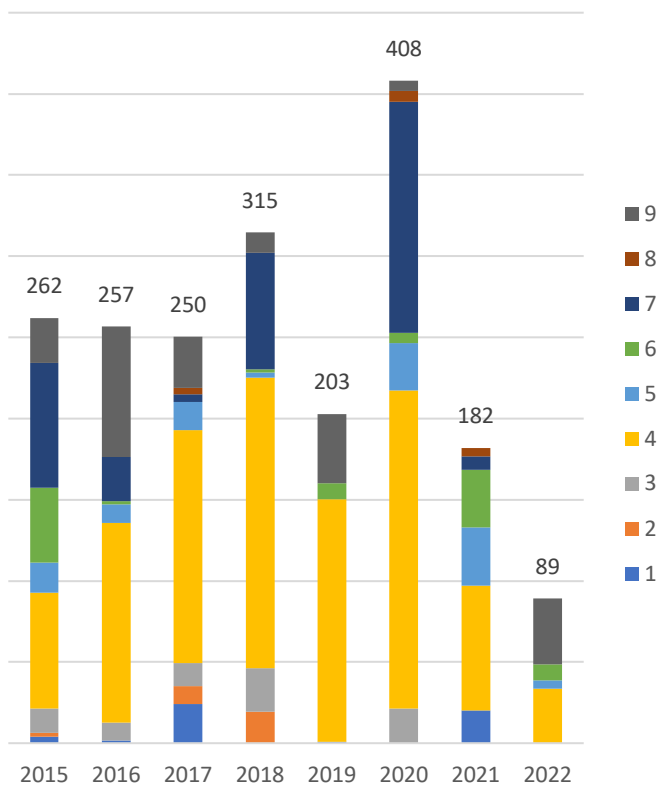
In 2018, District 4 had an average impacted area of 5.48 acres per project, but a median of only 2.9 acres, indicating large-scale outlier projects. The maximum impact project impacted 27.60 acres of PAS, comprising over 1/5<sup>th</sup> of District 4’s impacts for the year.

The remaining three examples only had two projects each, meaning the median value simply reflects the middle

value of the two projects, which is equal to the average. Even so, the maximum values for these years are far greater than the median and average values, meaning that the minimum project was far smaller, and so it can be concluded that a single large-scale outlier project affected the resulting values.

For example, in the case of District 7 – 2020, there was a single large-scale landfill development project that accounted for almost the entirety of the district’s impacted acres, and half of the total impacted acres for the state for the year. Projects of this scale often span multiple years, but the project data is sorted into the year the project was permitted.

### Acres Mitigated PAS



**Figure 10: Total Mitigated Acres**  
 Figure 10a depicts the cumulative annual statewide mitigated acres of PAS, broken down into districts by color. Figure 10b (next page) depicts the annual mitigated acres of PAS per district.

The annual trends in total acres of PAS mitigated closely correspond to the acres of impacted PAS (see Figure 10a), which is expected, since mitigated area is calculated based on applying multipliers to the impacted area. This indicates that there is consistent interpretation and application of Criterion 9(B).

There are slight variations in relative amounts of impact and mitigation across some district-years (see Figure 10b), which is a result of the variation in mitigation multiplier associated with the agricultural value of the impacted soil (see Introduction, Table 1), between 2 and 3 outside designated areas. Years with proportionally high acreages of mitigated to impacted PAS, such as District 4 in 2020, or District 7 in 2018, indicate that higher value 'Prime' PAS were impacted on average, or fewer projects occurred within designated areas where 1:1 ratio would be applicable

### Acres Mitigated PAS per District

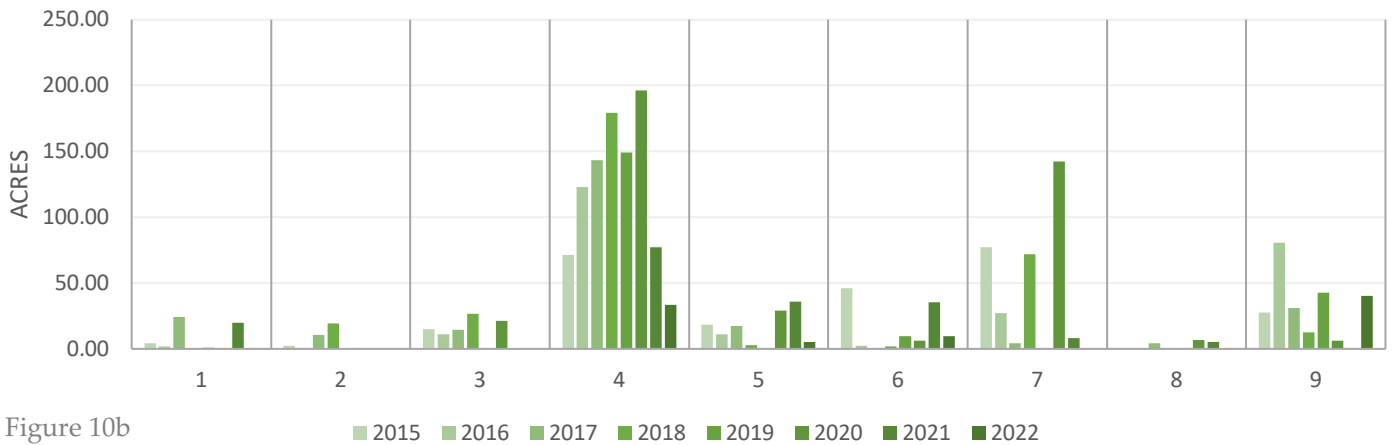


Figure 10b

### Acres Onsite Mitigation

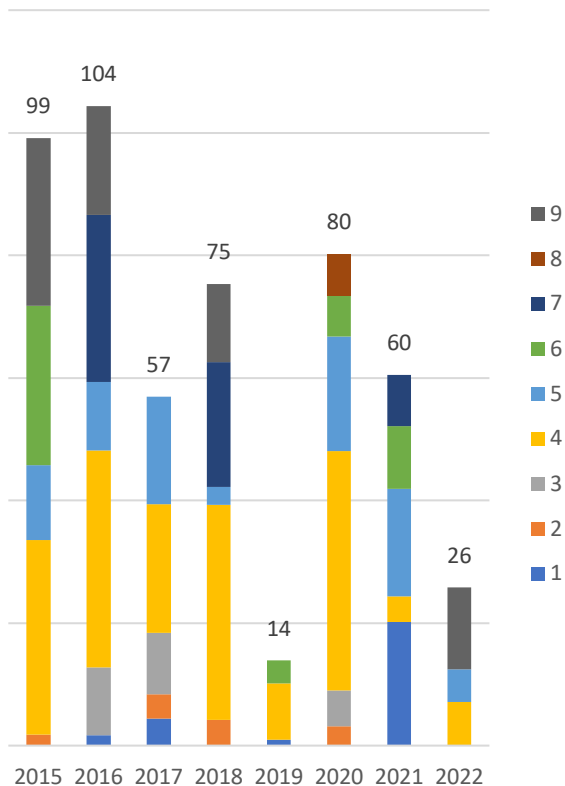


Figure 11a

The annual trends in acres of on-site mitigation vary significantly compared to total mitigated acres. On-site mitigation has seen the same decrease over the last three years but was very low in 2019 and significantly higher in 2015/2016. The overall downward trend in acres of onsite mitigation reflects the downward trend in acres of impact (see Figure 11a)

Broken down by district (see Figure 11b), there are some district years that have proportionally much higher or lower acres of onsite mitigation compared to total mitigation, relative to other districts. For example, District 7 in 2020 contributed to the peak year in terms of impact and mitigation, but there was no on-site mitigation from District 7 in 2020. Similarly, in 2019, only a small fraction of District 4's mitigation was on-site. Increasing development pressure on a finite amount of available PAS, as well as economic factors, have contributed to many projects in District 4 proposing off-site mitigation

### Figure 12: Acres Offsite Mitigation

Figure 12a depicts the cumulative annual statewide acres of PAS mitigated offsite, broken down into districts by color. Figure 12b (next page) depicts the annual acres of PAS mitigated offsite per district.

or a combination of on-site and off-site mitigation subject to the Commission’s findings as to appropriate circumstances enabling mitigation flexibility.

Table S1 shows that in District 7 – 2020, the average impacted acres were skewed by a single very large project. Mitigation statistic show that the average mitigation was the same acreage as the average impact. This mitigation ration of 1:1 indicates that the very large project was within in a designated area, and likely chose to mitigate off-site as is permitted.

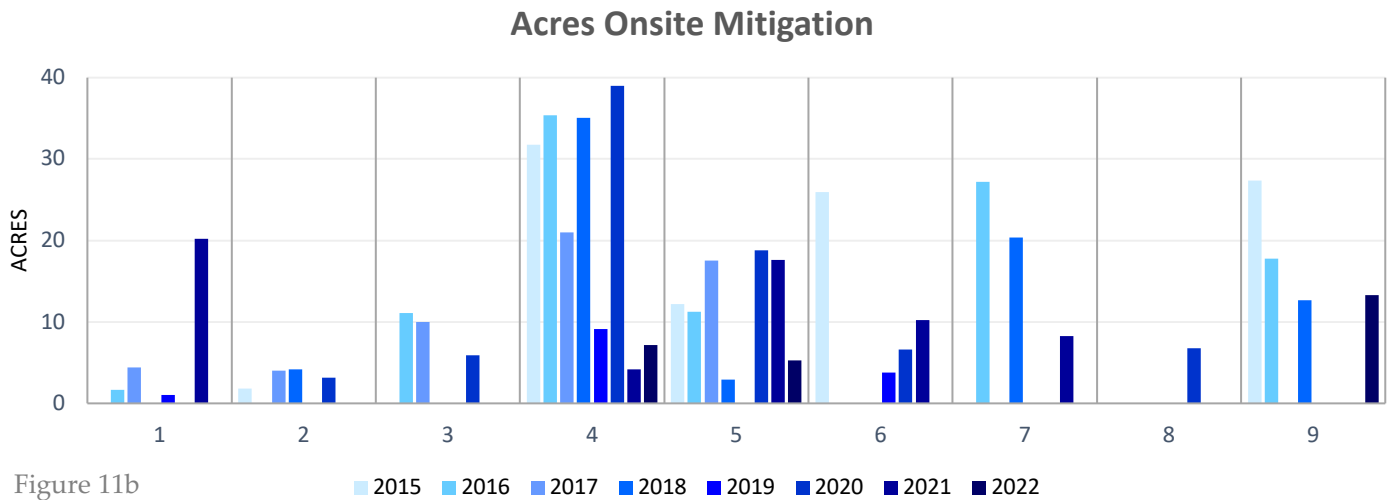


Figure 11b

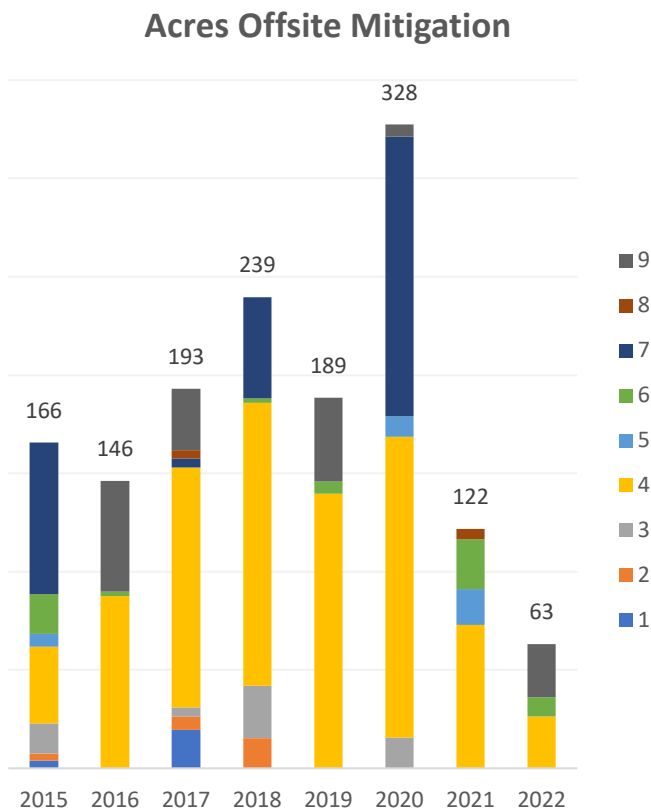


Figure 12a

Trends in offsite mitigation closely mirror trends in total mitigation, which is expected since off-site mitigation make up a large fraction of total mitigation on an annual basis (see Figure 6). The effect of the relatively higher on-site mitigation acres in 2015 and 2016 are seen inversely in Figure 12a, with slightly lower off-site mitigation values.

The effects of the very high impact years, 2018 and 2020, are seen more strongly in acres off-site mitigation than in acres of on-site mitigation, since these high impact years are likely the result of single large-scale projects, which are more likely to fall within designated areas and mitigate off-site.

**Figure 12: Acres Offsite Mitigation**

Figure 12a depicts the cumulative annual statewide acres of PAS mitigated offsite, broken down into districts by color. Figure 12b (next page) depicts the annual acres of PAS mitigated offsite per district.



## Acres Offsite Mitigation

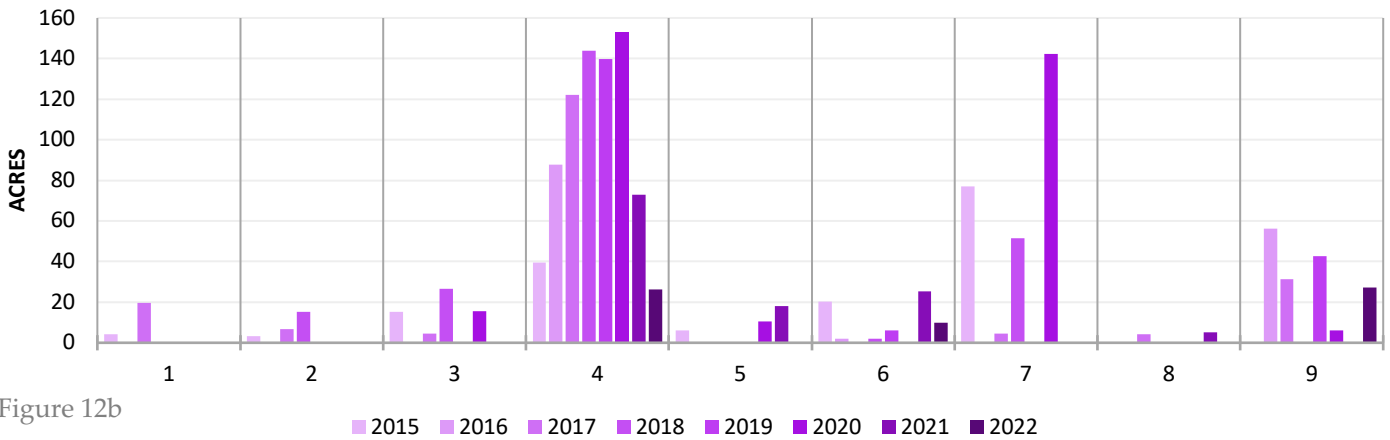


Figure 12b

## De minimis Impacts

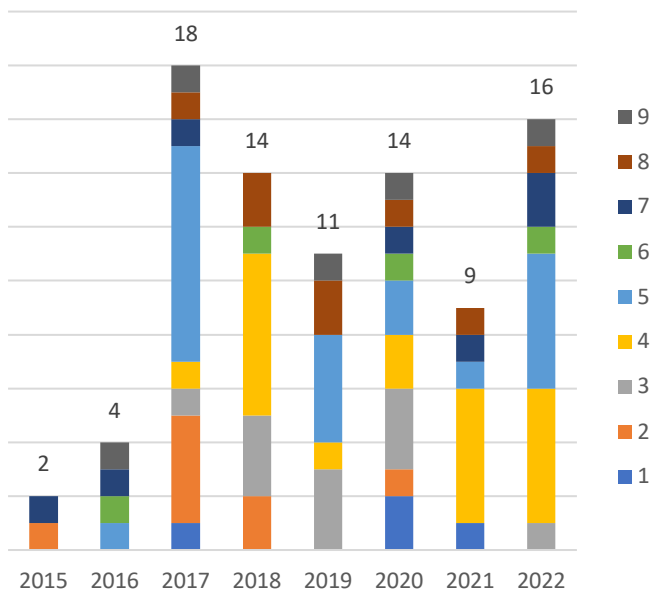


Figure 13a

There are no discernable trends in number of projects impacting areas of PAS below the de minimis threshold. There are no clear correlations between number of de minimis projects and acres of impact or mitigation.

Figure 13: de minimis

Figure a and b depict the subset of potential developments shown in Figures 8a/b that had impacts to PAS under the 'de minimis' threshold (see page 3). Figure 13a shows the cumulative annual statewide values while figure 13b breaks the annual values down by district.

## Developments Under 'de minimis' Threshold

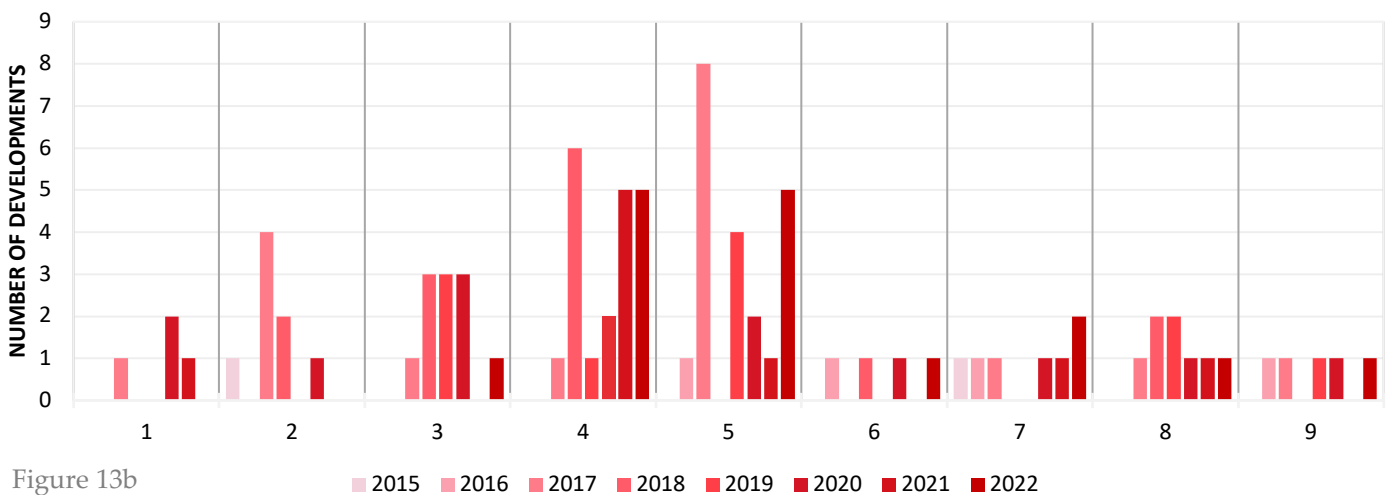
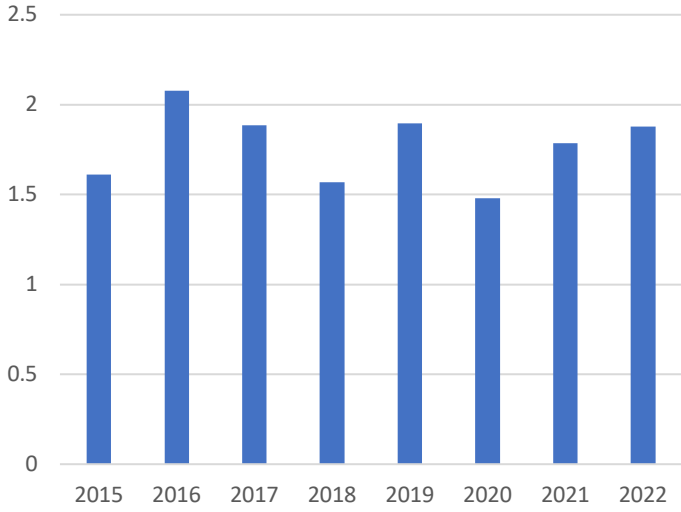


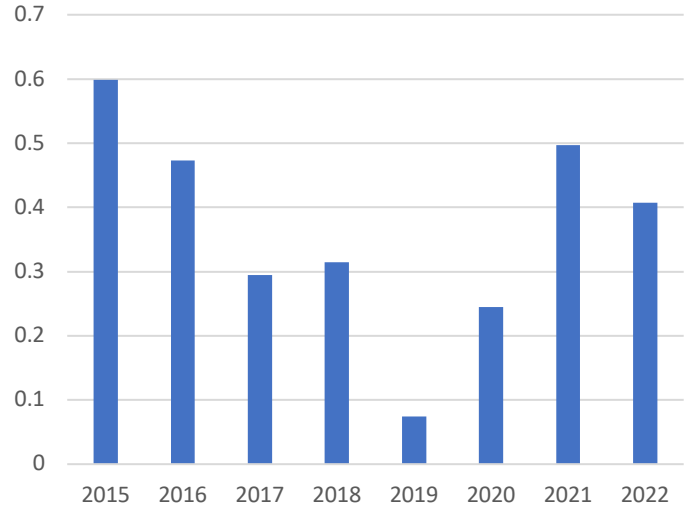
Figure 13b

**Ratio of Total Annual Mitigated over Impacted Acres of PAS**



**Figure 14:** The ratio of mitigated acres over impacted acres of PAS provides a generalized overview of how effectively impacts are being mitigated and the average value groups of impacted soils.

**Ratio of Acres of Onsite Mitigation over Offsite Mitigation**



**Figure 15:** The ratio of on-site mitigation over off-site mitigation provides insight into the value groups of impacted PAS, as well as district commissions tendencies to allow for offsite mitigation flexibility.

Figure 14 shows that Criterion 9(B) quite consistently results in the mitigation of 1.5 – 2 times more acres than are impacted. The ratio of on-site to off-site mitigation, shown in Figure 15, has significant variation from year to year. Since only developments in designated zones of 1:1 mitigation ratio are guaranteed off-site mitigation, but the annual average mitigation ratios do not match the variation of the annual on-site to off-site mitigation ratios, an increase in developments receiving off-site mitigation flexibility must explain the years with a low ratio.

# Conclusions

District 4 is a clear hotspot of development, as shown by the relatively high acreage of impacted and mitigated PAS compared to the rest of the state in all years. This is a reasonable expectation due to the high population density in this district and the presence of the Burlington Metro Area. Other districts have individual years with high impacts, which are often due to at least one large-scale project during those years and are not necessarily reflective of overall trends in development, impact, or mitigation.

Onsite mitigation is the default form of mitigation outside designated areas, and trends in on-site mitigation acreage generally mirror trends in acreage if impacted PAS. In a district with a year of high PAS impacts, there is also a high acreage of on-site mitigation. A notable exception is District 7 in 2020, during which a single very large development was not able to mitigate on-site and utilized an off-site mitigation fee. The other exception is District 4, which might be explained by the presence of designated areas and/or Industrial Parks as





defined by Act 250; as well as an increasing number of projects preferring to mitigate off-site where appropriate circumstances exist. High value of developable land in District 4 may be a factor contributing to an economic analysis for developers that often tilts in favor of proposed off-site mitigation fees subject to the Commission's findings as to appropriate circumstances.

A notable trend in some districts, however, is a decrease in acreage of on-site mitigation relative to impacted PAS over the progression of years. This is seen most notably in Districts 4 and 9, where the amount of on-site mitigation relative to total mitigation is observably lower in the 2019-2022 range as compared to 2015-2018.

2022 was a year with low impacts to and mitigation of PAS across the state. The number of projects was not significantly lower than previous years, meaning the projects during 2022 were all quite small in acreage of impacts to PAS. The reason for a lack of large-scale developments during this year could be coincidental, since larger projects can span many years until completion and may simply not have received permits during this fiscal year, but other factors, such as economic drivers, may have played a role.

### **Further Research**

This report is the first step in a broader project to assess the impacts of Criterion 9(B). While this study focused on the quantitative trends of PAS impacts and mitigation, next steps in this research will focus on the qualitative measures of impacts and mitigation, exploring mitigation techniques used and current use status of mitigated areas. This research will involve surveys sent to parties involved with projects impacting PAS, and interviews with individuals

willing to share their experiences. Of particular interest will be the number of on-site mitigation areas being actively farmed, and data pertaining to farming practices and farmer demographics.

Further quantitative research could explore:

- trends in mitigation ratios, discovering whether there have been changes in impacts to PAS happening in designated development areas,
- trends in parcel size of projects, to discover trends in number of larger scale projects overseen by companies, and in number of small-scale projects on family homes/farms.
- Factors influencing the relative peak in 2020 and very low year in 2022
- Survey/data collection , as part of a future internship, to reach out to landowners with on-site mitigation land regarding the land use status, including whether soils are in agricultural use, any barriers, or opportunities. This would include exploring potential land access opportunities, such as whether there are ways to connect new farmers (or experienced farmers seeking land on which to farm) with on-site mitigation land.

# Supplemental Materials

		1	2	3	4	5	6	7	8	9	Total
2015	District										
	Total PAS soils impacted (Acres)	2.06	3.13	6.44	32.97	8.30	18.69	77.17	0.00	13.77	162.53
	de minimis	0	1	0	0	0	0	1	0	0	2.00
	Total Mitigation (Acres)	4.06	2.22	15.21	71.12	18.45	46.28	77.10	0.00	27.40	261.84
	On-site acres	0.00	1.82	0.00	31.76	12.20	25.98	0.00	0.00	27.40	99.16
	Offsite Acres	4.06	3.38	15.21	39.36	6.25	20.30	77.10	0.00	0.00	165.66
	Count	1	3	1	4	3	2	2	0	1	17.00
	Average Impacted	2.06	1.04	6.44	8.24	2.77	9.35	38.59	-	13.77	-
	Median Impacted	2.06	0.92	6.44	6.11	2.50	9.35	38.59	-	13.77	-
	Max Impacted	2.06	1.48	6.44	19.68	4.60	17.80	77.10	-	13.77	-
	Average Mitigated	4.06	1.11	15.21	17.78	6.15	23.14	38.55	-	27.40	-
	Median Mitigated	4.06	0.00	15.21	14.81	6.25	23.14	38.55	-	27.40	-
Max Mitigated	4.06	2.22	15.21	39.36	9.20	44.50	77.10	-	27.40	-	
2016	District										
	Total PAS soils impacted (Acres)	0.68	0.00	4.51	60.72	5.54	1.46	14.00	0.00	36.66	123.57
	de minimis	0	0	0	0	1	1	1	0	1	4.00
	Total Mitigation (Acres)	1.70	0.00	11.08	123.05	11.23	2.13	27.20	0.00	80.41	256.80
	On-site acres	1.70	0.00	11.08	35.35	11.23	0.00	27.20	0.00	17.76	104.32
	Offsite Acres	0.00	0.00	0.00	87.70	0.00	2.13	0.00	0.00	56.37	146.20
	count	1	0	2	7	3	2	4	0	2	21.00
	Average Impacted	0.68	-	2.26	8.67	1.85	0.73	3.50	-	18.33	-
	Median Impacted	0.68	-	2.26	4.80	1.80	0.73	3.16	-	18.33	-
	Max Impacted	0.68	-	2.80	34.24	3.58	0.85	7.60	-	36.30	-
	Average Mitigated	1.70	-	5.54	17.58	3.74	1.07	6.80	-	40.21	-
	Median Mitigated	1.70	-	5.54	9.80	3.88	1.07	5.80	-	40.21	-
Max Mitigated	1.70	-	6.80	68.50	7.35	2.13	15.60	-	80.41	-	

Table S1

2017	District	1	2	3	4	5	6	7	8	9	Total
	Total PAS soils impacted (Acres)	9.57	7.48	7.12	76.47	10.46	0.00	3.06	2.23	16.43	132.82
	de minimis	1	4	1	1	8	0	1	1	1	18.00
	Total Mitigation (Acres)	24.28	10.71	14.51	143.26	17.50	0.00	4.52	4.25	31.20	250.23
	On-site acres	4.38	4.00	10.03	21.00	17.50	0.00	0.00	0.00	0.00	56.91
	Offsite Acres	19.63	6.71	4.48	122.26	0.00	0.00	4.52	4.25	31.20	193.05
	Count	3	7	5	10	9	0	2	2	2	40.00
	Average Impacted	3.19	1.07	1.42	7.65	1.16	-	1.53	1.12	8.22	-
	Median Impacted	2.17	0.96	1.91	6.40	0.25	-	1.53	1.12	8.22	-
	Max Impacted	6.70	2.00	2.20	24.38	8.40	-	2.26	1.80	15.62	-
	Average Mitigated	8.09	1.53	2.90	14.33	1.94	-	2.26	2.13	15.60	-
	Median Mitigated	4.38	0.00	2.28	8.40	0.00	-	2.26	2.13	15.60	-
Max Mitigated	19.90	4.00	6.00	47.05	17.50	-	4.52	4.25	31.20	-	
2018	District	1	2	3	4	5	6	7	8	9	Total
	Total PAS soils impacted (Acres)	0.00	11.47	27.60	115.10	1.30	2.53	35.90	0.63	6.35	200.88
	de minimis	0	2	3	6	0	1	0	2	0	14.00
	Total Mitigation (Acres)	0.00	19.56	26.74	179.03	2.90	2.07	71.80	0.00	12.70	314.80
	On-site acres	0.00	4.20	0.00	35.09	2.90	0.00	20.40	0.00	12.70	75.29
	Offsite Acres	0.00	15.36	26.74	143.90	0.00	2.07	51.40	0.00	0.00	239.47
	Count	0	3	6	21	1	2	3	2	2	40.00
	Average Impacted	-	3.82	4.60	5.48	1.30	1.27	11.97	0.32	3.18	-
	Median Impacted	-	1.13	3.90	2.90	1.30	1.27	9.00	0.32	3.18	-
	Max Impacted	-	9.78	10.90	27.60	1.30	2.07	25.70	0.43	5.05	-
	Average Mitigated	-	6.52	4.46	8.53	2.90	1.04	23.93	-	6.35	-
	Median Mitigated	-	0.00	3.67	5.60	2.90	1.04	18.00	-	6.35	-
Max Mitigated	-	19.56	10.90	28.96	2.90	2.07	51.40	-	10.10	-	

Table S2



2021	District	1	2	3	4	5	6	7	8	9	Total
	Total PAS soils impacted (Acres)	12.65	0.00	0.00	49.78	11.93	19.81	3.87	3.86	0.00	101.90
	de minimis	1	0	0	5	1	0	1	1	0	9.00
	Total Mitigation (Acres)	20.05	0.00	0.00	77.19	35.76	35.43	8.30	5.26	0.00	181.99
	On-site acres	20.20	0.00	0.00	4.14	17.60	10.24	8.30	0.00	0.00	60.48
	Offsite Acres	0.00	0.00	0.00	73.05	18.16	25.19	0.00	5.26	0.00	121.66
	count	3	0	0	10	4	6	3	3	0	29.00
	Average Impacted	4.22	-	-	4.98	2.98	3.30	1.29	1.29	-	-
	Median Impacted	3.15	-	-	1.18	3.14	2.37	0.82	1.46	-	-
	Max Impacted	6.50	-	-	35.06	4.99	8.10	2.30	1.70	-	-
	Average Mitigated	6.68	-	-	7.72	8.94	5.91	2.77	1.75	-	-
	Median Mitigated	6.00	-	-	1.30	9.08	4.66	2.00	1.46	-	-
Max Mitigated	14.05	-	-	50.60	17.60	16.20	6.30	3.80	-	-	
2022	District	1	2	3	4	5	6	7	8	9	Total
	Total PAS soils impacted (Acres)	0.00	0.00	0.56	20.00	5.29	4.51	0.30	0.07	16.66	47.39
	de minimis	0	0	1	5	5	1	2	1	1	16.00
	Total Mitigation (Acres)	0.00	0.00	0.00	33.53	5.31	9.82	0.00	0.00	40.40	89.06
	On-site acres	0.00	0.00	0.00	7.17	5.31	0.00	0.00	0.00	13.30	25.78
	Offsite Acres	0.00	0.00	0.00	26.36	0.00	9.82	0.00	0.00	27.10	63.28
	Count	0	0	1	11	6	2	2	1	3	26.00
	Average Impacted	-	-	0.56	1.82	0.88	2.26	0.15	0.07	5.55	-
	Median Impacted	-	-	0.56	1.31	0.60	2.26	0.15	0.07	1.10	-
	Max Impacted	-	-	0.56	5.10	2.48	4.01	0.20	0.07	15.20	-
	Average Mitigated	-	-	-	3.05	0.89	4.91	-	-	13.47	-
	Median Mitigated	-	-	-	3.02	0.00	4.91	-	-	2.60	-
Max Mitigated	-	-	-	11.10	5.31	9.82	-	-	37.80	-	

Table S3

2019	District	1	2	3	4	5	6	7	8	9	Total
	Total PAS soils impacted (Acres)	0.50	0.00	0.72	71.96	2.10	4.45	0.00	6.61	20.53	106.87
	de minimis	0	0	3	1	4	0	0	2	1	11.00
	Total Mitigation (Acres)	1.00	0.00	0.00	149.11	0.00	9.83	0.00	0.00	42.66	202.60
	On-site acres	1.00	0.00	0.00	9.12	0.00	3.80	0.00	0.00	0.00	13.92
	Offsite Acres	0.00	0.00	0.00	139.81	0.00	6.03	0.00	0.00	42.66	188.50
	count	1	0	3	12	4	2	0	2	3	27.00
	Average Impacted	0.50	-	0.24	6.00	0.53	2.23	-	3.31	6.84	-
	Median Impacted	0.50	-	0.01	2.97	0.55	2.23	-	3.31	1.07	-
	Max Impacted	0.50	-	0.70	23.20	0.90	2.59	-	6.51	18.96	-
	Average Mitigated	1.00	-	-	12.43	-	4.92	-	-	14.22	-
	Median Mitigated	1.00	-	-	6.14	-	4.92	-	-	2.14	-
Max Mitigated	1.00	-	-	46.40	-	6.03	-	-	40.52	-	
2020	District	1	2	3	4	5	6	7	8	9	Total
	Total PAS soils impacted (Acres)	3.57	1.67	9.76	95.64	14.14	2.82	142.30	2.89	3.23	276.02
	de minimis	2	1	3	2	2	1	1	1	1	14.00
	Total Mitigation (Acres)	0.00	0.00	21.41	196.04	29.16	6.30	142.20	6.80	6.20	408.11
	On-site acres	0.00	3.14	5.87	39.00	18.78	6.64	0.00	6.80	0.00	80.23
	Offsite Acres	0.00	0.00	15.54	153.04	10.60	0.00	142.20	0.00	6.20	327.58
	count	2	2	5	8	5	2	2	2	2	30.00
	Average Impacted	1.79	0.84	1.95	11.96	2.83	1.41	71.15	1.45	1.62	-
	Median Impacted	1.79	0.84	0.50	5.13	2.65	1.41	71.15	1.45	1.62	-
	Max Impacted	3.15	1.57	7.24	42.00	6.15	2.52	142.20	2.72	3.10	-
	Average Mitigated	-	-	4.28	24.51	5.83	3.15	71.10	3.40	3.10	-
	Median Mitigated	-	-	0.00	11.00	5.30	3.15	71.10	3.40	3.10	-
Max Mitigated	-	-	16.76	84.00	13.26	6.30	142.20	6.80	6.20	-	

Table S4